TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

ENVIRONMENTAL ACTION PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	IMS Review by	Approved by
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HOLDS

No.	Section	Description	Input From	Planned Date

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TABLES

1 GENERAL

1.1 Purpose and Scope

Environmental Action Plan of TANAP outlines how TANAP intends to ensure that the environmental aspects of Project works and operation and decommissioning phases of TANAP System are managed in line with Project requirements.

1.2 Custodian of the Document

The custodian of this document is the Environmental Manager.

The Custodian shall be responsible to organize the regular[1] review of this document in addition to ensure updating of identified improvements.

The Custodian is to be contacted for any reasons of changes.

1.3 Abbreviations, Acronyms

Abbreviations/acronyms appearing within the text of this document are given below with their meanings:

Abbreviations / Acronyms / Terms	Meaning
AoI	Area of Influence
BAP	Bio-Diversity Action Plan
BOD	Board of Directors
CC	Construction Contractor
CHMP	Cultural Heritage Management Plan
CIMP	Construction Impacts Management Plan
CRF	Complaint Register Form
DCC	Document Control Center of TANAP

[1] This document shall be reviewed in the first year after first approval every six months, after the first year, unless the application of the plan has been found requiring further major improvements, the review will be performed once a year

Abbreviations / Acronyms / Terms	Meaning
EHS	Environment, Health, Safety
EMS	Environmental Management System
EPC	Engineering Procurement Construction Contractor
EPCM	Engineering Procurement Construction Management
ERT	Environmental Response Team
ESIA	Environmental & Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
FEED	Front End Engineering and Design
GIIP	Good International Industry Practice
HSSE	Health, Safety , Social, Environmental
IFC	International Finance Corporation
IMS	Integrated Management System
KPI	Key Point Indicators
MoEU	Ministry of Environment and Urbanization
NGO	Non-Governmental Organization
PS	Performance Standards
SEP	Stakeholder Engagement Plan
TANAP	TANAP Trans Anatolian Natural Gas Transmission Company / TANAP Doğal Gaz İletim AŞ
TPMC	Third Party Monitoring Company

Table 1 Acronyms and Abbreviations

1.4 Definitions

Definitions appearing within the text of this document are described below:

Definitions	Meaning

Definitions	Meaning
ESIA Report	The Turkish ESIA Documentation which was approved as of 24.07.2014 by Ministry of Environment and Urbanization and the English version of the ESIA Report which was approved by TANAP after public disclosure process.
Archaeological Consultants	Archaeology experts which provides professional guidance to TANAP on management of archaeological and cultural heritage findings and the related permits
Area of Influence	the areas likely to be affected by the physical facilities constituting the Pipeline system that is directly owned operated or managed by TANAP and its contractors.
Board of Directors	The Board of Directors of TANAP
Commitments Register	The register which outlines the requirements committed in ESIA (Appendix 4.7) and its monitoring planning throughout the project life in addition which is currently also Annex 1 of TANAP Environmental Monitoring Plan.
Contractor(s)	The Contractors who provide services, materials and goods to TANAP for the Project Contractually which include but not limited to EPCM, EPC and CCs.
Contracts	The Contracts established by and between TANAP and Contractors to provide service and/or material to TANAP
Environmental and Social Management System Documentation (ESMS Documentation)	ESMS documentation of TANAP consists of ESIA Report, Biodiversity Action Plan (BAP) Report, Environmental and Social Management Plan (ESMP), Environmental Action Plan (EAP), Environmental Monitoring Plan (EMP), Social Action Plan (SAP), Social Monitoring Plan (SMP), related procedures, and relevant forms.
Environmental and social sub-management plans	Documents explaining how environmental issues of specific concern will be managed by TANAP and its Contractors, and set out in broad terms how TANAP intends to manage these specific issues. These sub-management plans were prepared within the ESIA Report considering the impact assessment results, commitments, as well as the confronting mitigations. Contractors prepare their own management plans, and will continue to do so, in line with the requirements set in TANAP sub-management plans to perform their Contractual obligations.
EPCM Contractor	The EPCM Contractor namely Worley Parsons Turkey Limited
Facilities	Mean all physical assets, equipment and installations of any type from time to time owned, in the possession of, or operated or legally controlled by or on behalf of the TANAP Project entity in the territory for the purposes of the Project activities;
General Manager	The General Manager of TANAP
Host Governmental Agreement (HGA)	"The Host Government Agreement Between the Government of the Republic of Turkey and the Government of the Republic of Azerbaijan Concerning The Trans-Anatolian Natural Gas Pipeline System", and its attachment, "The Host Government Agreement (HGA) between the Government of the Republic of Turkey and The Trans Anatolian Gas Pipeline Company B.V Concerning Trans-Anatolian Natural Gas Pipeline

Definitions	Meaning
	System", were signed on 26 June 2012 in Istanbul.
HSSE Group Manager	Health, Safety, Environmental and Social Group Manager of TANAP
TANAP Policies	The TANAP Policies, either approved by Board of Directors or the General Manager including, but not limited to: • TANAP Integrated Management System Policy (TNP-POL-PRM-GEN-001), • Social Policy (TNP-POL-SOC-GEN-001), • TANAP Security Policy (TNP-POL-SEC-GEN-001) • Stakeholder Management Policy (TNP-POL-SOC-GEN-003) • Information Security Policy (TNP-POL-ITM-GEN-003); • Corporate Communication Policy (TNP-POL-CCO-GEN-001); • Human Resources Policy (TNP-POL-HRM-GEN-006); • TANAP Approach to Health, Safety, Social and Environmental Aspects (BOD); • TANAP Procurement Policy (BOD); • TANAP Conflict of Interest Policy (BOD); • TANAP Anti-Bribery and Corruption Policy and Code of Conduct (BOD)
Intergovernmental Agreement (IGA)	"The Intergovernmental Agreement Between the Government of the Republic of Turkey and the Government of the Republic of Azerbaijan Concerning The Sales of Natural Gas To The Republic of Turkey and the Transit Passage of Natural Gas Originating From The Republic of Azerbaijan Across The Territory of The Republic of Turkey and The Development of A Standalone Pipeline For The Transportation of Natural Gas Across The Territory of the Republic of Turkey", was signed in İzmir on 25 October 2011.
Memorandum of Understanding	"Memorandum of Understanding between the Government of the Republic of Turkey and the Government of the Republic of Azerbaijan Concerning the Development of a Standalone Pipeline for the Transportation of The Natural Gas Originating and Transiting from the Republic of Azerbaijan across the Territory of the Republic of Turkey", was signed on 24 December 2011 in Ankara.
Performance Standards of International Finance Corporation	IFC 2012 Performance Standards (PSs) are the environmental and social standards issued by World Bank International Financial Institution. There are eight PSs and which the projects should meet throughout the life of an investment by IFC or other relevant financial institutions
Project	Design, Engineering, Procurement, Construction, Commissioning actions & activities to realize the TANAP gas transmission Facilities
Site	The areas where TANAP Project's survey, material storage, construction and commissioning activities take place.
Site Activities	TANAP Project's survey, material storage, construction and commissioning processes

Definitions	Meaning
Shareholders	Shareholder" means each holder of a Share from time to time, and "Shareholders" means all such persons collectively.
Stakeholders	Stakeholders are a group of people or groups who are directly or indirectly affected by a project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively (including authorities, NGOs etc.).
State Authorities	All central and local authorities or bodies and any and all instrumentalities, branches and subdivisions of any of the foregoing, and any entity that is directly or indirectly controlled by the State or one or more of its State Authorities;
TANAP System	Mean the natural gas pipeline system including attendant TANAP Facilities through the territory from an entry point on the Turkey /- Georgia border to exit points in the territory and exit points on the Turkey – Greece border and any other exit point as agreed by the State and the Republic of Azerbaijan via mainly 56 inch pipeline and having initial capacity sufficient to at least include from stage 2 of the Shah Deniz field, and including any expansion to accommodate additional gas volumes originating or transiting from the Republic of Azerbaijan;
TANAP Facilities	Mean all physical assets, equipment and installations of any type from time to time owned, in the possession of, or operated or legally controlled by or on behalf of the TANAP Project entity in the territory for the purposes of the Project activities;
Third Party Monitoring Company	The Consultant Company contracted by TANAP to monitor the compliance of Site Activities with the environmental and social management requirements and commitments of the Project

Table 2 Definitions

1.5 References

In this document, references have been made to the following documents:

Reference No.	Reference Title
TNP-POL-PRM-GEN-001	Tanap Integrated Management System Policy[2]
TNP-POL-SOC-GEN-003	Stakeholder Engagement Policy
TNP-PLN-ENV-GEN-001	Environmental and Social Management Plan
TNP-PCD-ENV-GEN-001	Environmental and Social Impact Assessment Procedure
TNP-PLN-SOC-GEN-001	Stakeholder Engagement Plan
TNP-PCD-SOC-GEN-001	Grievance Management Procedure

Reference No.	Reference Title
TNP-REP-ENV-GEN-001	ESIA Report (Turkish)
TNP-REP-ENV-GEN-002	ESIA Report (English)
TNP-PCD-IMS-GEN-001	TANAP IMS Procedure For Writing And Controlling IMS Documents
TNP-PCD-PAL-GEN-003	Compliance with Legislative Requirements Procedure
TNP-PLN-ENV-GEN-003	Environmental Monitoring Plan
TNP-PLN-ENV-GEN-005	Environmental Objectives, Targets and Management Programs
TNP-PCD-PAL-GEN-001	Permitting Procedure
TNP-PCD-ENV-GEN-002	Environmental Management of Change Procedure
TNP-PCD-HSE-GEN-002	Health, Safety, Social and Environmental Requirements For Suppliers and Vendors
ILF-SPC-ENV-GEN-001	Environmental and Social Requirements For Contractors
TNP-PLN-HSE-GEN-001	TANAP Emergency Response Plan
CIN-REP-ENV-GEN-017	Biodiversity Action Plan (BAP)
TNP-PLN-ENV-GEN-004	Environmental Training Plan
Law no 6349 dated 29.06.2012 which was published in the Official Gazette on 12.07.2012	Intergovernmental Agreement (IGA) Dated October 25, 2011
Law no 6342 dated 29.06.2012, which was published in the Official Gazette on 12.07.2012	Memorandum of Understanding Dated December 24, 2011.
Law no 6375 dated 02.01.2013, which was published in the Official Gazette on 17.01.2013	Host Governmental Agreement (HGA) Dated June 26, 2012.
IFC 2012	Performance Standards of International Finance Corporation (IFC 2012)

Table 3 Referenced documents

2 ENVIRONMENTAL ACTION PLAN

2.1 Roles and Responsibilities

Entity	General Role & Responsibility

Entity	General Role & Responsibility
General Manager	• Ensure this Plan is implemented • Provides necessary resources to implement this Plan
Chief Technical Officer	• Ensure that this Plan is implemented • Provide necessary resources for proper implementation of this Plan
Project Director	• Ultimately responsible for ensuring that environmental requirements outlined in this plan are properly implemented according to project's policies, applicable local and international standards, and ESIA commitments
HSSE Group Manager	• Ensure that environmental and social management framework outlined in this Plan are properly implemented and continuously improved according to Project's policies, applicable local and international standards, and ESIA commitments • Ensure and regularly re-assesses compliance with IMS TANAP policies, applicable laws and regulations during the implementation of this Plan • Ensures that this Plan is implemented and understood by all relating Employees • Determine necessary resources for proper implementation of this Plan and submit to approval of Project Director
Environmental Manager of TANAP	• Implement this Plan • Coordinate & communicate with all TANAP departments for proper implementation of this Plan • Fully responsible for meeting applicable environmental Project requirements, goals and objectives and operating in accordance with the project ESMS • Fully responsible for organizing, managing and monitoring the environmental activities in the scope of the Project • Determine necessary resources for proper implementation of this Plan and submit to approval of HSSE Group Manager • Support HSSE Group Manager to implement this Plan
	•
Delivery Managers	• Ensure that the ESIA commitments and requirements of TANAP Environmental Management System at Site are understood, implemented and monitored.
Contractors	• Responsible for implementation of TANAP's Environmental Requirements for the Contractors and all relevant ESIA commitments.
EPCM Contractor	• Manage and monitor the implementation of TANAP's Environmental Requirements for the Contractors and all other commitments in ESIA.

Entity	General Role & Responsibility
HSSE Group Manager	• Ensure and regularly re-assesses compliance with IMS policySocial policy and HSSE policies, applicable laws and regulations during the implementation of this plan; • Ensures that this plan is implemented and understood by all related personnel;
Environmental Manager of TANAP	• Implement this Plan • Coordinate & communicate with all TANAP departments for proper implementation of this Plan • Fully responsible for meeting applicable environmental project requirements, goals and objectives and operating in accordance with the project EMS • Fully responsible for organizing, managing and monitoring the environmental activities carried out • Determine necessary resources for proper implementation of this Plan and submit to approval of HSSE Group Manager • Support HSSE Group Manager to implement this Plan
Site crew of environmental team	• Report the performance of EPCM at site to Delivery Manager and TANAP environmental manager. • Responsible for conducting the activities and achieving the targets and goals assigned within TANAP's environmental management system.
TANAP Managers	• Responsible for ensuring that there is a consistent approach and standard applied to environmental management across the project and providing overall assurance to the Project HSSE Group Manager on environmental matters
All TANAP personnel	• Responsible for meeting the project's environmental requirements interacting with their activities • Consider environmental improvement at all stages of their activities

Table 4 Roles and Responsibilities

2.2 The Basis of the Environmental Action Plan

2.2.1 Environmental and Social Impact Assessment Report

The requirements and commitments outlined in following documents are considered as the basis for planning and establishing TANAP's "Environmental Action Plan" related to all Project works and for operation & decommissioning phases of the TANAP System:

- The ESIA Documentation in Turkish which was approved as of 24.07.2014 by "Turkish Ministry of Environment and Urbanization" (TNP-REP-ENV-GEN-001).

- The "English" version of the ESIA Report which was approved as of 21.05.2015 by TANAP after public disclosure process (TNP-REP-ENV-GEN-002).

2.2.2 International Agreements

"Intergovernmental Agreement (IGA) (October 25, 2011)", the "Memorandum of Understanding (December 24, 2011)", and the "Host Government Agreement (HGA) (June 26, 2012)" are the main agreements signed in the scope of the Project, and the environmental provisions stipulated in these agreements are taken into account for development of EMS of the project.

The "Host Government Agreement", particularly, requires Project environmental and social standards complying with relevant Turkish legislation and also taking due account of international standards and practices generally prevailing in the natural gas pipeline industry, including relevant performance standards of the "International Finance Corporation". Therefore, TANAP ensures that establishment and implementation of EMS of the Project is based on these standards as a minimum.

2.2.3 National and International Standards

The national and international environmental standards to which Project adheres were identified during ESIA studies of the Project and summarized in Chapter 4 of ESIA Report. TANAP considers, and will sustain to consider, these standards in planning and implementation of Project activities as follows.

2.2.3.1 National Standards

The Turkish legal framework for environmental protection, which was developed in line with national and international initiatives and standards, and harmonized mainly with the "European Union" directives are one of the main component of the Project's EMS. The main legal basis for TANAP in the Turkish environmental legislation is the "Environment Law no. 2872", which was published in the "Turkish Official Gazette no. 18132 dated 11.08.1983 and amended by Law no. 5491 dated 26.04.2006".

The list of the national and international legislation related to the Project which has been taken into account in environmental management is listed in Annex1. The specific standards for wastewater discharges, emissions, noise and relevant to project activities are listed in "Environmental Monitoring Plan (TNP-PLN-ENV-GEN-003)".

TANAP follows up, and will sustain to follow up, the compliance with legislation and management of any legislative change in accordance with the "Compliance with Legislative Requirements Procedure" (TNP-PCD-PAL-GEN-003). The environmental

permits are managed in accordance with "Permitting Procedure" (TNP-PCD-PAL-GEN-001).

2.2.3.2 International Standards

"IFC 2012 Performance Standards (IFC 2012)[3]" have been considered as the main reference, as they represent the most recent environmental and social standards issued by IFC. The EHS guidelines of IFC, which are technical reference documents with general and industry-specific examples of good industry practice (GIIP), as defined in IFC's "performance standard 3 on pollution prevention and abatement", are also applied.

2.2.4 Commitments Register

As an outcome of ESIA studies, a "Commitments Register" has been developed to list all the Project commitments, mitigations and monitoring requirements, relating to known environmental and social impacts. This "Commitments Register" also serves as the linking mechanism between the ESIA documentation and the ESMS of the Project. TANAP ensures and monitors, and will sustain to do so, that these commitments are considered by EPCM, EPC and all CCs in their ESMS and fulfill the requirements throughout the Project.

The "Commitments Register" is given in Annex 1 of "Environmental Monitoring Plan" (TNP-PLN-ENV-GEN-003).

2.3 Phases of the Project

The key phases of environmental management of the Project and TANAP System are summarized as follows.

Phases of the Project	Development and Implementation of ESMS
Appraisal Phase, and Define and Select Phases	• Develop Environmental Policies and Standards of the Project • Initiate Environmental and Social Impact Assessment (ESIA) process • Scoping of Project environmental and social impacts (in parallel with Project definition)
Define and Select Phase (FEED)	• Environmental and Social baseline studies for ESIA; • Assessment of aspects and determination of mitigation measures • Development of draft Final ESIA report • Development of Environmental and Social Sub-Management Plans

[3] IFC, 2012, IFC Sustainability Framework - Effective January, 1, 2012, 1st January 2012. ed. International Finance Corporation, Washington DC, USA.

Engineering and Procurement Phase (DE)	• Disclosure of draft final ESIA report and the Environmental and Social Sub-Management plans • Finalization of ESIA report and its supporting Environmental and Social Sub-Management Plans • Obtaining approvals from MOEU and other applicable stakeholders • Preparation of ESMS • Preparation of Contractor's plans and procedures
Construction, Commissioning & Operation Phases	• Implementation and monitoring of the commitments of ESIA, Environmental and Social Sub-Management Plans and BAP. • Planning and implementation of Social and environmental investment to assure that positive impacts result in the project affected communities;
	•
Decommissioning Phase	• Implementation and monitoring of the decommissioning related commitments of ESIA

Table 5 Step by step definition of each Project Phase

2.4 EMS Organization of TANAP for Project Execution

TANAP coordinates and manages, and will continue to do so, the EMS activities within a HSSE management organization as given in Appendix 1 in order to effectively implement, manage, and monitor the project's commitments. The overall responsibilities of main parties in the HSSE organisation regarding environmental management during construction are summarised in Table 6. Specific responsibilities are detailed in the specific management plans and procedures.

There is a company already contracted to monitor the Site Activities pursuant to ESIA commitments. This company reports, and will continue to do so, the implementation performance of ESIA to TANAP and to the relevant State Authorities accordingly. The Archaeological Consultantsupports TANAP, and will continue to do so, in coordinating the salvage excavation and monitoring activities at Site and also obtaining the relevant Archaeological permits on behalf of TANAP. Other environmental consultants may also be considered when expertise opinion or study is required on specific environmental issues.

TANAP Environmental Team	• Responsible for monitoring and assurance of the EMS system performance and requirements of the project. • Ensures that TANAP's IMS policy are periodically reviewed by the management and conveyed to all Project areas. • Monitors performance through review of information provided by EPCM

	(through KPIs, reports, etc.), audits, and meetings. • Reports EMS performance to senior management, shareholders, lenders, authorities and other related parties. • Ensures that environmental and social investment programmes are developed, implemented and monitored. • Ensures that archaeological salvage excavations are planned, implemented and monitored as required by State Authorities • Ensures that third party monitoring of project activities are conducted.
EPCM Environmental Management and Monitoring Team	• Develops Project's contractor control and management plans and procedures. • Ensures that EPCs and CCs develop and implement their site specific plans and procedures. • Monitors implementation of all relevant management plans and procedures, including on site. • Tracks the impacts of the Project against the project objectives and key performance indicators as defined in the management and monitoring plans and works with the EPC Contractors where amendments to the mitigation measures are required. • Identifies breaches of management plans, recommends corrective actions. • Provides regular information to the TANAP environmental team on performance. • Stops work activities in the event of serious breaches of rules that may cause serious impacts on health and safety, environment and community or on the reputation of the Project. • Ensures that environmental management of change are efficiently implemented. • Ensures technical reviews of the projects are implemented. • Ensures that stakeholder engagement is managed and monitored as required by the project plans. • Reports the outcomes of EMS performance with defined KPIs to Client as required.
Environmental Implementation Team of Contractors	• Ensures implementation of Project's overall management plans and procedures by all construction organization. • Develops site specific management plans and procedures as required by the Project under supervision of EPCM • Inspects the performance of the works against Project's performance indicators. • Identifies non-conformances and potential non-conformances, develop corrective and preventive actions. • Provides trainings to workforce and community as required about the EMS requirements of the Project. • Coordinates and implements required pre-construction activities under supervision of EPCM. • Report the performance of Works to site managers and EPCM Environmental supervisors. • Ensures that project activities (e.g. construction, operation etc.) are implemented in compliance with Environmental Plans, Procedures, ESIA Commitments and Project Requirements. • Ensures adequate and sufficient experts (for example Soil/Landscaping Expert, Health Unit, HS Committee and ERT) are mobilized for execution of the work in

	accordance with the project requirements. • Follow up and monitor the processing and resolution of complaints which are received from the affected settlements, stakeholders (NGOs, universities, media, etc.) and local authorities

Table 6 Roles and responsibilities of HSSE Organization in TANAP Project

2.5 ESMS Documentation

TANAP's ESMS documentation establishes and maintains information to describe the core elements of the management system and their interaction. ESMS documentation of Project is, and will be, managed (created, tracked, stored and maintained) in accordance with document control plans and procedures of the Project.

The core ESMS documentation of TANAP consists of ESIA Report, Biodiversity Action Plan (BAP) Report, Environmental and Social Management Plan (ESMP), Environmental Action Plan (EAP), Environmental Monitoring Plan (EMP), Social Action Plan (SAP), Social Monitoring Plan (SMP), related procedures, and relevant forms. The "Environmental and Social Management Plan" (TNP-PLN-ENV-GEN-001) explains general approach of environmental management system of Project and how the principles of ISO 14001:2004 will be applied under the umbrella of Integrated Management System of TANAP including ISO 9001:2008 and OHSAS 18001:2007. The ESMP will be revised and reissued periodically to reflect the current status of environmental and social management system and its documentation.

The ESIA Report forms the basis for the environmental and social management system of Project, and will form same for operation and decommissioning phases of the TANAP System. It reflects the Project's environmental aspects and impacts and the respective mitigations. This Environmental Action Plan outlines how TANAP manages the requirements of ESIA for all Project works and for operation & decommissioning phases of the TANAP System. Additionally, Biodiversity Action Plan (BAP) was prepared and necessary mitigation and monitoring activities in terrestrial and freshwater critical habitats were identified. BAP is also adapted to the ESMS of the Project, and it is incorporated both within the ESMS of EPCM and Contractors.

Environmental and social sub-management plans, in general, are the documents explaining how environmental issues of specific concern will be managed by TANAP and its Contractors, and set out in broad terms how TANAP intends to manage these

specific issues. These sub-management plans were prepared within the ESIA Report considering the impact assessment results, commitments, as well as the confronting mitigations. Contractors prepare their own management plans, and will continue to do so, in line with the requirements set in TANAP sub-management plans to perform their Contractual obligations. The Contractors' management plans are subject to TANAP approval.

EMS Procedures are management control document for handling key environmental issues and contain details in terms of how an activity is undertaken, who does it, when it is done and what records are generated as a result of conducting the procedure. Relevant methodologies will be developed and diversified as the system is improved. Contractors will develop their own methodologies pursuant to Contracts and submit to TANAP for approval. EMS forms explain how the information of a certain task should be managed. EMS procedures indicate when and where the relevant forms are used.

The final status of environmental documents of TANAP are registered and monitored in DCC database as per the "Procedure for Writing and Controlling Integrated Management Systems Documents" (TNP-PCD-IMS-GEN-001). Environmental Team periodically reviews EMS plans, procedures, and forms, and will sustain to do so, to ensure that they remain updated and effective.

2.6 Environmental Control of Engineering Activities

2.6.1 Environmental Engineering Interaction

TANAP environmental team regularly coordinates the environmental issues with the technical team throughout the regular meetings and reports, and will continue to do so, which should be considered in routing and design activities, as described in Section 2.9.

2.6.2 Environmental Management of Change

TANAP controls and manages the deviations from « Environmental and Social Impact Assessment Report (ESIA) and Biodiversity Action Plan (BAP) » by "Environmental Management of Change Procedure (TNP-PCD-ENV-GEN-002)".

Any change that affects the outcomes and commitments of ESIA Report, BAP Report and its associated environmental and social sub-management plans will be evaluated, reported and integrated into the system, accordingly.

TANAP states under relevant Contracts that Contractors will establish a mechanism to ensure that the evaluation of any change connected to both environmental and social issues, will be sent to the approval of TANAP, prior to implementation.

All the changes throughout the Project will be followed-up and reported to MoEU by TPMC.

2.6.3 Additional Surveys and Studies

2.6.3.1 Preconstruction Surveys and Studies Committed in ESIA

TANAP committed in ESIA to perform additional surveys and activities to ensure that the effective application of the mitigation measures is performed and also to complement the ESIA.

The management program for completion and reporting the outcomes of the surveys and studies and integration into the system is given in Appendix 2.

2.6.3.2 Surveys Required for Temporal Areas

TANAP Project activities might need extra lands which will be temporarily used by the Project. TANAP requires, and will continue to require, that Contractors establish a mechanism to ensure that all temporal areas are environmentally and socially assessed before used for Project purposes.

2.6.3.3 Surveys and Assessments Required for Re-routes or Relocation of Project Facilities (New Permanent Areas)

When the Project needs new re-routes or relocation of Project Facilities, these areas will be surveyed or assessed in accordance with the "Environmental Management of Change Procedure (TNP-PCD-ENV-GEN-002)" as defined in Section 2.6.2 and "ESIA Procedure (TNP-PCD-ENV-GEN-001)". These mechanisms shall ensure that deviations, if any, from the ESIA Report are managed and assessed in accordance with national requirements and international standards presented in Annex 1.

2.7 Environmental Control of Procurement Activities

TANAP has developed a document ("Health, Safety, Social and Environmental Requirements for Suppliers and Vendors (TNP-PCD-HSE-GEN-002)) for the Contractors, which outlines the basic requirements for developing and implementing a HSSE Management Program, applicable for supply of materials or provision of services for the Project. as)" Aforesaid document was communicated with the Contractors

through bidding processes, in order them to implement these requirements. This document describes the necessary features of the HSSE Management Systems for Contractors. TANAP states under relevant Contracts that the main Contractors identify and describe the detailed division of responsibilities and methods/ procedures to carry out activities in the Contractors' EMS. These requirements are binding to all parties during performing of the works, supplying materials or providing services for the Project.

2.8 Environmental Control of Construction Activities

2.8.1 Requirements for Contractors

TANAP established requirements for the Contractors and documented in "Environmental and Social Requirements for the Contractors" document (ILF-SPC-ENV-GEN-001). These requirements are communicated through bidding process and binding for the Contractors through contracting process.

According to related TANAP Policies, Contractors shall act in line with TANAP policies and standards. Contractors were also, and will be, evaluated and selected considering their HSSE performance and their ability to conform to related TANAP Policies. Their obligations and responsibilities Contractors are clearly defined in the relevant Contracts. TANAP leads, and will continually perform so, Contractors in achieving these obligations and responsibilities to meet the performance objectives of TANAP (for Environmental objectives please refer to "Environmental Objectives, Targets and Management Programs" document).

The Contractors (including their contractors and sub-contractors) are, and will be, responsible for the implementation of all relevant mitigation measures and requirements outlined in TANAP's ESIA Report, BAP, Environmental and Social Management System Documentation. The Contractors are, and will be required to receive the approval of TANAP for the relevant mitigation measures identified in the ESIA Report, BAP, Environmental and Social Management System Documentation to confirm that those are being properly considered, implemented and monitored during execution of the all works.

The Contractors are, and will, establish their own Environmental and Social Management System (ESMS) in compliance with the requirements of "ISO 14001:2004 Environmental Management System Requirements" and shall ensure that ESIA Report, BAP, Environmental and Social Management System Documentation requirements are addressed and met.

The Contractors' ESMS is required to comprise Environmental and Social sub-management plans and procedures; and to be submitted to TANAP for review and approval. The scope of documents of Contractors shall cover, but not limited to, the followings:

- Include the "Outline of the Applicable ESIA and BAP Requirements and Commitments" and get approval from TANAP;
- Describe how applicable ESIA and BAP requirements, commitments and contractual requirements are met;
- Describe the procedures according to which the project changes (e.g. design changes, additional land areas) are managed in terms of environmental aspects;
- Describe how Contractor ensures the commitments and contractual/legal requirements are complied with in line with project standards (monitoring, auditing and inspection programme as presented in Environmental Monitoring Plan of TANAP);
- Describe the procedures to ensure that the project related concerns and grievances are managed in terms of TANAP "Stakeholder Engagement Plan";
- Provide a set of Environmental Key Performance Indicators (KPIs) to cover at least (but not limited to) the following areas based on the outline of the applicable commitments and Contractual requirements:
    1. Compliance with the ESMS;
    2. Environmental Incidents;
    3. Environmental Emissions;
    4. Waste Management;
    5. Water and Wastewater Management;
    6. Project Related Complaints;
    7. Reinstatement.
- Describe the process how Contractor will retain records and develop reports for their compliance to;
- Describe how appropriately experienced and qualified personnel will be employed in the role of Contractor's environmental representative(s) and on-site inspectors subject to the approval of TANAP;
- Describe the responsibilities of the dedicated environmental team clearly.

- Describe workforce training to ensure that all personnel are aware of their environmental responsibilities with reference to Contractor environmental sub-management plan(s);
- Describe how the performance of all Contractors and subcontractors will be met pursuant to the environmental requirements;
- Describe E&S records including based on the outline of the applicable commitments and contractual requirements. These records include but are not limited to:

    1. Environmental incident register;
    2. Environmental non-compliance register;
    3. Environmental action tracker;
    4. Environmental training records;
    5. Air and water monitoring records;
    6. Waste registers;
    7. Greenhouse gas emissions register tables;
    8. Environmental monthly reports;
    9. Project complaints register and complaint close out forms signed by complainants;

Contractors are required to ensure that:

- Reports on Environmental incidents are provided to TANAP immediately;
- A programme of regular environmental self-inspection and audits is developed and implemented and the results are reported to TANAP on a monthly basis as part of environmental monthly reports;
- An Action Tracking System is implemented to provide a mechanism to record and track environmental related actions derived from incidents, non-compliances, complaints, environmental meetings, sub-contractor activities, etc.

The contractors will ensure that the following competencies are also included in their teams as relevant to their scope of work:

1. Cultural heritage and archaeology experts
2. Ecological/Biological experts
3. Soil/landscaping experts

5. Environmental Inspectors

6. Environmental trainers

In order to provide smooth application of environmental requirements on site, Contractors will be responsible for ensuring that all of its personnel (including Contractor and sub-contractor personnel) are aware of their environmental responsibilities.

2.8.2 Environmental Management System Documentation of Contractors

EPCM has prepared its own ESMP as given in Annex 2 and presented to approval of TANAP. After the approval of this documentation, these were shared with Contractors in order for them to establish their own ESMS and to prepare their environmental sub-management plans.

As guidance for the Contractors, environmental sub-management plans have been developed in the ESIA Report of the Project to form a basis for the improvement and continuity of the ESMS during the life of the Project. These plans will be updated as required with the new strategy, baseline, engineering and design information throughout the execution of the Project.

TANAP will ensure that these plans are revised for the operation and decommissioning phases of the TANAP System.

2.8.2.1 The following environmental sub-management plans have been developed for the Contractors. The Contractors are responsible for preparing their own site specific environmental sub-management plans. Each set of sub-management plans of the Construction Contractors are presented in Annex 3. Social Impact management plans of ESIA and CHMPs are not included herein. Social Impact Management Plans of CCs are referred in Social Action Plan and Cultural Heritage Management Plans of CCs are presented in Annex 6 within the Cultural Heritage Management Plan of TANAP. Construction Impacts Management Plan (CIMP)

This CIMP will aims to describe the mitigation measures to be in place during land preparation and construction in order to manage the environmental and social impacts of the Project (See Annex 4).

2.8.2.2 Employment and Training Plan

Employment and Training Plan (ETP) are developed by the contractors:

- to identify the employment needs;

- to identify the training needs of the personnel; to define the means for providing trainings to the personnel;
- to satisfy the training needs at maximum effective way;
- to maximize the local employment for the unskilled and semi-skilled workforce requirements during all phases of TANAP project.

Overall, Employment and Training Plan is connected to all management plans in terms of specific training needs and implementations. Training Plans of CCs specifically prepared for environment are presented in Annex 3.

2.8.2.3 Aggregates Management Plan

During the construction of the pipeline, various Above Ground Installations (AGIs) AGIs and ancillary sites (compressor stations, camping areas, pipe storage areas etc.) and relevant infrastructure are constructed along the pipeline. This Aggregates Management Plan outlines the measures to mitigate the respective negative impacts of aggregate management (See Annex 4).

2.8.2.4 Traffic Management Plan

The Plan identifies the measures that need to be taken in order to minimize the possible impacts related to traffic, due to the Project activities, during the life of the Project (See Annex 4).

2.8.2.5 Cultural Heritage Management Plan (CHMP)

The CHMP includes mitigation measures to protect all known cultural heritage and also the document for chance findings during construction and land preparation phase (See Annex 4).

2.8.2.6 Erosion, Reinstatement and Landscaping Plan

The Plan sets out TANAP's general requirements for the reinstatement and bio-restoration activities to reestablish of soil and vegetation following construction activities. TANAP will ensure that detailed erosion control and reinstatement specifications are developed and incorporated into related construction plans and drawings (See Annex 4).

2.8.2.7 Pollution Prevention Plan

The Plan outlines the actions to avoid or, when cannot be avoided, minimize the release of pollutants or spills to air, water and land during implementation of the Project (See Annex 4).

2.8.2.8 Waste Management Plan

The Plan includes the identification of waste streams and management actions including minimization, recycling, collection, storage, treatment and disposal of wastes which are generated during Site preparation, construction and operation phases of the Project (See Annex 4).

2.8.2.9 Emergency Response Plan

TANAP "Emergency Response Plan" (TNP-PLN-HSE-GEN-001) defines the actions and procedures which will be applied to prevent the emergencies or to response in a planned manner to minimize the respective potential damages owing to emergencies during construction and operation phases of the Project. The Emergency Response Plan will be revised for the next phases of the Project. The Emergency Response Plan presented with the ESIA forms the interphase between the environmental emergencies and the Project overall Emergency Response Plan (See Annex 4).

2.8.3 Management of Significant Biodiversity Areas

Following ESIA Studies, detailed habitat surveys were conducted to determine the critical biodiversity areas and respective mitigations to prevent from the impacts of Project activities. The results of these studies were outlined in "Biodiversity Action Plan (BAP)" (CIN-REP-ENV-GEN-017).

The Site specific significant biodiversity areas defined in BAP were listed in Annex 5. Seasonal pre-construction and post-construction mitigations were defined in these tables and were communicated with the EPCs and CCs during bidding process. The EPCs and CCs shall include these mitigation measures in their construction management plans.

2.8.4 Management of Archaeologically Sensitive Areas

During ESIA studies, one hundred sixty-one (161) sensitive archaeological sites have been identified along TANAP route and listed in Cultural Heritage Management Plan. (See Section 4 in Annex 4). TANAP has updated and revised Cultural Heritage Management Plan (see Annex 6), regarding the current implementations, to ensure that the following mitigation measures are applied where necessary e.g. according to

the location of the finding or respective opinions of the relevant Turkish state authorities.

Route Change;

- Watching brief;
- Salvage excavation/trial pit excavations.

TANAP is the responsible body to obtain the opinions of the authorities and management of the Salvage Excavations/Test Pits required by the authorities. TANAP ensures that the chance find procedures and archaeological monitoring explained in CHMP are applied by all EPCM, EPCs and CCs.

2.9 Environmental Communication

2.9.1 External Communication (Communication with Stakeholders)

TANAP has developed a strategic and structured approach to stakeholder relations in order to initiate and sustain constructive relationships. The "Stakeholder Engagement Plan (SEP)" (TNP-PLN-SOC-GEN-001) of the Project explains in detail how the Project engages with stakeholders throughout the Project.

TANAP also has developed a grievance mechanism to receive concerns, complaints and grievances of communities, individuals and other stakeholders and facilitate resolutions that are mutually acceptable by the parties, within a reasonable timeframe.

In order to manage the community concerns through active and transparent engagement with stakeholders a toll free number (+90 800 314 11 22) and online stakeholder interaction database (DARZIN) was set up and a Complaint Register Form (CRF) is prepared in order to log the complaints, by TANAP.

Also the Grievance Management Procedure (TNP-PCD-SOC-GEN-001) shall be used to follow up management and reporting of the complaints.

Grievances received in writing or verbally through staff of the project shall be forwarded to the TANAP social impact team to process and manage within the system.

TANAP also coordinates monthly meetings with shareholders and environmental progress is communicated with the shareholders through these meetings and also monthly reports.

2.9.2 Internal Communication

2.9.2.1 Communication among TANAP disciplines

TANAP has established the following communications methods to improve the coordination and communication among the other disciplines and also within the environmental team.

Communication type	Subject of the Communication	Participants
TANAP Weekly Social and Environmental Team Meetings	Environmental and social issues are discussed in these meetings within the respective teams.	TANAP Environmental Manager, Lead Environmental Engineers, Environmental Engineers in Ankara Office. TANAP Social Impact Manager, Social Impact Specialist, SEIP Specialist, Social Impact Assistant Specialist
TANAP Monthly Site Environmental Coordination Meetings	Current status of the environmental issues at site is discussed and site challenges during construction activities are evaluated.	TANAP Environmental Team in Ankara Office and Site Environmental Specialists of each Construction Site under the leader of Environmental Manager
TANAP Ad-hoc Environmental-Engineering Meetings	Environmental Issues arisen during Detailed Engineering phase was discussed and evaluated.	TANAP Environmental Manager, Senior Environmental Expert, Engineering Manager, Pipeline Engineer and/or other specific experts
TANAP Ad-hoc Site Social Coordination Meetings	Social issues at site are discussed and evaluated.	TANAP Ankara Office Social Impact Team and Site Social Impact Specialists of each Construction Site under

		the leader of Social Manager
TANAP Weekly Report	TANAP reports weekly progress to senior management	N/A
TANAP Monthly Report	TANAP reports monthly progress to senior management and shareholders	N/A

Table 7 Communication among TANAP disciplines

2.9.2.2 Communication with Contractors and Consultants

Communication type	Subject of the Communication	Participants
Weekly Environmental and Social Progress Meetings with EPCM Environmental and Social Team	Weekly issues regarding environmental management of EPCM are discussed in these meetings.	TANAP Environmental and Social Managers, EPCM E&S Manager, EPCM Environmental Compliance Lead, EPCM Social Compliance Lead
Monthly EPCM/ CC meetings	TANAP attends to monthly meetings of EPCM-CC to follow-up the progress at site	TANAP Construction, Contracts, Quality, HS, Environmental, Social Managers and/or experts, EPCM Construction, Contracts, Quality, HS, Environmental, Social Managers and/or experts, CC Construction, Contracts, Quality, HS, Environmental, Social Managers and/or experts
Progress Reports of EPCM	TANAP reviews weekly and monthly EPCM reports to follow up progress of EMS Additional monthly environmental summary reports are prepared and sent by EPCM, in order to ensure the regular	N/A

	review of the progress of Construction Contractors.	
Bi Weekly Meeting of Archaeological and Environmental Consultants	TANAP holds these meetings for the communication of Third party Monitoring Company, ÇINAR and Archaeological Consultant, Regio (Regio Raporlama Etüd Geliştirme Org. Dan. Eğitim A.Ş.)	TANAP Environmental and Social Team, EPCM Environmental and Social Team, TPMC's Project Manager and relevant required personnel. TANAP Environmental Manager, Lead Environmental Engineer, Archaeologist, Archaeological Consultant's Project Director and Manager, TANAP Contracts Specialist, when required.
Progress Reports of Archaeological and Environmental Consultants	TANAP reviews daily, weekly, monthly and quarterly reports of Third party Monitoring Company, Çınar and Archaeological Consultant, Regio.	N/A

Table 8 Communication with Contractors and Consultants

2.10 EMS Training Programme

TANAP has developed, and already implementing procedures to ensure that TANAP personnel and Contractors of the Project are aware of the following EMS components:

- TANAP IMS policy;
- Requirements of ESMS;
- Significant environmental aspects and impacts;
- Environmental and social management plans and procedures;
- Benefits of improved personal performance;
- Roles and responsibilities;
- Competency evaluation for personnel performing tasks which can cause a significant impact on the EMS.

The environmental trainings for TANAP personnel are conducted in accordance with the "Environmental Training Plan" (TNP-PLN-ENV-GEN-004) and the Training records are archived

The Contractors will also develop and implement an environmental training programme to ensure that all Site personnel fully understand all the aspects of environmental requirements of the Project particularly in terms of potential impacts of activities, mitigation measures, sensitivities in study area, plans/procedures other Project documents to be implemented, action required in case of unforeseen incidents and roles and responsibilities of Contractor staff and TANAP representatives with respect to environmental issues. The environmental training programme of Contractors will be submitted to TANAP for review and approval. Records of the trainings will be kept by the Contractors and shall be submitted to TANAP when required for auditing purposes.

The Contractor shall ensure that all Contractor personnel participate in all training programme including regular Site-specific training sessions on environmental issues throughout the course of their Contract.

2.11 Environmental Monitoring and Evaluation of Compliance Programme

TANAP ensures that environmental monitoring programme is performed for all works during all phases of the Project to identify compliance with required mitigation measures and also the related national and international standards. TANAP has assigned the construction management and monitoring role to EPCM and also contracted an independent third party monitoring company to ensure that all Site activities are efficiently monitored, non-conformities are detected and corrective actions are developed.

The EPCM and Contractors will have their own methodology to follow-up the environmental performance of themselves and their sub-contractors in line with TANAP's system performance requirements. As identified in the ESIA Report, measurable KPIs are developed respectively for both EPCM and Contractors, which are presented in monthly basis. Whole set of KPIs can be referred in Appendix 3 of Environmental Monitoring Plan.

The key environmental areas (and the respective management plans) to be monitored during construction and operation are listed below:

- Air emissions (Pollution Prevention Plan);
- Ambient air quality (Pollution Prevention Plan);
- Noise and vibrations (Pollution Prevention Plan);

- Effluent water discharge (Pollution Prevention Plan);
- Surface water including river crossings (Pollution Prevention Plan);
- Water abstraction - for water consumption in construction camps and hydrostatic testing (Pollution Prevention Plan);
- Groundwater quality and level in community wells and monitoring wells at compressor stations (Construction Impacts Management Plan);
- Waste production and disposal (Waste Management Plan);
- Soil contamination - oil spills etc. (Pollution Prevention Plan)
- Reinstatement and bio-restoration (Erosion, Reinstatement and Landscaping Plan);
- Reinstatement of AoI focusing on ESAs and Critical Habitats (Erosion, Reinstatement and Landscaping Plan);
- Cultural and archaeological resources (Cultural Heritage Management Plan);

TANAP has a right to request evidence on the performance follow-up and evaluation of EPCM and other Contractors. EPCM and Contractors shall ensure that the system is being inspected, audited based on an inspection programme and findings are shared with respective departments for improvement.

TANAP has a right to evaluate the management system compliance of the EPCM and the Contractors, with the committed management system. Evaluation is done by audits, checklists, questionnaires etc. A certified body may also be considered for the audits on behalf of TANAP. To this end, the EPCM and the Contractors are required to demonstrate how its monitoring programme takes place in keeping with Project ESMS requirements.

Monitoring works to be conducted by TANAP and its Contractors shall be carried out as "internal monitoring activities". However, external monitoring by the competent authority representatives and third parties are also expected during the construction phase to assure compliance with the Project commitments. The EPCM and Contractors are responsible for providing access to all necessary information and assistance to facilitate monitoring by TANAP or any other approved organisation.

Performance monitoring intends to eliminate, mitigate or compensate the negative environmental impacts that might be caused by the Project activities. In this process, the works to be conducted by the Contractors shall be monitored in accordance with the Contractor's ESMS and reported to TANAP. TANAP will monitor performance through KPIs e.g. as defined in the Construction Impacts Management Plan (Section 1

in Annex 4). The efficiency of the solutions used or developed to eliminate, mitigate or compensate for the impacts shall be monitored and it will be the responsibility of both the Contractors and TANAP.

"Environmental Monitoring Plan" (TNP-PLN-ENV-GEN-003) of TANAP defines the implementations and requirements of monitoring works at Construction Sites.

2.12 Environmental Audits and Inspection Programme

Although primary responsibility for the day-to-day performance of the monitoring programme resides with the Contractors, TANAP will maintain an oversight and audit role for all aspects of the monitoring programme. This will include independent monitoring at selected sites to verify the results of Contractor monitoring programmes. In addition, audit and inspection programmes may be undertaken by independent auditors (on behalf of the TANAP), the relevant Turkish authorities, as well as Lenders and/or shareholders. Contractors shall provide access to all work sites and shall provide all necessary assistance to facilitate audit and inspection programmes by TANAP or any other organisation assigned by TANAP.

TANAP reviews all monitoring data in order to assess compliance with the various Project standards. To facilitate this process, Contractors are required to supply all monitoring records and results to TANAP on a monthly basis and to make all monitoring records available for reviewing. Where monitoring results indicate an area of concern or that Project standards are not being met, a corrective course of action is followed on Site by the Contractors.

TANAP may undertake environmental assurance audits of Contractor ESMS and works. Following an audit conducted by TANAP, the Contractors shall record findings and required corrective actions in the Action Tracking Register. Corrective actions shall be undertaken by the Contractors in a timely manner to satisfy TANAP.

Contractors are also required to demonstrate how the requirements of ESIA and ESMS, legal and other Project requirements are being complied with as requested by TANAP, based on the outline of applicable commitments and contractual requirements. This will include a programme of environmental audits by the Contractor and/or third-parties. As per the inspections described above, issues of non-compliance will be recorded in the Contractor environmental non-compliance register. The non-compliance register will be submitted to TANAP on a monthly basis (as part of the monthly report). Contractor shall prepare an action tracking register to record all findings of the audit/inspections, etc. and the corrective actions and recommendations shall be implemented by the Contractor accordingly. The updated

Action Tracking Register shall be submitted to TANAP on a monthly basis (as part of the monthly report).

2.13 Environmental and Social Investment Programme

As per the related agreements (e.g. HGA) and the commitments in ESIA, environmental and social investment programmes will be developed and implemented in the areas affected by construction and operational activities of the Project. These programmes will go beyond the social and environmental impact mitigation measures described in the ESIA Report, and take a step further in order to meet the goal of having a positive influence in the areas in which Project operates.

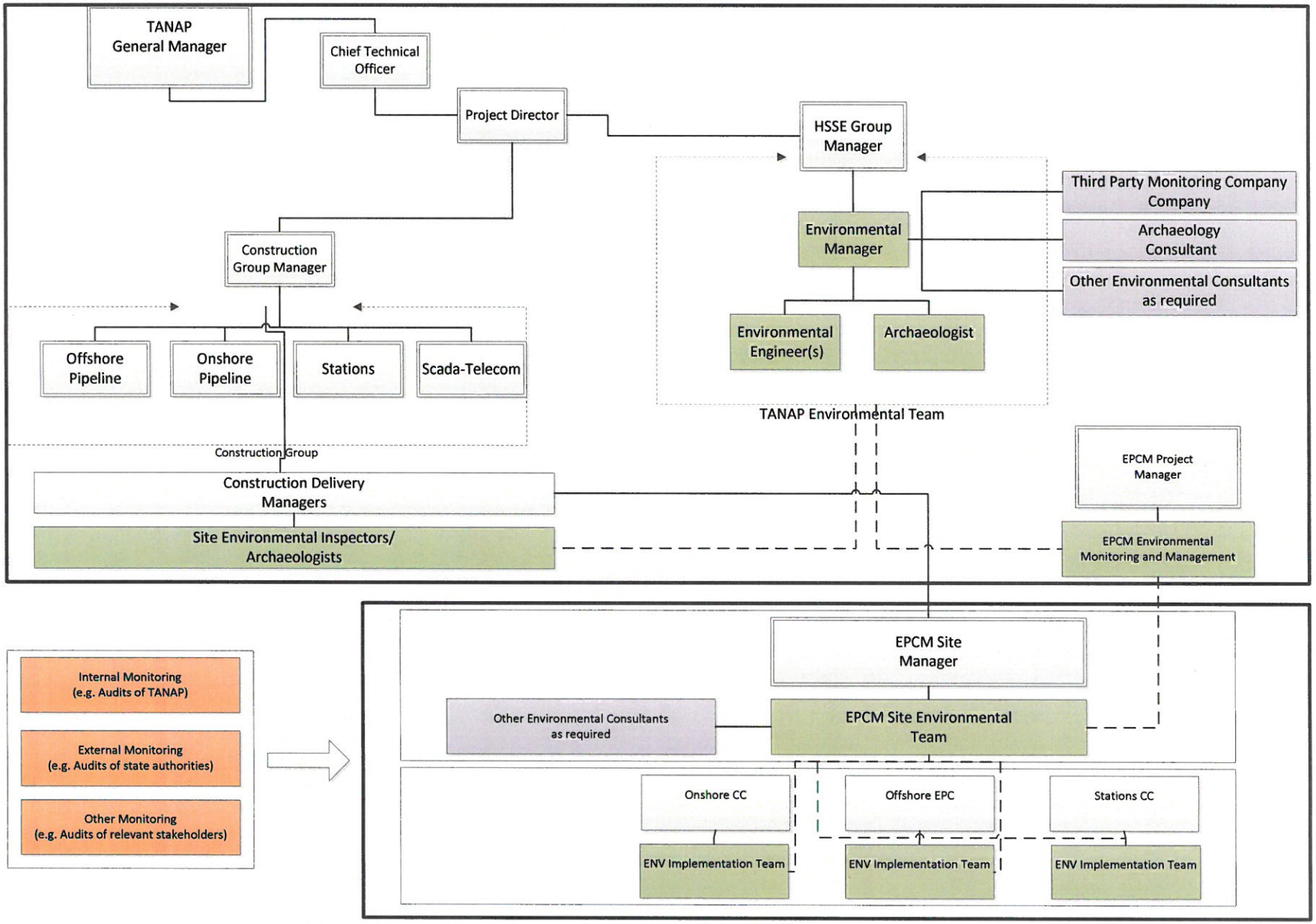
The purpose of the investments is to create sustainable development for local populations, and steadily improve the quality of life during the construction and operations phase of the Project. Key aspects of the social and environmental investment programmes will include but not be limited to:

- Capacity building on local development;
- Increasing economic opportunities for income and employment;
- Improving social infrastructure for economic development;
- Supporting youth and women and other vulnerable groups that may be identified as part of the socio-economic analysis conducted during the ESIA.
- Improving environmental values and enhancing public awareness on environmentally sensitive areas/issues of the region
- Developing sustainable programmes to protect the environmentally sensitive areas, reduce consumption of natural resources, and increase additional benefits to environmentally significant components (e.g. ecosystems)
- Collaborating with conservation researches, education and projects.

Social and environmental investment programmes will support and complement mitigation measures developed in the ESIA process in order to maximize benefits to the Project affected people and environmental resources along the pipeline.

3 APPENDICES

3.1 Appendix 1 EMS Organization of TANAP


TANAP General Manager
Chief Technical Officer
Project Director
HSSE Group Manager
Third Party Monitoring Company Company
Environmental Manager
Archaeology Consultant
Other Environmental Consultants as required
Construction Group Manager
Environmental Engineer(s)
Archaeologist
Offshore Pipeline
Onshore Pipeline
Stations
Scada-Telecom
TANAP Environmental Team
Construction Group
EPCM Project Manager
Construction Delivery Managers
Site Environmental Inspectors/ Archaeologists
EPCM Environmental Monitoring and Management
Internal Monitoring (e.g. Audits of TANAP)
External Monitoring (e.g. Audits of state authorities)
Other Monitoring (e.g. Audits of relevant stakeholders)
EPCM Site Manager
Other Environmental Consultants as required
EPCM Site Environmental Team
Onshore CC
Offshore EPC
Stations CC
ENV Implementation Team
ENV Implementation Team
ENV Implementation Team

3.2 Appendix 2 Environmental Surveys/Studies Committed in ESIA Report[4]

	COMMITTED SURVEYS / STUDIES IN ESIA	RESPONSIBLE	TIMELINE	OUTPUT
1	The Logistics Study that will be prepared by TANAP will be used to estimate in detail the magnitude of the marine, railway and road traffic increase and hence provide the opportunity to extend the mitigation measures defined for the management of the impacts associated with traffic increase resulting from the transportation of the pipes and other construction material.	**TANAP / EPCM develop baseline. But EPC [5] to implement mitigations within management plans** **LOGISTICS TEAM**	Before construction	Logistics Report including mitigations to avoid traffic impact
2	All intersection between the pipeline and existing roads will be identified by Contractors through a road crossing survey and the most appropriate construction technique will be used to reduce environmental and social disruptions to the extent possible.	**EPC to submit traffic management plans in mitigating the construction of intersections** **ENGINEERING TEAM**	Before construction	Road Crossing Work Method Statements including mitigations to reduce disruptions (EPCM)
3	A survey will be conducted to assess the existing conditions of the roads to be used by the construction and their impacts on the local community, and to understand whether the access roads used require upgrading activities and to ensure that they are returned to previous or better conditions after construction.	**EPCM/ /EPC** **E&S TEAM/ ENGINEERING TEAM**	Before Construction Activities/Use of access roads	Access Roads Assessment Reports (EPCM/EPC) Access Roads Register (EPC) EPC Traffic Management Plan including mitigations and requirements to upgrade the existing roads and reinstatement of the temporary roads. (EPC) EPC Community Safety Management Plan (EPC)

[4] Pre-Construction Surveys and Detailed Studies table is presented in Appendix 5.1 of ESIA Report.
[5] During ESIA Preparation Phase EPC terminology was used for Engineering, Procurement and Construction Contractor. Currently as the scope only covers construction, CC is meant where EPC terminology is used. For offshore construction activities EPC terminology is valid.

5	TANAP will prepare a Code of Conduct containing rules that workers are to follow both during working hours and in camp sites; recommendations on behaviour during free-time will also be provided; the Code of Conduct will be provided together with the employment contract and will be further explained to workers during induction training.	**TANAP / EPCM prepare code of conduct. EPC provides documentation on how the code is to be implemented.**	Before Construction	Workers' Code of Conduct
6	During the engineering design all crossings between Project components and existing irrigation networks will be identified, to ensure that appropriate technical solutions are found to reduce disruption to irrigation systems. Additional mitigation measures may include diversions to irrigations channels and boring of additional water wells for irrigation purposes. Irrigated agriculture is performed generally in most affected provinces; therefore, the study will have to be performed along the entire pipeline corridor.	**EPCM / EPC (implement)** **ENGINEERING TEAM**	Before construction	Channel Crossing Work Method Statements including mitigations to reduce disruptions (EPCM)
8	Specific studies on waste management facilities and landfills used during construction activities will be performed to ensure that they are capable of sustaining additional pressure brought by Project without affecting current waste management services.	**EPC** **E&S TEAM AND ENGINEERING TEAM**	Before camp sites and other construction infrastructures are in operation	Waste Management Assessment and Audit Reports (EPCM) EPC Waste Management Plan including site specific waste management mitigations and requirements (EPC)
9	Utility networks (in terms of existing infrastructure) to be used for the project will be assessed to ensure that utility networks used for Project activities are capable of sustaining the additional uses	**EPCM** **E&S TEAM AND ENGINEERING TEAM**	Before camp sites and other construction infrastructures are in operation	Utility Assessment and Audit Reports (EPCM)
10	The hydrotesting plan will be prepared in order to identify the possible sources for the supply for water during hydrotest. The plan will identify the sources of water supply considering the required permits to be taken for use and discharge of the hydrotest water, minimum impact on the neighbouring communities using the same water sources. The plan will also include the details of the chemical and biocide application if required.	**EPC** **E&S TEAM AND ENGINEERING TEAM**	Before construction	Assessment Reports for hydrotesting water abstraction and disposal sites, water sustainability, need for chemicals, (EPCM/EPC) Hydrotesting Plan including the specific environmental and social requirements and mitigations (EPCM/EPC)

11	Further soil studies (the scope and the spatial coverage of this soil study will be defined by TANAP) will be required. The findings of this soil study will be used if required for further development of the Landscape, Reinstatement and Erosion Control Specification and Plan. These studies including field work to collect actual site data to: • verify the findings of the ESIA in relation to high impact areas on agricultural soil and identify additional high impacts areas if present on the AoI, (Ref. Appendix 4.5 of ESIA for the list of these areas) • define the site specific areas with high erosion potential by providing the data required for Universal Soil Loss Equation (USLE) calculation, • have sufficient information on soil characteristics to be able to develop the reinstatement, biorestoration and erosion control specifications and work method statements. • Verify the high levels of metal concentration at locations detailed in Chapter 8.1 of the ESIA Report and in the following Table. **Heavy metal observations** **Province** / **Location** / **Selected parameters to be verified** Ardahan / CST-01-A1 (inside) / Hg, Se, Ba, V Erzurum / 1.2 km southeast of Gökçebük Village, main camp spread 2, KP 342 / Hg, Se, Be, Ba, Co, Ni, V Sivas / 1.3 km northwest of Çukuryurt Village, main camp + pipe yard spread 3, KP 620 / Se, Be, Cr, Co, Ni, V Yozgat / 1.7 km southeast of Doğankent V Ilage, main camp spread 4, KP 876 / As, Hg, Se, Mo, Be, Ba, Cd, Pb, Zn, V Kirikkale / CST-05-A4 / Hg, Se, Co, Cu, V Ankara / 900 m east of Büyükboyalik Village, fly camp spread 5, KP 1079 / Hg, Se, Cr, Co, Ni, V Eskişehir / 4.6 km northeast of İkizce Village and 3.5 km northwest of Dikilitaş Village / Hg, Se, Ba, Co, Ni, V Eskişehir / Sampling no TNP900 / Hg, Se, Ba, Ni Çanakkale / Sampling no TNP283 / Hg, Se, Ba	**EPC for any soil contamination verification and reinstatement and erosion control plans** **E&S TEAM AND ENGINEERING TEAM**	Before Construction	Soil and Erosion Potential Assessment Reports (EPCM) Soil Contamination Verification Report (EPCM) Site Specific Reinstatement and Erosion Control Plans (EPCM/EPC)

12	Further hydrological and hydrogeological studies will provide information on the potential resources for hydrotest water, groundwater quality and areas with groundwater vulnerability (Ref Chapter 7.1.3.4, 7.1.3.5 and 7.1.3.9 of the ESIA report). The hydrogeological study will address the choices to undertake for a sustainable water use to avoid over exploitation with detrimental consequences by the removal of water from long term storage in the aquifer or decrease in natural discharge from the aquifer (e.g. depletion/cut off of the discharge from springs). These studies will be conducted at the locations where high amount of water will be consumed (e.g. hydrotesting abstraction points and camp sites)	**EPC** **E&S TEAM AND ENGINEERING TEAM**	Before Construction	Water Sustainability Assessment Report (EPCM) (The outcomes of this report will be used for water abstraction planning of hydro testing and camp sites)
13	If necessary, detailed ecological characterization of the rivers at river crossing using standard methods like the US-EPA Rapid Bio-assessment Protocol or equivalent is considered necessary as the ecological characterization and classification has been based on partial data that require field confirmation by a senior river ecologist. The scope and spatial coverage of this study will be confirmed with TANAP. The rivers identified to be crossed with trenchless methods will be the first priority to be included in this study.	**EPCM /EPC** **E&S TEAM AND ENGINEERING TEAM**	Before Construction	River Crossing Work Method Statements including specific mitigations and requirements
14	Considering the impacts and the sensitivity of the flora component, if necessary, a flora pre-construction survey of the Project footprint will be performed by expert botanists in suitable habitats within the identified selected species range in order to identify the presence of populations or individuals of terrestrial flora SCCs as identified below through the baseline studies performed for the ESIA: • Group 1: includes 24 species vulnerable (VU) and predominantly of steppe/grassland • Group 2: includes 10 species vulnerable (VU) and not predominantly of steppe/grassland habitats • Group 3: includes 29 species endangered (EN) and predominantly of steppe/grassland habitats • Group 4: includes 5 species endangered	**EPC** **E&S TEAM AND ENGINEERING TEAM**	Before Construction	Construction and Reinstatement Plans including specific mitigations and requirements)

	(EN) and not predominantly of steppe/grassland habitats • Group 5: includes 11 species critically endangered (CR) and predominantly of steppe/grassland habitats • Group 6: includes 4 species critically endangered (CR) and not predominantly of steppe/grassland habitats			
15	If necessary, further desktop and field studies on fauna SCCs will be conducted to confirm the potential Critical Habitat identified in the LSA.	**EPC** **E&S TEAM AND ENGINEERING TEAM**	Before Construction	Construction and Reinstatement Plans including specific mitigations and requirements
16	Biodiversity action plans will need to be developed for the species and other conditions that are triggering confirmed Critical Habitat according to IFC PS6. These studies will define the procedures and methods to achieve no-net-loss of biodiversity and net gain following the mitigation hierarchy of avoid, mitigate and compensate including the identification of biodiversity offsets.	**EPC** **E&S TEAM AND ENGINEERING TEAM**	Before Construction	Biodiversity Action Plans (TANAP) Construction and Reinstatement Plans including specific mitigations and requirements
17	A Reinstatement and Erosion Control Specification will be prepared by the EPCM/EPC contractor. This specification will provide the detailed engineering and reinstatement practices in order to successfully implement the requirements of the Reinstatement and Erosion Control Management Plan. This specification will include the findings of the soil characterization studies as described above..	**EPC** **E&S TEAM AND ENGINEERING TEAM**	Before Construction	Reinstatement and Erosion Control Plans and work method statements including specific mitigations and requirements
18	Considering the high level of Mercury in 6 investigated stations located within the Project corridor, a detailed sediment characterization in the identified critical areas will be performed. If the abovementioned characterization confirms the high presence of Mercury in the area, in order to avoid the risk of correlate this pollution with the future presence of the pipeline, this issue should be notified to local authority	**EPCM/EPC** **E&S TEAM AND OFFSHORE ENGINEERING TEAM**	Before construction	Sediment Quality Report (EPCM)
19	If necessary, a habitat/flora assessment in detail for the presence and distribution of sea	**EPCM** **E&S TEAM AND**	Before construction	Marine Habitat/Flora Assessment Survey (EPCM)

	grass in the LSA will be conducted.	**OFFSHORE ENGINEERING TEAM**		
20	EPCM or EPC Contractor will develop a site-specific landscape plan for each Compressor Stations that will identify specific measures to reduce landscape and visual impact in coordination with TANAP. This plan will address architectural measures such as colour schemes, opportunities for landform screening and landscape planting. Construction Contractors will be required to ensure that site clearance and reinstatement activities and building colour schemes are consistent with the requirements of the site specific landscape plans as advised by TANAP.	**EPC** **E&S TEAM AND STATIONS ENGINEERING TEAM**	Before construction	Landscaping Plan (EPC)

4 ANNEXES

Annex 1. National and International Standards of TANAP Project

Annex 2. ESMP of EPCM

Annex 3. CC Sub-Management Plans

Annex 4. Environmental Management Guidance for Contractors

Annex 5. Sensitive Biodiversity Areas

Annex 6. Cultural Heritage Management Plan

ENVIRONMENTAL ACTION PLAN
ANNEX 1 NATIONAL AND INTERNATIONAL STANDARDS OF TANAP PROJECT

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P3-A	DIC	24.11.2014	Discipline Internal Check
P3-B	IDC	24.12.2014	Interdisciplinary Check
P3-0	IFA	15.01.2015	Issued for Approval
P3-1	IFA	25.11.2015	Re-Issued for Approval
P3-2	Re-IAA	20.07.2016	Re-Issued for Approval

HOLDS

No.	Section	Description	Input From	Planned Date

CONTENTS

1 NATIONAL LEGISLATION

Official Gazette (date-number)	Legislation	Description	Related Article
11.08.1983 – 18132	Environmental Law (No: 2872)	The purpose is to protect the environment shared with all living organisms based on the principles of sustainable environment and sustainable development. Adopting the principle "Polluter pays off", the Law encompasses principles about punishment and closure of the facilities polluting the environment and the liabilities for informing the related authorities about any changes to be made on the production process of the facilities.	•Article 3 (Amended: 26/4/2006 – 5491/3 article), •Article 8, •Article 10 (Amended: 26/4/2006 – 5491/7 article), •Article 11 (Amended: 26/4/2006 – 5491/8 article), •Article 13 (Amended: 26/4/2006 – 5491/10 article), •Article 14 (Amended: 26/4/2006 – 5491/11 article), •Article 15 (Amended: 26/4/2006 – 5491/12 article), •Article 18 (Abrogated: 21/2/2001 - 4629/6 article.; Rearrangement: 26/4/2006-5491/13 article), •Article 20 (Amended: 26/4/2006 – 5491/14 article), •Article 23 (Amended: 26/4/2006 – 5491/15 article), •Article 25 (Amended: 26/4/2006 – 5491/17 article), •Article 26 (Amended: 26/4/2006 – 5491/18 article), •Article 27, •Article 28, •Additional Article 1 (26/4/2006 – 5491/23 additional article), •Additional Article 2 (26/4/2006 – 5491/23 additional article), •Additional Article 4 (26/4/2006 – 5491/23 additional article), •Additional Article 6 (26/4/2006 – 5491/23 additional article), •Additional Article 7 (26/4/2006 – 5491/23 additional article), •Additional Article 9 (26/4/2006 – 5491/23 article).

Official Gazette (date-number)	Legislation	Description	Related Article
19.07.2005 – 25880	Law on Protection of Soil and Land Use (No: 5403)	This law encompasses the procedures and principles about: -the determination and classification of soil and land sources based on the scientific principles, - the preparation of land use plans, - the assessment of social, economic, and environmental aspects during protection and development phase with participatory methods, - the prevention of the misuse and improper uses, - Identification of the responsibilities, tasks and authorities for the development of protection measures.	•Article 12, •Article 13, •Article 14, •Article 16, •Article 17, •Article 21.
28.02.1998 – 23272	Law on Pasture Land (No: 4342)	The law encompasses the following are: - allocation of pastures, summer pastures, winter quarters, and public rangelands on behalf of the name of village or municipal legal entities by identification and limitation of these areas which were previously allocated by various laws, or have been used for a very long time, - ensuring proper use of these areas according to the determined rules, - increasing and maintaining the productivity of these areas by maintenance and rehabilitation, - continuously supervising the use of these areas, - protection of these areas and changing the aim of use when required.	•Article 4, •Article 14.
11.08.1983 – 18132	Natural Parks Law (No: 2873)	The purpose of the law is regulating the principles about the determination, protection, improvement and management of national parks, natural parks, monuments and protection areas that have values at national and international level.	•Article 14, •Article 15, •Article 20, •Article 21.

Official Gazette (date-number)	Legislation	Description	Related Article
23.07.1983 – 18113	Conservation of Cultural and Natural Assets Law (No: 2863)	The purpose of the law is determination of the definitions about the moveable and immoveable cultural and natural entities, regulating the procedures and activities to be performed and defining the responsibilities of the institution which shall decree on the pertinent framework and implementations.	•Article 4 •Article 6 •Article 7 •Article 8 •Article 9 •Additional Article 17/6/1987 - 3386/4 article. •Additional Article 14/7/2004 – 5226/4 article. •Article 16 •Article 20 •Article 23 •Article 25 •Article 34 •Article 61 •Article 65 •Article 67 •Article 74
04.04.1971 – 13799	Aquatic Products Law (No: 1380)	The law encompasses provisions about protection, production and control of aquatic products.	•Article 7 (Amended: 15/5/1986 - 3288/3 article), •Article 9, •Article 19, •Article 20, •Article 21 (Amended first clause: 22/7/2003 – 4950/2 article.), •Article 22, •Article 24, •Article 25, •Article 29, •Article 36 (Amended: 22/7/2003 – 4950/7 article).
06.05.1930 – 1489	Public Health Law (No: 1593)	Improvement of sanitary conditions of the country, and struggling against all diseases that damage human health and ensuring healthy development of future generations and providing public medical are the responsibilities of the state.	•Article 57, •Article 61, •Article 64, •Article 57, •Article 72, •Article 74, •Article 75, •Article 79, •Article 80, •Article 88, •Article 93.
10.06.2003 – 25134	Labour Law (No: 4857)	The purpose of the law is to regulate rights and responsibilities of contracted employees regarding their working conditions and work environment.	•All articles

Official Gazette (date-number)	Legislation	Description	Related Article
30.06.2012 – 28339	Health and Safety Law (No: 6331)	The purpose of this law is to provide occupational health and safety issues in working environment and to regulate the rights and responsibilities of employees and employers in order to enhance the available health and safety conditions.	•All articles
02.05.2007 – 26510	Energy Efficiency Law (No: 5627)	The purpose of the law is to use energy in an efficient way, prevent energy loss, decrease energy costs, and to increase energy efficiency in order to protect the environment. This law encompasses the procedures and principles for increasing and promoting energy efficiency during transmission, distribution and consumption stages, at industrial enterprises, buildings, electric power generation plants, transmission and distribution networks, and the development of public awareness on energy and the utilization of renewable energy sources.	•Article 6, •Article 7, •Article 10, •Provisional Article 5.
17.04.1990 – 20495	Shore Law (No: 3621)	The law aims the protection of natural and cultural features of the coastal areas and covers all areas located in the shores of seas, lakes and rivers or at their vicinity.	•Article 3, •Article 5, •Article 6, •Article 8, •Article 10, •Article 12, •Article 14, •Article 15.
11.03.2005 – 25752 (No: 5312)	Law on Emergency Response and Compensation of Losses in Pollution of Marine Environment by Petroleum and Other Hazardous Substances (No: 5312)	The law covers coastal facilities, which carry out activities that may cause pollution by oil and other hazardous substances and vessels over 500 gross ton capacity carrying oil and other hazardous substances. The law encompasses requirements on the determination of the emergency measures to be applied on vessels and coastal facilities. As stipulated by the law, the persons who cause pollution in the marine environment should primarily take the necessary emergency measures required and notify the relevant authorities.	•Article 5, •Article 6, •Article 11, •Article 13.

Official Gazette (date-number)	Legislation	Description	Related Article
22.12.1981 – 17552	Law on Military Forbidden Zones and Military Security Zones (No: 2565)	Encompasses the principles about installation, removal and extension of : a) land, sea and air military forbidden zones which are on the environment, the coastal and the aerial domains of military facilities and regions and borders having vital importance for national defence, b) military facilities and all kinds of regions and public or private organizations and facilities located around the security zones contribute significantly to national defence or the economy of the country or part of the demolition, even for a temporary period or permanently retained from activity and if this situation causes negative results in terms of national security or public life.	•Article 7, •Article 9, •Article 11, •Article 13, •Article 17, •Article 21, •Article 24, •Article 25, •Article 26, •Article 27 (Amended: 1/11/1983 – 2939/1 article).
08.09.1956 – 9402	Forestry Law (No: 6831)	The law encompasses provisions on the definition, allocation, supervision and protection of forests.	•Article 11 (Amended: 5/11/2003-4999/6 article), •Article 14, Article 15, Article 17 – (Amended first clause: 19/4/2012-6292/13 article.), •Article 42 – (Amended first clause: 5/11/2003-4999/10 article), •Article 68, •Article 76 (Amended: 4/7/1995 – 4114/1 article), •Article 91 (Amended : 23/1/2008-5728/198 article), (Amended fifth clause: 31/3/2011-6217/11 article), Article 93 (Amended : 23/1/2008-5728/200 article), Article 94 (Amended : 23/1/2008-5728/201 article), Article 104 (Amended : 23/1/2008-5728/211 article), Article 108 (Amended : 23/1/2008-5728/215 article), Article 109 (Amended : 23/1/2008-5728/216 article), Article 110 (Amended : 23/1/2008-5728/217 article).
23.12.1960 – 10688	Groundwater Law (No: 167)	The law defines permitting requirements for exploration and extraction of groundwater. Extraction permit is required in case of amounts exceeding personal use and pertinent payment	•Article 4, •Article 8, •Article 9, •Article 10, •Article 11, •Article 12,

Official Gazette (date-number)	Legislation	Description	Related Article
		should be made.	•Article 13, •Article 18 (Amended: 23/1/2008-5728/270 article).
15.12.1984 - 18606	Law on Preventing Intrusion or Possession of Immovable Property (No: 3091)	The objective of this Law is to ensure safety of possessions and public order by preventing offences or interventions on immovable properties possessed by real or judicial persons, owned by nobody but are under the administration of public administrations, institutions and establishments or owned by the State or the usage of which are public, by administrative authorities.	•Article 11, •Article 12, •Article 15, •Article 18, •Article 19, •Article 24, •Article 25, •Article 26, •Article 32, •Article 33, •Article 36, •Article 42, •Article 43, •Article 46, •Article 47, •Article 48, •Article 50, •Article 51, •Article 52.
07.02.1939 - 4126	Law on Improvement and Inoculation of Olive Orchards(No: 3573)	The objective is to provide the necessary technical, economic, commercial and social measures and organizations to ensure the establishment of olive orchards on environmentally convenient areas suitable for olive growing, to increase the amount and quality of product in existing olive orchards, and to update the technological structure in olive oil and table olive facilities.	•Article 20 (Amended 28/2/1995-4086/5 article), (Second amended clause 23/1/2008-5728/99 article).
02.07.2013 – 28695	Regulation on the Use of Personal Protective Equipment in Working Environment	The purpose of this regulation is to specify the related procedures and principles for the properties, provision and use of personal protective equipment, which used where the risks in the working environment not prevented with technical precautions.	•All Articles
30.04.2013 – 28633	Regulation on Protection of Workers from Explosive	The regulation aims to specify the procedures and principles for the precautions needs to be taken in order to protect the workers from explosive	•All Articles

Official Gazette (date-number)	Legislation	Description	Related Article
	Atmospheres	environments.	
22.08.2013 – 28743	Regulation on Protection of Workers from the Risks Related with Vibration	The aim of this regulation is determine the minimum requirements in order to protect the workers from the risks being exposed to mechanical vibration.	•All Articles
05.10.2013 – 28786	Regulation on Occupational Health and Safety in Construction Works	The purpose of this regulation is to determine the minimum health and safety issues need to take in construction works.	•All Articles
04.04.2009 – 27190	Regulation on Control of Exhaust Gas Emission	This regulation aims mitigation of negative environmental impacts induced by exhaust emissions by the reduction and monitoring of exhaust emissions from motor vehicles. Owners of motor vehicles within the scope of regulation are required to have exhaust emission inspection in accredited stations.	•Article 2, •Article 6, •Article 7, •Article 8, •Article 9, •Article 12, •Article 15, •Provisional Article 1, •ANNEX-1.
26.12.2004 – 25682	Regulation on Waste Reception from the Ships and Waste Control	This regulation encompasses procedures and principles regarding waste reception from the ships and the establishment and operation of waste collection facilities in order to prevent the discharge of vessel-generated wastes and cargo residues to marine environment and to protect marine environment.	•Article 5, •Article 10 (Amended: OG-18/3/2010-27525), •Article 18 (Amended: OG-18/3/2010-27525), •Article 19 (Amended with heading: OG-18/3/2010-27525), •Article 26 (Amended: OG-18/3/2010-27525), •Article 28 (Amended with heading: OG-18/3/2010-27525), •ANNEX-4 (Amended: OG-18/3/2010-27525), •ANNEX-5 (Additional: OG-18/3/2010-27525).

Official Gazette (date-number)	Legislation	Description	Related Article
04.06.2010 - 27601	Regulation on Assessment and Management of Environmental Noise	The purpose of this regulation is to define a common approach for the prevention or mitigation of adverse impacts from environmental noise. Provisions of the regulation are applied for the noise sources in the areas where the buildings are concentrated with a combination of vacant lots and quiet areas and those in the vicinity of schools, hospitals and other noise-sensitive buildings. The regulation also sets forth the principles for noise permission.	•Article 8, •Article 9, •Article 12, •Article 13, •Article 16, •Article 17, •Article 18, •Article 21, •Article 23, •Article 26, •Article 28, •Article 33, •Article 34, •Article 35, •Article 36, •Article 37, •Article 38, •Article 39, •Article 41, •ANNEX-I, •ANNEX -II, •ANNEX -VI, •ANNEX -V, •ANNEX -VII.
24.12.1974 – 14752	Statue on Measures for Workplaces Where Flammable, Explosive, Dangerous and Hazardous Materials are Used	The regulation sets forth the minimum health and safety measures that should be taken for the work sites involving the use of explosive, flammable and hazardous substances and their immediate vicinity.	•All articles
19.12.2007 – 26735	Regulation on Fire Protection of Buildings	The regulation sets forth the measures for extinguishing fires that could occur during construction, maintenance or operation of facilities in order to minimize loss of life and property.	•Article 5 (Amended: 10/8/2009-2009/15316 K.), •Article 6, •Article 7, •Article 8, •Article 49, •Article 50, •Article 52, •Article 53, •Article 54, •Article 55, •Article 56, •Article 57, •Article 58, •Article 60,

Official Gazette (date-number)	Legislation	Description	Related Article
			•Article 65, •Article 66, •Article 67, •Article 68, •Article 73, •Article 74, •Article 75, •Article 76, •Article 77, •Article 81, •Article 82, •Article 83, •Article 84, •Article 85, •Article 86, •Article 88, •Article 90, •Article 91, •Article 92, •Article 93, •Article 94, •Article 98, •Article 99, •Article 100, •Article 101, •Article 102, •Article 103, •Article 109, •Article 112, •Article 122, •Article 124, •Article 125, •Article 168.
18.03.2004 – 25406	Regulation on Control of Excavation Soil, Construction and Demolition Wastes	The regulation encompasses the rules that must be obeyed for the prevention, reduction, re-use and disposal of wastes from excavation, construction and demolition activities.	•Article 5, •Article 9, •Article 13, •Article 14, •Article 15, •Article 16, •Article 17, •Article 20, •Article 21, •Article 22, •Article 23, •Article 24, •Article 25), •Article 26, •Article 27, •Article 32, •Article 33, •Article 46.

Official Gazette (date-number)	Legislation	Description	Related Article
08.06.2010 – 27605	Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources	The regulation aims for the determination of principles on prevention of pollution of the soil as a receiving environment, identification of the sites or sectors currently polluted or to be potentially polluted, cleaning up and monitoring of contaminated soils and areas in line with the objectives of sustainable development.	•Article 5, •Article 6, •Article 8 (ANNEX-2, Table 2 and ANNEX-3), •Article 9, •Article 10 (ANNEX-4 and ANNEX -5), •Article 39.
22.07.2005 – 25883	Regulation on Control of Medical Wastes	The regulation sets the principles about the collection, transport, storage and disposal of medical wastes without harming the environment and public health.	•Article 5, •Article 8, •Article 10, •Article 11, •Article 12, •Article 13, •Article 14, •Article 15, •Article 16, •Article 17 (ANNEX-1), •Article 18, •Article 19, •Article 20, •Article 21, •Article 22, •Article 24, •Article 25, •Article 26, •Article 27, •Article 55, •ANNEX-2.
19.04.2005 - 25791	Regulation on Control of Waste Vegetable Oil	The purpose of the regulation is to reduce the environmental impacts during the phase from the production of vegetative oils until their disposal. The regulation sets forth prohibitions, restrictions and criminal sanctions about the production of vegetative oils, temporary storage, collection, transportation, recycling, trade, import and export and transit transportation. The separate collection of vegetative oils is required. Imports of vegetative oils are prohibited. The Regulation also encompasses rules and requirements for the production of biodiesel from vegetative oils.	•Article 5, •Article 9, •Article 10, •Article 13, •Article 14 (ANNEX-3), •Article 20, •Article 24.

Official Gazette (date-number)	Legislation	Description	Related Article
30.07.2008 - 26952	Regulation on Control of Waste Oil	The regulation sets forth prohibitions, restrictions, liabilities, measures and inspections about the production, temporary storage, collection, transportation, recycling, trade, import and export and transit transportation of waste oils.	•Article 5, •Article 9, •Article 10, •Article 12 (ANNEX-3), •Article 13, •Article 14, •Article 15 (ANNEX-1, ANNEX -2), •Article 18, •Article 19, •Article 26, •Article 27.
31.12.2004 - 25687	Regulation on Control of Water Pollution	The regulation sets forth water quality criteria and the limit values about the discharge of wastewaters generated by the activities near the water sources. The regulation also specifies the conditions and requirements to obtain wastewater discharge permission.	•Article 4, •Article 6, •Article 16 (Amended first paragraph: OG-13/2/2008-26786), •Article 17 (Amended first paragraph: OG-13/2/2008-26786), •Article 18 (Amended first paragraph: OG-13/2/2008-26786), •Article 19, •Article 20, •Article 21, •Article 23, •Article 24 (Amended: OG-13/2/2008-26786, •Article 25, •Article 26 (Amended with heading: OG-13/2/2008-26786) – (Table 5-Table 21, •Article 29 (Amended first clause: OG-13/2/2008-26786), •Article 31, •Article 32 (Amended: OG-13/2/2008-26786) (Table 5-Table 20, Table 21), •Article 33 (Amended: OG-13/2/2008-26786), •Article 34 (Table 22), •Article 35 (Table 23), •Article 36 (Amended: OG-30/3/2010-27537), •Article 37 (Amended with heading: OG-30/3/2010-27537), •Article 38 (Amended with heading: OG-30/3/2010-27537), •Article 39 (Amended

Official Gazette (date-number)	Legislation	Description	Related Article
			heading: OG-30/3/2010-27537), •Article 41 (Amended with heading: OG-30/3/2010-27537), •Article 42 (Amended with heading: OG-30/3/2010-27537), •Article 46, •Article 48, •Article 51 (Amended: OG-13/2/2008-26786), •Article 53, •Article 54, •Article 55 (Amended: OG-13/2/2008-26786), •Provisional Article 1, •Provisional Article 2, •Provisional Article 3, •Provisional Article 5 - (Additional: OG-13/2/2008-26786), •Provisional Article 6 - (Additional: OG-13/2/2008-26786), •Provisional Article 7 - (Additional: OG-13/2/2008-26786).
13.01.2005 - 25699	Regulation on Control of Air Pollution Caused by Heating	The regulation involves houses, public buildings and industrial facilities with heating facilities. Industrial facilities with thermal power more than 1000 kW are not within the scope of the regulation. The regulation aims the control and elimination of air pollution caused by heating systems.	•Article 5 – (Amended: OG-14/05/2007-26522), •Article 6, •Article 7, •Article 8, •Article 9, •Article 13, •Article 14, •Article 15, •Article 17, •Article 18, •Article 21, •Article 22 (Amended: OG-27/1/2010-27475), •Article 23 (Amended: OG-7/2/2009-27134), •Article 25 (Amended: OG-7/2/2009-27134), •Article 30, •Article 32 (Amended: OG-14/05/2007-26522), •Article 33, •Provisional Article 1 – (Additional: OG-7/2/2009-27134),

Official Gazette (date-number)	Legislation	Description	Related Article
			•ANNEX-2, ANNEX -3.A3.2, ANNEX -3.A.3.4
03.08.1990 - 20594	Regulation on Implementation of Shore Law	The regulation is about the determination of shorelines in seas, natural and artificial lakes, the usage and protection of shores and it sets forth the planning and implementation principles for shores, filled and dried areas as well as for coastal lines which are extensions of sea and lake shores.	•Article 11, •Article 17 (Amended: OG-13/10/1992-21374), •Article 18 (Amended: OG-13/10/1992-21374), •Article 20, •Provisional article 1 – (Additional: OG-2/4/2013-28606), •ANNEX LIST
05.12.2008 – 27075	Regulation on The Energy Performance of Buildings	The regulation sets forth the procedures and principles regarding efficient use of energy and energy sources in buildings, prevention of energy loss and protection of the environment. The regulation specifies the insulation levels in the buildings to be constructed in different regions of Turkey. The minimum requirements about insulation must be fulfilled during the construction of buildings. Specific requirements on the selection of construction materials are also within the scope of this regulation. The regulation also includes additional requirements on central heating.	•Article 5, •Article 6, •Article 7, •Article 8, •Article 9, •Article 10, •Article 11, •Article 12, •Article 13, •Article 14, •Article 17, •Article 18, •Article 19, •Article 20, •Article 21, •Article 24 (Amended heading: OG-1/4/2010-27539), •Article 25 (Amended heading: OG-1/4/2010-27539), •Article 26.
31.08.2004 – 25569	Regulation on Control of Waste Batteries and Accumulators	The regulation sets forth the principles about labelling of batteries and accumulators, the reduction of hazardous substances used in the production of battery and accumulators and collection, transportation and disposal of waste batteries. Regulation includes the prohibitions, restrictions and obligations about the use, import, transit transportation and export of waste batteries and the measures to be taken at every stage by the	•Article 5, •Article 11, •Article 12, •Article 13, •Article 14, •Article 15, •Article 16, •Article 17, •Article 18, •Article 19, •Article 20, •Article 21, •Article 34, •Article 35,

Official Gazette (date-number)	Legislation	Description	Related Article
		responsible public institutions and organizations.	•ANNEX-1
17.02.2005 – 25730	Regulation on Water Intended for Human Consumption	The objective of this Regulation is the regulate the procedures and principles concerning the suitability of water intended for human consumption to technical and hygienic requirements, guaranteeing the quality standards of such waters, and production, packaging, labelling, controlling the sale of spring waters and drinking waters. Plants providing drinking water to their personnel and having high amount of water use (over 10 m^3 per day or more than 50 workers) are subjected to permission. The plants that plan to have a workforce above 50 should consider this regulation.	•Article 3, •Article 6, •Article 7, •Article 8, •Article 10, •Article 11, •Article 12, •Article 13, •Article 16, •Article 31, •Article 32, •Article 33 (Amended first cause: OG-7/3/2013-28580), •Article 34, •Article 36, •Article 46 (Amended Article: OG-7/3/2013-28580), •Article 47, •Article 48 (Amended: OG-7/3/2013-28580), •Article 50 (Amended Article: OG-7/3/2013-28580), •ANNEX-1, ANNEX -2, and ANNEX -3
02.09.2004 – 25571	Regulation on Wastes Resulted from the Use of Radioactive Materials	The regulation sets forth the principles about the storage and disposal of radioactive wastes without generating negative impacts on public health and environment. The plants having radioactive materials or storing and disposing radioactive wastes should have a license. The regulation includes the limit values for liquid, gas and solid radioactive wastes. in	•Article 5, •Article 6, •Article 7, •Article 8, •Article 9, •Article 10, •Article 16, •Article 17, •Article 18, •ANNEX-1.
09.03.2013 - 28582	Regulation on Management of Radioactive Wastes	The purpose of this regulation is to regulate the procedures and principles related with the management of the radioactive wastes possibly occurred during the use of nuclear power and ionized radiation sources in order not to harm the community, environment and next generations.	•All Articles

Official Gazette (date-number)	Legislation	Description	Related Article
12.11.2008 – 27052	Regulation on Decreasing the Ozone Depleting Materials	The regulation includes the arrangements on the distribution, import, export, use and launching of products containing ozone depleting substances.	•Article 5, •Article 6 (ANNEX-7), •Article 7, •Article 8 (ANNEX -3), •Article 11 (ANNEX -6), •Article 14, •Article 16, •Article 17, •Article 23.
06.06.2008 - 26898	Regulation on Assessment and Management of Air Quality	The purposes of the regulation are to define and develop the targets for air quality for prevention or mitigation of harmful impacts of air pollution on the environment and public health, to assess air quality according to defined methods and criteria, to maintain current state in places with good air quality or improve otherwise, to collect adequate information about air quality and inform public via alert thresholds.	•Article 5 (ANNEX -1).
21.11.2008 – 27061	Regulation on Environmental Auditing	The regulation includes the arrangements on environmental monitoring of the facilities. Monitoring can be performed during the installation or commissioning phases or disposal of wastes. According to the regulation, facilities subjected to monitoring are required to have operation permit.	•Article 5 – (Amended: OG-16/8/2011-28027), •Article 6, •Article 7, •Article 22, •Article 23, •Article 29, •Article 30, •Article 31, •Article 32, •Provisional Article 1 – (Amended: OG-22/10/2009-27384).
03.07.2009 - 27277	Regulation on Control of Industrial Air Pollution	The purpose of the regulation is to mitigate and control the negative impacts of air pollutants such as smoke, dust, gas, vapour and aerosol emitted by industrial facilities and power plants.	•Article 2, •Article 5, •Article 6 (Amended with heading: OG-30/3/2010-27537), •Article 8 (Amended with heading: OG-30/3/2010-27537), •Article 9 (Amended with heading: OG-30/3/2010-27537), •Article 10 (Amended with heading: OG-30/3/2010-27537), (Amended Article heading: OG-13/4/2012-28263), •Article 12, •Article 14,

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			•Article 15 (ANNEX-9), •Article 17 (Amended with heading: OG-30/3/2010-27537), (Amended heading: OG-13/4/2012-28263) (EK-3.D.1), •Article 23 (Amended with heading: OG-30/3/2010-27537), •Article 24 (ANNEX-11), •Article 26, •Article 27, •Article 28, •Article 29 (Amended with heading: OG-30/3/2010-27537), •Article 30, •Article 31, •Article 32, •Article 33, •Article 34 (Amended with heading: OG-30/3/2010-27537), •Article 36, •Provisional Article 1 – (Amended: OG-16/6/2012-28325).
21.10.2006 – 26326	Regulation of Implementation of the Law on Emergency Response and Compensation of Losses in Pollution of Marine Environment by Petroleum and Other Hazardous Substances	The regulation defines the measures to be taken in the coastal facilities that carry out activities that may generate pollution by oil and other hazardous substances and in the vessels over 500 gross ton capacity carrying oil and other hazardous substances. The regulation also defines the measures to be taken to mitigate the negative impacts of any potential marine pollution on public health, coastal areas and cargo. The regulation specifies the actions for cleaning up of pollution in coastal areas generated by oil or other hazardous substances. The Regulation encompasses requirements on the development of emergency response plans for coastal facilities and vessels over 500 gross ton capacity carrying oil and other hazardous substances.	•All articles
08.01.2006 – 26047	Regulation on Urban Wastewater Treatment	The purpose of the regulation is to mitigate the negative environmental impacts induced by the collection, treatment and discharge of urban wastewater generated by domestic and industrial sources. The regulation includes the requirements	•Article 5, •Article 6, •Article 8, •Article 9, •Article 10 (ANNEX-III), •Article 11 (Table 2),

Official Gazette (date-number)	Legislation	Description	Related Article
		on treatment and discharge of urban wastewater. The limitations for the industrial facilities sending their wastewaters to urban wastewater treatment plants are included in the regulation.	•Article 12 (ANNEX-II), •Article 13, •Article 14 (ANNEX-II and ANNEX-III), •Provisional Article 1.
19.03.1971 - 13783	Regulation on the Construction of Septic Tanks where sewerage system cannot be implemented	This regulation aims to protect public health, preventing the contamination of soil, water and nutrients by wastewaters.	•All articles
25.11.2006 – 26357	Regulation on Control of the End of Life Tyres	The regulation encompasses the principles for mitigating negative environmental impacts induced by recycling and disposal of the tyres which have completed life-cycles. The facilities which recycle such type of tyres should have a license.	•Article 5, •Article 15, •Article 16, •Article 19, •Article 20, •Article 23 (Amended with heading: R.G-30/3/2010-27537), •Article 24, •Article 25.
26.11.2005 - 26005	Regulation on Control of Pollution Caused by Dangerous Substances in Water and its Environment	The regulation aims to detect, eliminate or mitigate any potential pollution in aquatic environments to be induced by hazardous substances. The regulation sets forth the criteria for surface water quality and the limitations on the discharge of hazardous substances. The facilities discharging hazardous substances to the surface waters should prepare pollution reduction programme and have permission.	•Article 5, •Article 6 (ANNEX-2), •Article 7, •Article 8 (ANNEX-1), •Article 9, •Article 10 (ANNEX-1 and ANNEX-2, •Article 11 (Amended with heading: OG-30/3/2010-27537) (ANNEX-1 and ANNEX-2, •Article 12, •Article 13, •Article 14, •Article 15.
15.06.1997 - 22990	Regulation on Constructed and Commissioned close to Highway	The objective of this Regulation is to ensure the safety of highway traffic in construction, opening, operating or modification of: a) on both sides of the highways, with respect to passage roads providing connection to the highways, gas stations, service stations, gas filling stations, liquefied petroleum gases (LPG/CNG) filling and refilling stations, hazardous substance	•Article 1 (Amended: OG - 06/01/1998-23222), •Article 4, •Article 8, •Article 9, •Article 10, •Article 11 (Additional clause: RG-06/01/1998-23222), •Article 12 (First amended clause: OG-06/01/1998-23222),

Official Gazette (date-number)	Legislation	Description	Related Article
		storages, public parks, public garages, passenger terminals, load terminals (transportation warehouses and storehouses), factory, commercial complexes, shopping centres, market places, wholesales market, cinema, theatre and similar entertainment places, touristic buildings and facilities, material quarries and metal and petroleum sites-quarries and facilities, vehicle maintenance – repair places and showrooms, hotel, motel, restaurant, coffeehouses, commercial buildings, storage houses for cereals, tobacco, hazelnuts, beet and similar agricultural products, farms and stables, passenger drop off and pick up points (bus stops) , places for driving lessons, public and private buildings for training, health, sports, religious, cultural and similar purposes and social facilities thereof, hatcheries, pools, fixed weighing machines, transformers, residents and all kinds of structures and facilities that may affect traffic safety, b) the structures and facilities in (a) that are on both sides of the highways, fifty metres to the border lines without connecting them to the highways with passage roads	•Article 13, •Article 14, •Article 15, •Article 16, •Article 17, •Article 18 (First amended clause: OG -06/01/1998-23222), •Article 19, •Article 20, •Article 21 (Amended: OG-06/01/1998-23222), •Article 22, •Article 23 (Amended: OG-03/04/2012-28253), •Article 24, •Article 25, •Article 26, •Article 27, •Article 28, •Article 36, •Article 37 (Amended: OG -06/01/1998-23222), •Article 38 (Amended: OG -06/01/1998-23222), •Article 39, •Article 40, •Article 41 (Amended with heading: OG -06/01/1998-23222), •Article 42 (Amended: OG -06/01/1998-23222),
18.02.2007 – 26438	Regulation on Procedures and Principles of Operation Permit for Offshore Structures	The regulation encompasses the procedures and principles about grating operation permit to coast harbours, cruise ports, marinas, cruise terminals, wharfs, docks, docking areas, gas / liquefied petroleum gas pipelines and buoy systems, and other coastal facilities as well as superstructure and infrastructure facilities regarding marine transportation.	•Article 5.
24.08.2011 – 28035	Regulation on Control of Packaging Waste	The regulation includes the legal requirements about packaging waste producers, packaged goods-producing actual and legal persons and marketing locations of packaged goods. These requirements comprise prevention, minimization, recycling and disposal of package waste to be generated.	•Article 2, •Article 5, •Article 10 (ANNEX-6), •Article 23, •Article 24, •Article 25, •Article 27, •Article 31, •Article 33,

Official Gazette (date-number)	Legislation	Description	Related Article
			•Article 34.
23.01.2010 – 27471	Regulation on Restoring Nature of Land Destroyed by Mining Activities	The regulation sets forth the procedures and the principles about restoration of natural lands destroyed by mining activities, excavations for material and soil supply and wastes released to the nature.	•Article 5, •Article 7, •Article 8, •Article 9, •Article 10, •Article 12, •Article 13.
08.08.1961 – 10875	By-Law on Groundwater	The by law includes various administrative obligations including the license requirements for digging of tunnels and artesian wells. Water supply from artesian wells is subjected to permission.	•All articles
30.12.2012 – 28513 (2nd Edition)	Notification of Controlling Fuels for the Protection of Environment (Safety and Control of Product: 2013/7)	The notification sets forth the procedures and principles regarding inspection of imported solid fuels listed in Annex-1 of the regulation.	•Article 4, •Article 5, •Article 6, •Article 7, •Article 8, •Article 9, •Article 10, •Article 11 (All annexes).
30.12.2012 – 28513 (2nd Edition)	Notification of Controlling Chemicals for the Protection of Environment (Safety and Control of Product: 20013/6)	The notification sets forth the arrangements regarding the inspection certificate which should be held by the facilities importing chemicals listed in Annex 1 of the regulation.	•Article 4, •Article 5, •Article 6 (ANNEX-3), •Article 7, •Article 8, •Article 9, •Article 10, •ANNEX-1, ANNEX-2.
31.12.2012 – 28514	Notification of Import of Ozone Depleting Substances (Importation:	The regulation includes the arrangements about the inspection certificate which should be held by the facilities importing ozone depleting substances to Turkey. Importation of some substances from specific countries is forbidden. The lists of forbidden substances and countries are prepared	•Article 2, •Article 3, •Article 4, •Article 5, •Article 6, •Article 7, •Article 8,

Official Gazette (date-number)	Legislation	Description	Related Article
	2013/14)	on the basis of Montreal Protocol about Ozone Depleting Substances and Vienna Convention for the Protection of the Ozone Layer.	•Article 9, •Article 10, •Article 11, •Article 13, •ANNEX-1, ANNEX -2, ANNEX -3, ANNEX -4A, ANNEX -4B, ANNEX –D.
24.07.2007 – 26592	Notification of Legal and Technical Arrangements for the Waste Collecting Vessels (No: 2007/4)	The notification encompasses arrangements about waste collecting vessels licensed as per the provisions of the Regulation on Collection of Waste from Vessels and Control of Wastes (Official Gazette dated 24 December 2004 and numbered 25682), The regulation aims to standardize the colours of these licensed waste collecting vessels and the work clothes and ID cards of the vessel staff in order to visibly mark the difference between these vessels and others..	•Article 3, •Article 4, •Article 5, •ANNEX-1.
02.06.2008 – 26894	Notification of the Quality Standards of Cultivation Water of Shellfish Water Products (No: 2008/29)	The notification aims to determine the cultivation waters of shellfish water products and quality standards of these waters, to protect the products and its water from the negative impacts of discharged water, to improve the water quality and to have a monitoring and pollution reduction programme in these waters. The cultivation areas for shellfish water products are listed in Annex-1. The list of the areas includes Ayvalık, Çanakkale, West Black sea Region, Middle Black sea Region and İzmir. Related Ministry can make changes on this list. Waste and wastewater discharge to the cultivation areas is forbidden. Wastewater can be discharged to these areas only if it is treated according to receiving body water quality standards. The receiving body quality standards are given in Annex-2.	•Article 4, •Article 5, •Article 6, •Article 7, •Article 10, •ANNEX-1, ANNEX-2.
31.12.2007 – 26473 (2nd Edition)	Notification of Import Controls for Batteries and Accumulators	The notification aims to arrange the procedures and principles for control of convenience of products given by Annex-1 to the Regulation on Wasted Batteries and Accumulators Control. This notification covers the products subject to Release for Free Circulation.	•Article 3, •Article 5, •Article 7, •Article 8, •Article 9, •Article 10, •Article 13, •Article 15, •Provisional Article 1, •ANNEX-1, ANNEX-2,

Official Gazette (date-number)	Legislation	Description	Related Article
			ANNEX-3, ANNEX-4.
29.09.1987 – 19589	By-Law on the Procedures and Principles about the Production, Import, Transportation, Storage, Marketing, Use, Disposal and Control of Unmonopolized Explosive Material, Hunting Equipment	By-law arranges the principles and procedures on establishing and operating a business for the production, packaging, handling, storage, import, marketing, using, disposal, inspection of hunting powder, explosives for sewage blaster and their fuses, capsules, firing tools and supplies, rifle and pistol cartridges, firework cartridges, sparkler and similar materials, loaded and unloaded shotgun shells and hunting materials like fuses that are used for preparing shotgun shells, hunting shots and bullets, potassium nitrate and products and, the import of shotguns and fireless sighting rifles and pistols which operate with air and gas pressure and their parts and safety measures to be taken.	•Article 2, •Article 3, •Article 19, •Article 20, •Article 21, •Article 22, •Article 23, •Article 24, •Article 53, •Article 55, •Article 57, •Article 58, •Article 59, •Article 60, •Article 61, •Article 62, •Article 63, •Article 64, •Article 65, •Article 66, •Article 67, •Article 68, •Article 69, •Article 82, •Article 83, •Article 84, •Article 85, •Article 86, •Article 91, •Article 92, •Article 118, •Article 119, •Article 121, •Article 122, •Article 124, •Article 125, •Article 128, •Article 129, •Additional Article 1, •Additional Article 2.

Official Gazette (date-number)	Legislation	Description	Related Article
10.03.1995 - 22223	Regulation on Aquatic Products	The regulation covers the principles of restrictions, limitations, measures and control of items listed below: •Protection of stocks of aquatic products, •Use of explosive and dangerous substances in hunting, •Production of aquatic products, •Arrangement of hunting of aquatic products, •Marketing of aquatic products	•Article 3, •Article 7, •Article 10, •Article 11, •ANNEX-5, ANNEX-6.
10.08.2005 – 25902	Regulation on Work Place Establishment and Operating Licenses	The regulation covers the procedures and principles about the control and getting a license of sanitary and non-sanitary workplaces and public recreation facilities. Facilities should take the health and safety measures on the related regulation. The forms for the permission application are given in the annex of regulation. The changes on the regulation are published on Official Journal No. 26492, dated 13.04.2007. According to these changes, three different categories are determined for non-sanitary facilities. These are: 1) Category I: the facilities which cannot be built near housing area, 2) Category II: the facilities whose building near housing area subject to permission, 3) Category III: the facilities that can be built near housing area.	•Article 4, •Article 5, •Article 6, •Article 8, •Article 11, •Article 12, •Article 13, •Article 14, •Article 16, •Article 18, •Article 19, •Article 21, •Article 22, •Article 24, •Article 25, •Article 27, •Article 28, •ANNEX-2,
09.12.2003 – 25311	Regulation on Workers Health and Work Safety	The regulation determines the measures to be taken to enhance the health and safety requirements in workplaces. By this purpose, the general principles related with the below items are arranged in this regulation. a) prevention of occupational hazards, protection of health and safety, extinguishment of risk and	•Article 4, •Article 5, •Article 6, •Article 7, •Article 8, •Article 9, •Article 10, •Article 11, •Article 12, •Article 14,

Official Gazette (date-number)	Legislation	Description	Related Article
		accident factors, b) education of workers and their representatives about health and safety, receiving their opinion and providing their well-balanced participation, c) working conditions of the people that should be protected because of their age, gender and special condition.	•Article 16,
12.09.1974 – 15004	By-Law on Health and Safety of Employer in Construction Works	The additional health and safety measures other than identified by By-Law on Health of Employer and Safety are given by this By-law. The By-law covers the minimal health and safety requirements for temporary or mobile construction sites (except of the mining activities arranged with special regulations). The legislation also includes the provisions about the health and safety coordinator-charging, enhancement of health and safety plans, informing the workers about providing their health and safety on construction sites.	•All articles
15.05.2004 – 25463	Regulation on Health and Safety Regarding Temporary Works	The regulation aims to protect the health and safety of employers, working based on temporary or fixed-term contract, with at same level with the other workers working in this workplace.	•Article 2, •Article 4, •Article 5, •Article 6, •Article 7, •Article 8, •Article 9, •Article 10, •Article 13,
26.12.2003 – 25328	Regulation on Health and Safety Precautions Regarding Working with Chemicals	The regulation determines the minimum requirements to protect the workers' health and safety from the negative impacts of chemicals in workplace.	•Article 2, •Article 4, •Article 5, •Article 6, •Article 7, •Article 8, •Article 9, •Article 10, •Article 12, •Article 13, •ANNEX-1A, ANNEX-1B, ANNEX-1C, ANNEX-1D, ANNEX-2, ANNEX-3.

Official Gazette (date-number)	Legislation	Description	Related Article
15.12.2005 – 26024	Regulation on the Implementation of the Law on Protection of Soil and Land Use	The regulation aims to determine - the presence of soil and land provided in the Soil Conservation and Land Use Law No. 5403, dated 3/7/2005, to make plans on land use, - to prepare plans and projects on agricultural use of land and soil conservation, - to determine the procedures and principles about the work of soil conservation board, - to detect of areas susceptible to erosion and parcel size of sufficient sized agricultural land.	•Article 4, •Article 11.
14.07.2007 – 26582	Regulation on the Structures Built in Disaster Zones	The regulation aims to determine the technical requirements of private and public structures, to be rebuilt, changed, restored, and strengthened, in the disaster zones announced in Article 2 of "Law on Measures and Helps Accordingly Disasters Effective on Public Life No. 7269".	•Article 3, •Article 4, •Article 5, •Article 6, •Article 7,
05.06.2009 – 27249	Notification for Prices and Principles on the Framework of the Regulation on Waste Collection from Vessels and Waste Control (No: 2009/3)	The notification includes the prices and application principles of the prices based on 26th Article of Waste Collection for Vessels and Waste Control Regulation published in the Official Gazette dated 26.12.2004 and numbered 25682.	•Article 2, •Article 3, •ANNEX-1, ANNEX-2.
26.12.2008 – 27092	Regulation on Preparation and Distribution of Material Safety Data Sheets on Hazardous Materials	The regulation aims to arrange the administrative and technical procedures and principles about the preparation and distribution of security information forms to control the negative impacts of the hazardous substances and preparations presented to the market on human health and environment.	•Article 4, •Article 5, •Article 6, •Article 7, •Article 9, •ANNEX-1, ANNEX -2.

Official Gazette (date-number)	Legislation	Description	Related Article
26.12.2008 – 27092	Regulation on Inventory and Control of Chemicals	The regulation aims to arrange the administrative and technical procedures and principles about the control and inventory of chemicals to protect human health and environment from the negative impacts of the chemicals.	•Article 4, •Article 5, •Article 6, •Article 7, •Article 8, •Article 10, •Article 11, •Article 12, •Article 13, •Article 14,
17.06.2011 - 27967	Notification of Recovery of Some Non-hazardous Wastes	Its objective is to regulate the administrative and technical rules necessary to identify the principles, policies and programs for minimizing the adverse impacts of some non-hazardous wastes that arise as a result of an activity, reducing the amount of waste, temporary storage of wastes, establishment of recovery facilities and ensuring compatible management of these facilities with the environment.	•Article 2, •Article 4, •Article 5, •Article 8, •Article 10, •ANNEX-2.
29.06.2012 – 28338	Regulation on Quality of Drinking Water to be Obtained or Planned to be Obtained from Surface Water	The regulation aims to determine principles about the surface waters from which drinking water is obtained or planned to be obtained, and quality criteria and treatment types to use these waters as drinking water.	•Article 6, •Article 8, •Article 9, •Article 11, •ANNEX-1, ANNEX -2.
27.12.2007 – 26739	Regulation on Control of PCBs and PCTs	The regulation aims to arrange the administrative and technical procedures and principles about disposal of the used material or equipment containing PCB and PCT in order to protect the human health and environment.	•Article 5, •Article 8, •Article 15, •Article 16, •Article 20, •Article 21, •Article 22, •Article 23, •ANNEX -1, ANNEX -2, ANNEX -4, ANNEX -6.
27.01.2005 - 25709	Regulation on Usage of Biocidal Product	This Regulation was prepared with the objective to protect public health by identifying the work procedures and principles of businesses of real and judicial persons who desire to fight with pests (amended statement: OG-21/5/2011-27940) that damage public health and peace, by using biocidal products and the implementation procedures and principles of state institutions and establishments (amended statement: OG -21/5/2011-27940).	•Article 2, •Article 5, •Article 6.

Official Gazette (date-number)	Legislation	Description	Related Article
08.12.2007 – 26724	Regulation on Obtaining, Processing and Control of Sand, Gravel and Similar Materials	The regulation aims to arrange the principles about the extraction, management and control of sand, gravel and similar substances from other than forestry zones in the way of preventing the damage on environment and human health.	•Article 5, •Article7, •Article 8, •Article 9, •Article 10, •Article 11, •Article 12, •Article 15, •ANNEX-1.
09.01.2006 – 26048	Regulation on Swimming Water Quality	The regulation aims to determine the quality of water used for swimming and recreation in the aim of protection of human health and environment and to prevent these waters from all kind of contaminants mainly microbiological.	•Article 5, •Article 6, •Article 7 •Article 8, •Article 16, •Provisional Article 1.
07.09.2002 – 24869	Regulation on Natural Gas Market License	The regulation aims to determine the procedures and principles about the license to be given to legal entities that are active in natural gas market.	•Article 5, •Article 6, •Article 7, •Article 8, •Amended second clause: OG-25/11/2006-26357, •Amended clause: OG-21/7/2004-25529, •Amended clause: OG-21/7/2004-25529, •Article 9 (Amended clause: RG-9/4/2011-27900), •Amended clause: OG-21/2/2012-28211, •Article 10 (Examination and evaluation) – Amended clause: OG-25/11/2006-26357, •Additional clause: OG-7/12/2008-27077 Abrogated clause: OG-21/2/2012-28211, •Additional clause: OG-9/4/2011-27900, •Article 11 (Amended clause: OG-25/11/2006-26357), •Amended clause: OG-21/2/2012-28211, •Additional clause: OG-9/4/2011-27900, •Article 12, •Article 13, •Article 14, •Amended: OG-25/11/2006-26357,

Official Gazette (date-number)	Legislation	Description	Related Article
			•Additional clause: OG-25/11/2006-26357, •Amended clause: OG-9/4/2011-27900, •Additional clause: OG-21/07/2004-25529, •Article 15, •Article 16, •Article 17, •Article 18, •Article 21, •Amended: OG-21/7/2004-25529, •Article 22 (Amended: OG-25/11/2006-26357), •Article 31, •Amended: OG-21/7/2004-25529, •Article 32, •Article 33, •ANNEX-1, ANNEX -2, ANNEX -3, ANNEX -4.
26.09.2002 – 24888	Regulation on Natural Gas Market Tariffs	The regulation aims to arrange the procedures and principles about preparation, analyses, evaluation, determination, confirmation and publication and revision the tariffs about the natural gas market activities.	•Article 12.
27.10.2011-28097	Regulation on the Improvement of the Energy Sources and the Efficiency in the Energy Usage	The regulation aims to arrange the procedures and principles on efficient usage of energy, prevention of energy dissipation, decreasing the load of energy cost on economy and increasing efficiency in energy resources and energy usage for the protection of the environment.	•Article 8 •Article 9 •Article 10 •Article 15 •Article 18 •Article 25 •Article 32
30.11.2012-28483	Regulation on Management of Surface Water Quality	The objective of the regulation is to determine and classify the biological, chemical, physical-chemical and hydro morphologic qualities of surface waters and shore and passage waters, to monitor water quality and amount, to put forth the intended use of these waters, by considering the protection-use equilibrium, in accordance with sustainable development goals, to protect waters and to determine the procedures and principles for measures to be taken to achieve good quality status.	•Article5 •Article 6 •Article 7 •Article 8 •Article 9 •Article 10

Official Gazette (date-number)	Legislation	Description	Related Article
06.01.2011-27807	Technical Safety and Environmental Regulation for Construction and Operation of Crude Oil and Natural Gas Pipeline Facilities of BOTAŞ Petroleum Pipeline Corporation	The regulation aims to determine the procedures and principles on the design, construction and safe operation of raw petroleum and natural gas pipeline facilities of BOTAŞ which is in the scope of Regulation on Natural Gas Market dated 18/4/2001 and numbered 4646 and Law on Petroleum Market dated 4/12/2003 and numbered 5015; based on national and international standards.	•Article 5 •Article 7 •Article 8 •Article 9 •Article 10 •Article 11 •Article 12 •Article 13 •Article 14 •Article 15 •Article 16
23.6.2000-4586	Law on Transit Passage of Petroleum by Pipelines	The regulation aims to determine the procedures and principles on transit passage of the petroleum via pipelines and to provide the implementation of the rules of international agreements on each transit petroleum pipeline project for which Turkey is a party.	•All Articles
01.12.1984-18592	Law on Agricultural Reform on Land Arrangement in Irrigation Areas	The regulation aims to determine the procedures and principles on efficient cultivation of soil, protection of cultivation receiving maximum economic efficiency from unit area, increasing agricultural production, increasing employment opportunities in the area, providing government soil to the farmers who don't have enough or any soil so that they can open their agricultural family business and supporting and educating them, consolidating the ruptured agricultural lands by widening as much as possible when necessary, preventing the land to be ruptured seriously to cause the family become not to be able to meet the cost of life and to make good use of man-power of the family, developing new settlement areas, organizing the assignment of the agricultural land for other purposes when required, determining the agricultural land use.	•Article 19
18.07.1997 - 23053	Regulation on Highways Traffic	The objective of this Regulation is, as per Highway Traffic Act, No 2918, to identify the further provisions indicated and deemed necessary in the Regulation to be regulated concerning with respect to safety of life and possessions, the precautions to be taken related to ensuring the order of traffic on highways and traffic safety and the procedures and principles for implementation thereof.	•Article 2, •Article 20 (Amended: OG-01/09/2010-27689), •Article 22 (Second amended clause: OG-01/09/2010-27689), •Article26 (First amended clause: OG-01/09/2010-27689, Third amended clause: OG-01/09/2010-27689), •Article 27.

Official Gazette (date-number)	Legislation	Description	Related Article
30.11.2013-28837	Regulation on the Control of Exhaust Gas Emission and Quality of Gasoline and Diesel	The regulation aims to determine the procedures and principles on determination of the technical characteristics of the gasoline and diesel types to be used in motorized vehicles in order to protect the environmental and public health.	•Article 5 •Article 7 •Article 14
17.06.2009-27261	Law on Organization and Duties of Disaster and Emergency Management Presidency	The law aims to arrange the procedures and principles on establishment of Disaster and Emergency Management Presidency under Prime ministry in order to conduct services related to disasters, emergencies and civil defence and organizing its missions and authorization. This law includes taking necessary pre-cautions related to disasters, emergencies and civil defence in national scale, preparation and decreasing potential harms before event occurs, coordinates institutions and organization that will provide emergency response services during the event and that will provide healing services after the occurrence of the event and forming politics about these issues and applying them.	•Article 18
18.08.2007 - 26617	Technical Regulation on Earthquake about Construction of Coastal and Harbour Structures, Railways and Airports	The objective of this Regulation is to regulate the necessary rules and minimum requirements for assessment of earthquake-resistant design of shore, port, railways and airports to be newly constructed, enlarged, modified in Turkey and for assessment of earthquake performances of such existing structures	•Article 1
17.05.2005-25818	Regulation on Conservation of Wetlands	The regulation aims to determine the procedures and principles on conservation, development of all wetlands even if it has international importance or not, providing co-operation and coordination between institutions and organizations responsible about these issues especially based on the implementation of RAMSAR agreement.	•Article 5 •Article 6 •Article 7 •Article 8 •Article 9 •Article 10 •Article 11 •Article 12 •Article 13 •Article 14 •Article 15 •Article 16 •Article 19 •Article 20 •Article 21 •Article 22 •Article 23

Official Gazette (date-number)	Legislation	Description	Related Article
			•Article 35
02.05.2013-28635	Regulation on Management of Natural Assets, Natural Protected Areas and State-Owned Areas Located in Special Environmental Protection Areas	The regulation aims to arrange the procedures and principles on leasing, providing pre-permits, providing usage permits, assignment, providing operation permit and evacuation of the areas under management and decisions of government, which are among special environmental protection areas and natural protection areas and natural assets with definite borders.	•Article 55 •Article 56 •Article 57 •Article 58 •Article 59 •Article 60 •Article 61 •Article 62 •Article 63 •Article 64 •Article 67 •Article 68 •Article 69
2007	National Biodiversity Strategy and Action Plan	The three main objectives of the Convention on Biological Diversity (CBD) are as follows: •The conservation of biological diversity; •The sustainable use of biological resources; •Fair and equal share of benefits arising from the utilization of genetic resources.	•Aim 1 •Aim 2 •Aim 3 •Aim 4 •Aim 5 •Aim 6 •Aim 7 •Aim 8 •Aim 9 •Aim 10
24.10.2005-25976	Regulation on the Procedures and Principles of Conservation of Game and Wildlife Animals and Their Living Spaces and Fight against Harmful Individuals	The regulation aims to arrange the procedures and principles on protection of habitats of game and wildlife animals, replacing species, protection measures, capturing and taking them away from nature, management of wild species and struggling with the dangerous animals and their diseases and pests.	•Article 4 •Article 7 •Article 8 •Article 23 •Article 25 •Article 27
27.12.2001-24623	Regulation on the Implementation of the Convention on International Trade in	The regulation aims to arrange the procedures and principles on controlling international trade of endangered species of wild fauna and flora in order to enable their sustainable usage.	•Article 26

Official Gazette (date-number)	Legislation	Description	Related Article
	Endangered Species of Wild Fauna and Flora		
01.07.2004-25509	Law on Protection of Animals (5199-24.06.2004)	The law aims to provide animals comfortable lives, good and suitable treatment, to protect animals in the best way against pain and suffer, and to prevent any kind of damnification of them.	•Article 4
21.06.2003-25145	Regulation on Conservation of Animal Genetic Resources	The regulation aims to arrange the procedures and principles on determining the genotype and phenotype characteristics of Turkey's animal genetic resources, raising them for protection and recording and keeping these characteristics under protection.	•Article 1 •Article 2
10.03.2001-24338	Law on Animal Improvement	The law aims to provide improvement studies for each kind of livestock production and activities that affect the production, and for upgrading the efficiency of the animals raised for purposes of racing and working, protection of the genetic resources of pets, economic value of livestock production and to increase challenge, to keep records of the activities held out for these purposes and herd books, to provide the breeding animals to be raised in health, hygienic and to be carried to the producers in conditions free of illnesses and to be protected.	•Article 1 •Article 2
12.04.2014-28976	Regulation on Application of 17/3 and 18th Articles of Forestry Law	The regulation aims to apply the procedures of the permits and costs of these permits according to 17/3, 18, 115, appendix 9, appendix 11 and temporary 8th article of Forestry Law dated 31/8/1956 and numbered 6831.	•Article 4 •Article 6 •Article 7 •Article 14 •Article 22 •Article 25 •Appendix 1
02.04.2015-29314	Regulation on Waste Management	The regulation aims to apply general principles of waste management.	All
17.05.2014-29003	Regulation on Greenhouse Gasses Monitoring	The regulation sets out the principles and rules for monitoring, reporting and verification of Greenhouse Gasses.	Until operation phase monitoring is not a legal requirement.

Official Gazette (date-number)	Legislation	Description	Related Article
10.09.2014-29115	Regulation on Environmental Permit and License	The regulation sets out the principles and rules to obtain Environmental Permit and License.	All
25.11.2014-29186	Regulation on Environmental Impact Assessment	The regulation sets forth the administrative and technical procedures and principles to be complied with through the EIA process. TANAP Project is assessed within the scope of Article 30 of Annex-1 which addresses: "30- "Transportation of Oil, Natural Gas and Chemicals with pipelines longer than 40 km and 600 mm and above in diameter".	•Article 6, •Article 7, •Article 8, •Article 9, •Article 10, •Article 11, •Article 12, •Article 13, •Article 14, •Article 18, •Article 19, •Article 20, •Article 21, •Article 24, ANNEX -1, ANNEX -III, and ANNEX -V.
22.05.2012-28300	Regulation on Management of Control of Waste Electrical and Electronical		•Article 1, •Article 2, •Article 3, •Article 4, •Article 9,

2 INTERNATIONAL LEGISLATION

Code	Directive	Related Articles	Description
85/337/EEC Directive of 27 June 1985 Amendments: •97/11/EC Directive of 3 March 1997 •2003/35/EC Directive of 26 May 2003 •2009/31/EC Directive of 23 April 2009	EIA Directive Directive on the Assessment of the effects of certain public and private projects on the environment	•Article 4 •Article 5 •Article 6 •Article 7 •Article 8 •Article 9 •Article 10 •Article 11 •Article 12 •Annex-I •Annex-III	This Directive shall apply to the assessment of the environmental effects of those public and private projects which are likely to have significant effects on the environment.
2009/147/EEC Directive of 30 November 2009	Birds Directive Directive on the conservation of wild birds		This Directive relates to the conservation of all species of naturally occurring birds in the wild state in the European territory of the Member States to which the Treaty applies. It covers the protection, management and control of these species and lays down rules for their exploitation.
92/43/EEC Directive of 21 May 1992	Habitats Directive Directive on the conservation of natural habitats and of wild fauna and flora	•Article 2 •Article 4 •Article 6 •Article 12 •Article 13 •Annex-I •Annex-II •Annex-III •Annex-IV	The aim of this Directive shall be to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies.

Code	Directive	Related Articles	Description
2002/49/EC Directive of 25 June 2002	Environmental Noise Directive Directive relating to the assessment and management of environmental noise	•Article 2 •Article 5	The aim of this Directive shall be to define a common approach intended to avoid, prevent or reduce on a prioritized basis the harmful effects, including annoyance, due to exposure to environmental noise.
2008/50/EC Directive of 21 May 2008	Directive on ambient air quality and cleaner air for Europe	•All Articles	This Directive lays down measures aimed at the following: •defining and establishing objectives for ambient air quality designed to avoid, prevent or reduce harmful effects on human health and the environment as a whole •assessing the ambient air quality in Member States on the basis of common methods and criteria •obtaining information on ambient air quality in order to help combat air pollution and nuisance and to monitor long-term trends and improvements resulting from national and community measures •ensuring that such information on ambient air quality is made available to the public •maintaining air quality where it is good and improving it in other cases •promoting increased cooperation between the Member States in reducing air pollution.
2001/81/EC Directive of 23 October 2001	National Emission Ceilings Directive Directive on national emission ceilings for certain atmospheric pollutants	•Article 1 •Article 4	The aim of this Directive is to limit emissions of acidifying and eutrophying pollutants and ozone precursors in order to improve the protection in the Community of the environment and human health against risks of adverse effects from acidification, soil eutrophication and ground-level ozone and to move towards the long-term objectives of not exceeding critical levels and loads and of effective protection of all people against recognised health risks from air pollution by establishing national emission ceilings
1999/30/EC Directive of 22 April 1999	First Daughter Directive Directive relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air	•Article 3 •Article 4 •Article 5 •Annex-I •Annex-II •Annex-III •Annex-V	The objectives of this Directive shall be to: •establish limit values and, as appropriate, alert thresholds for concentrations of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air intended to avoid, prevent or reduce harmful effects on human health and the environment as a whole, •assess concentrations of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air on the

Code	Directive	Related Articles	Description
			basis of common methods and criteria, •obtain adequate information on concentrations of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air and ensure that it is made available to the public, •maintain ambient-air quality where it is good and improve it in other cases with respect to sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead.
2000/69/EC Directive of 16 November 2000	Second Daughter Directive Directive relating to limit values for benzene and carbon monoxide in ambient air	•Article 4 •Article 5 •Annex-II •Annex-III	The objectives of this Directive shall be: •to establish limit values for concentrations of benzene and carbon monoxide in ambient air intended to avoid, prevent or reduce harmful effects on human health and the environment as a whole, •to assess concentrations of benzene and carbon monoxide in ambient air on the basis of common methods and criteria, •to obtain adequate information on concentrations of benzene and carbon monoxide in ambient air and ensure that it is made available to the public, •to maintain ambient air quality where it is good and improves it in other cases with respect to benzene and carbon monoxide.
94/63/EC Directive of 20 December 1994	Volatile Organic Compounds Directive Directive on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations	•Article 4 •Article 5 •Article 6 •Annex-I •Annex-II	This Directive shall apply to the operations, installations, vehicles and vessels used for storage, loading and transport of petrol from one terminal to another or from a terminal to a service station.
93/12/EEC Directive of 23 March 1993	Directive Relating to the Sulphur Content of Certain Liquid Fuels		Main objective of this Directive is to decrease emissions of sulphur dioxide resulting from the combustion of liquid fuels produced from petroleum and thus to reduce the harmful effects of such emissions on man and the environment.
98/70/EC Directive of 13 October 1998 Amendments: •2000/71/EC Directive of 7 November 2000 •2003/17/EC Directive of 3 March 2003	Directive relating to the quality of petrol and diesel fuels	•Article 1 •Article 3 •Article 4	This Directive sets technical specifications on health and environmental grounds for fuels to be used for vehicles equipped with positive-ignition and compression-ignition engines.

Code	Directive	Related Articles	Description
•Regulation (EC) No 1882/2003 of 29 September 2003			
97/68/EC Directive of 16 December 1997	Directive relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery		This Directive aims at approximating the laws of the Member States relating to emission standards and type-approval procedures for engines to be installed in non-road mobile machinery. It will contribute to the smooth functioning of the internal market, while protecting human health and the environment.
2000/60/EC Directive of 23 October 2000	Water Framework Directive Directive establishing a framework for Community action in the field of water policy	•Article 4 •Article 6 •Article 7 •Article 8 •Article 10 •Article 11 •Article 16 •Article 17 •Annex-IV	The purpose of this Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which: •prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems; •promotes sustainable water use based on a long-term protection of available water resources; •aims at enhanced protection and improvement of the aquatic environment, inter alia, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances; •ensures the progressive reduction of pollution of groundwater and prevents its further pollution, and •contributes to mitigating the effects of floods and droughts.
2008/105/EC Directive of 16 December 2008	Directive on environmental quality standards in the field of water policy	•Article 1 •Article 3 •Annex-I	This Directive lays down environmental quality standards (EQS) for priority substances and certain other pollutants with the aim of achieving good surface water chemical status.
80/68/EEC Directive of 17 December 1979 Amendment: 01/692/EEC Directive of 23 December 1991 Regulation (EC) No 1882/2003 of 29 September 2003	Groundwater Directive Council Directive on the protection of groundwater against pollution caused by certain dangerous substances	•Article 3 •Article 10 •Article 11	The purpose of this Directive is to prevent the pollution of groundwater by substances belonging to the families and groups of substances in lists I or II in the Annex, and as far as possible to check or eliminate the consequences of pollution which has already occurred.

Code	Directive	Related Articles	Description
2006/118/EC Directive of 12 December 2006	Groundwater Daughter Directive Directive on the protection of groundwater against pollution and deterioration	•Article 1 •Article 3 •Annex-I •Annex-II	This Directive establishes specific measures in order to prevent and control groundwater pollution.
98/83/EC Directive of 3 November 1998	Drinking Water Directive Directive on the quality of water intended for human consumption	•Article 2 •Article 4 •Article 5 •Article 7 •Annex-I •Annex-II	The objective of this Directive shall be to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean.
75/440/EEC Directive of 16 June 1975	Surface Water Directive Directive concerning the quality required of surface water intended for the abstraction of drinking water in the Member States		This Directive concerns the quality requirements which surface fresh water used or intended for use in the abstraction of drinking water, must meet after application of appropriate treatment. For the purposes of applying this Directive, all surface water intended for human consumption and supplied by distribution networks for public use shall be considered to be drinking water.
91/271/EEC Directive of 21 May 1991 Amendments: 98/15/EC Directive of 27 February 1998 93/481/EEC Commission Decision of 28 July 1993	Urban Waste Water Treatment Directive Directive concerning urban wastewater treatment	•Article 4 •Article 5 •Commission Decision 93/481/EEC	This Directive concerns the collection, treatment and discharge of urban waste water and the treatment and discharge of waste water from certain industrial sectors.
2008/98/EC Directive of 19 November 2008	Waste Framework Directive	•Article 4 •Article 13 •Article 14 •Article 17 •Article 18 •Article 19 •Article 21 •Article 35	This Directive lays down measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use.

Code	Directive	Related Articles	Description
Regulation EC/850/2004 of 29 April 2004	Regulation on persistent organic pollutants	•Article 3 •Article 5 •Article 6 •Article 7	Taking into account, in particular, the precautionary principle, the objective of this Regulation is to protect human health and the environment from persistent organic pollutants by prohibiting, phasing out as soon as possible, or restricting the production, placing on the market and use of substances subject to the Stockholm Convention on Persistent Organic Pollutants, or the 1998 Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Persistent Organic Pollutants, and by minimising, with a view to eliminating where feasible as soon as possible, releases of such substances, and by establishing provisions regarding waste consisting of, containing or contaminated by any of these substances.
Regulation EC/1013/2006 of 14 June 2006	Regulation on shipments of waste		This Regulation establishes procedures and control regimes for the shipment of waste, depending on the origin, destination and route of the shipment, the type of waste shipped and the type of treatment to be applied to the waste at its destination.
2006/66/EC Directive of 6 September 2006	Directive on batteries and accumulators and waste batteries and accumulators	•Article 2 •Article 11 •Article 12 •Article 14 •Annex-II	This Directive establishes: (1) rules regarding the placing on the market of batteries and accumulators and, in particular, a prohibition on the placing on the market of batteries and accumulators containing hazardous substances; and (2) specific rules for the collection, treatment, recycling and disposal of waste batteries and accumulators to supplement relevant Community legislation on waste and to promote a high level of collection and recycling of waste batteries and accumulators. It seeks to improve the environmental performance of batteries and accumulators and of the activities of all economic operators involved in the life cycle of batteries and accumulators, e.g. producers, distributors and end-users and, in particular, those operators directly involved in the treatment and recycling of waste batteries and accumulators.
99/31/EC Directive of 26 April 1999	Landfill Directive Council Directive on the landfill of waste	•Article 5 •Article 6 •Article 7 •Article 11	The objective of the Directive is to prevent or reduce as far as possible negative effects on the environment from the landfilling of waste, by introducing stringent technical requirements for waste and landfills. The Directive is intended to prevent or reduce the adverse effects of the landfill of waste on the environment, in particular on surface water, groundwater, soil, air and human health.

Code	Directive	Related Articles	Description
96/59/EC Directive of 16 September 1996	Council Directive on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT)	•Article 4 •Article 6	The purpose of this Directive is to approximate the laws of the Member States on the controlled disposal of PCBs, the decontamination or disposal of equipment containing PCBs and/or the disposal of used PCBs in order to eliminate them completely on the basis of the provisions of this Directive.
94/62/EC Directive of 20 December 1994	European Parliament And Council Directive on packaging and packaging waste	•Article 2 •Article 4 •Article 5 •Article 6 •Article 7	This Directive aims to harmonize national measures concerning the management of packaging and packaging waste in order, on the one hand, to prevent any impact thereof on the environment of all Member States as well as of third countries or to reduce such impact, thus providing a high level of environmental protection, and, on the other hand, to ensure the functioning of the internal market and to avoid obstacles to trade and distortion and restriction of competition within the Community. To this end this Directive lays down measures aimed, as a first priority, at preventing the production of packaging waste and, as additional fundamental principles, at reusing packaging, at recycling and other forms of recovering packaging waste and, hence, at reducing the final disposal of such waste.
91/689/EEC Directive of 12 December 1991	Council Directive on hazardous waste	•Article 2 •Article 5 •Article 6 •Annex-I •Annex-II •Annex-III	The object of this Directive is to approximate the laws of the Member States on the controlled management of hazardous waste.
2010/75/EU Directive of 24 November 2010	Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control)		This Directive lays down rules on integrated prevention and control of pollution arising from industrial activities.
2008/1/EC Directive of 15 January 2008	IPPC Directive Directive concerning integrated pollution prevention and control	•Article 4 •Article 7 •Article 12 •Article 14 •Article 20 •Article 21 •Article 22 •Article 23	The purpose of this Directive is to achieve integrated prevention and control of pollution arising from the activities listed in Annex I. It lays down measures designed to prevent or, where that is not practicable, to reduce emissions in the air, water and land from the abovementioned activities, including measures concerning waste, in order to achieve a high level of protection of the environment taken as a whole.

Code	Directive	Related Articles	Description
		•Annex-I •Chapter II •Chapter III	
2004/42/CE Directive of 21 April 2004	Directive on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products		The purpose of this Directive is to limit the total content of VOCs in certain paints and varnishes and vehicle refinishing products in order to prevent or reduce air pollution resulting from the contribution of VOCs to the formation of tropospheric ozone.
84/360/EEC Directive of 28 June 1984	Directive on the combating of air pollution from industrial plants		The purpose of this Directive is to provide for further measures and procedures designed to prevent or reduce air pollution from industrial plants within the Community, particularly those belonging to the categories set out in Annex I.
Regulation EC/1005/2009 of 16 September 2009	Regulation On Substances That Deplete The Ozone Layer	•Article 1 •Chapter II •Article 22	This Regulation lays down rules on the production, import, export, placing on the market, use, recovery, recycling, reclamation, and destruction of substances that deplete the ozone layer, on the reporting of information related to those substances and on the import, export, placing on the market and use of products and equipment containing or relying on those substances.
2009/30/EC Directive of 23 April 2009	2009/30/EC Directive (amending Directive 98/70/EC) as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC		This Directive sets, in respect of road vehicles, and non-road mobile machinery (including inland waterway vessels when not at sea), agricultural and forestry tractors, and recreational craft when not at sea: (a)technical specifications on health and environmental grounds for fuels to be used with positive ignition and compression-ignition engines, taking account of the technical requirements of those engines; and (b) a target for the reduction of life cycle greenhouse gas emissions
Decision 280/2004/EC of 11 February 2004	Decision concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol		This Decision establishes a mechanism for: (a)monitoring all anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol on substances that deplete the ozone layer in the Member States; (b)evaluating progress towards meeting commitments in respect of these emissions by sources and removals by sinks

Code	Directive	Related Articles	Description
2002/3/EC Directive of 12 February 2002	Third Daughter Directive Directive relating to ozone in ambient air	•Article 3 •Article 4 •Annex-I	The purpose of this Directive is: (a)to establish long-term objectives, target values, an alert threshold and an information threshold for concentrations of ozone in ambient air in the Community, designed to avoid, prevent or reduce harmful effects on human health and the environment as a whole; (b)to ensure that common methods and criteria are used to assess concentrations of ozone and, as appropriate, ozone precursors (oxides of nitrogen and volatile organic compounds) in ambient air in the Member States; (c)to ensure that adequate information is obtained on ambient levels of ozone and that it is made available to the public; (d)to ensure that, with respect to ozone, ambient air quality is maintained where it is good, and improved in other cases; (e)to promote increased cooperation between the Member States, in reducing ozone levels, use of the potential of transboundary measures and agreement on such measures.
2001/42/EC Directive of 27 June 2001	Strategic Environmental Assessment Directive Directive on the assessment of the effects of certain plans and programmes on the environment	•Article 3 •Article 4 •Article 5 •Article 6 •Article 8 •Article 10	The objective of this Directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment.
90/313/EEC Directive of 7 June 1990 Amendment: 2003/4/EC Directive of 28 January 2003	Directive on Access to Environmental Information Council Directive on freedom of access to information on the environment	•Article 2 •Article 4	The object of this Directive is to ensure freedom of access to, and dissemination of, information on the environment held by public authorities and to set out the basic terms and conditions on which such information should be made available

ENVIRONMENTAL ACTION PLAN
ANNEX 2 ESMP OF EPCM

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P3-A	DIC	24.11.2014	**Discipline Internal Check**
P3-B	IDC	24.12.2014	**Interdisciplinary Check**
P3-0	IAA	15.01.2015	**Issued As Approved**
P3-1	Re-IAA	25.11.2015	**Re-Issued As Approved**
P3-2	Re-IAA	20.07.2016	**Re-Issued As Approved**

HOLDS

No.	Section	Description	Input From	Planned Date

WorleyParsons resources & energy	TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT	TANAP

EPCM Environmental and Social Management System

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP Approval
P3-C	IFR	13-Nov-14	Issued for Review	COLC	PORL	KAND	
P3-D	Re-IFR	15-Jan-15	Re-Issued for Review	COLC	PERJ	PORL	
P3-E	Re-IFR	02-Feb-15	Re-Issued for Review	PERJ	MORM	PORL	
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P4-0	IAAC	13-Apr-15	Issued as Approved for Construction	BRAC	MORM	COTM	
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Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P3-C	IFR	13-Nov-14	
P3-D	Re-IFR	15-Jan-15	
P3-E	Re-IFR	02-Feb-15	Revision to adjust the scope of the document from the "TANAP Project ESMS" to the "EPCM ESMS" (focusing exclusively on the EPCM's scope of work), as per requested by TANAP during the ESMS Workshop held in Ankara on the 8th January 2015.
P3-F	Re-IFR	24-Mar-15	Revised based on comments from TANAP.
P4-0	IAAC	13-Apr-15	Issued as Approved for Construction
P4-1	IFA	15-Dec-15	Revised following Management Review (21 Nov 2015). Specifically: Minor additions to Abbreviations and to References Updates to Section 6.2 EPCM Management Team Updates to Section 7.1 Environmental and Social Control of Engineering Activities Updates to Section 7.3 Environmental and Social Control of Construction Activities Updates to Section 8 Training, Awareness and Competence Minor changes to Section 10 Monitoring and Reporting Update to Section 10.4 Third Party Audits Update to Appendix 2 Aspects and Impacts Register

P4 - 2	Re-IFA	11 January	Corrected references to TANAP Project Change Management Procedure Inclusion of International Standards and Guidelines into Appendix 3. Updated reference section with HAZID Action Tracking Management System (ATMS) Action Item Numbers Updated reference section and section 2.1 with 14001-2015

HOLDS

No.	Section	DESCRIPTION	Input From	Planned Date

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LIST OF FIGURES

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DEFINITIONS

In this document the following terms are defined as described below:

Area of Influence	Area potentially affected by impacts from project activities, assets and facilities, including associated facilities
Audit	System of gathering information to determine the degree of compliance with applicable policies, standards or regulations.
Client	TANAP DOĞALGAZ İLETİM A.Ş.
Commitment Register	The register which outlines the commitments of the ESIA.
Construction Contractor	Company responsible for the construction works of the Project. Definition includes EPCs
Environmental or Social Objective	Overall environmental or social goal, arising from the environmental policy, that an organization sets itself to achieve, and which is quantifiable where practicable.
Environmental or Social Target	Detailed performance requirement, quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental or social objectives and that needs to be set and met in order to achieve those objectives
EPC	Contractor responsible for Engineering, Procurement and Construction works
EPCM	Company responsible for the engineering, procurement, and construction management on behalf of the Client
ESIA	Turkish language ESIA Report which was approved as of 24-7-2014 by Ministry of Environment and Urbanisation and the latest English version of the ESIA Report approved by TANAP after public disclosure process
Key Performance Indicator	An indicator that is measured against a target, with the expectation that the target will be met. Indicates compliance with project requirements.
Measure	An indicator of the volume or quantity of an impact.
Monitoring	Process of observation and sampling to obtain information

	to establish baseline and trends.
Performance Indicator	An indicator that is measured against a target, with the expectation that the trend will be toward meeting the target.
Project	Trans Anatolian Natural Gas Pipeline Project
Shall and Must	Indicates mandatory requirements
Should	Indicates that a provision is not mandatory, but recommended as good practice
Subcontractor	Company working under a contract to a Contractor
TANAP Project	Trans Anatolian Natural Gas Pipeline Project
Work	Any and all activities, services, and materials provided by a Contractor, subcontractors and suppliers

ABBREVIATIONS AND ACRONYMS

Abbreviation	Definition
AGI	Above Ground Installation
AoI	Area of Influence
Bcm/yr	Billion cubic metres per year
CLIENT	TANAP Doğalgaz İletim A.Ş.
CC	Construction Contractor
CHMP	Cultural Heritage Management Plan
CR	Commitment Register
CS	Compressor Station
E/S	Environmental and Social
EIA	Environmental Impact Assessment
EMS	Environmental Management System
ENVID	Environmental Aspects Identification
EPC	Engineering, Procurement and Construction Contractors
EPCM	Engineering Procurement and Construction Management
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
EU	European Union
FEED	Front End Engineering Design
HAZID	Hazard Identification
HAZOP	Hazard Operational Study
HGA	Host Government Agreement
HSE	Health, Safety and Environment
HSSE	Health, Safety, Security and Environment

Abbreviation	**Definition**
IGA	Inter-Governmental Agreement
IMS	Integrated Management System
IMSP	Integrated Management System Policy (ISMP)
KPI	Key Performance Indicator
MOC	Management of Change
MoEU	Ministry of Environment and Urbanisation
NCR	Non-Conformance Report
OSID	Online Stakeholder Interaction Database
RoW	Right of Way
SEP	Stakeholder Engagement Plan
TANAP	Trans Anatolian Natural Gas Pipeline Project

REFERENCES

Document Number	Title
European Bank for Reconstruction and Development, 2010	EBRD Environmental and Social Performance Requirements
European Bank for Reconstruction and Development, 2013	Environmental and Social Management Systems (ESMS) – An Overview of Performance Requirements www.ebrd.com/e-manual
European Investment Bank, 2010	Environmental and Social Practices Handbook
International Organization for Standardisation	ISO 14001:2015, Environmental Management Systems – Requirements with guidance for use, 2nd Edition
International Organization for Standardisation	ISO 14004:2015, Environmental Management Systems –
TNP-REP-ENV-GEN-001	ESIA Report (Turkish language)
TNP-REP-ENV-GEN-002	ESIA Report (English language)
CIN-REP-ENV-GEN-017	Biodiversity Action Plan
TNP-POL-PRM-GEN-001	TANAP Integrated Management System Policy
TNP-PLN-ENV-GEN-002	Environmental Action Plan
TNP-PCD-PAL-Gen-001	Permitting Procedure
BCH-MAN-PAL-GEN-001	Authority Approval Manual
WRP-PCD-PRM-GEN-005	TANAP Project Change Management Procedure
WRP-PCD-PPL-GEN-006…	Route Change Review and Approval Procedure
WRP-PLN-ENV-GEN-003	Stakeholder Engagement Plan
WRP-SPC-HSE-GEN-001	Health, Safety, Social and Environmental Requirements For Suppliers and Vendors
WRP-PCD-ENV-GEN-004	Grievance Procedure
WRP-PCD-ENV-GEN-002	Non-Conformance and Corrective Actions Procedure for Environmental and Social Issues

WRP-PCD-HSE-GEN-011	Health, Safety and Environmental Incident Reporting and Investigation Procedure
WRP-PCD-ENV-GEN-003	Chance Finds Procedure
WRP-LST-ENV-GEN-001	Needs and Commitments List
WRP-PLB-QAC-GEN-004	EPCM Project Audit Plan
WRP-PLN-HSE-GEN-001	Health, Safety, Security and Environment Plan
WRP-PLN-QAC-GEN-001	EPCM Project Quality Plan
WRP-PLN-QAC-GEN-004	EPCM Project Audit Plan
WRP-AGR-PPL-DAR-012	EPCM Project Security Plan
WRP-SPC-EGG-PLG-001	Reinstatement Specification
WRP-SPC-PRM-GEN-001	Contractor Coordination Specification
WRP-ACS RSM-GEN-276 / 281	HAZID Action Tracking Management System (ATMS) Action Item Numbers
BCH-ACS-RSM-GEN-011 / 041 / 058 / 082 / 089	HAZID Action Tracking Management System (ATMS) Action Item Numbers

1. INTRODUCTION

The Trans Anatolian Natural Gas Pipeline (TANAP) Project is aware that adequate management of quality, occupational health and safety, environmental and social issues bear prime importance in the success of all of TANAP's functions, projects and performed activities.

As part of its overall management commitments, TANAP has developed an Environmental and Social Policy which is the statement of its intentions and principles concerning its environmental and social performance. It provides the reference for TANAP's actions and for the definition of its environmental and social objectives and targets. Through this Policy, TANAP commits to "*design, build and operate a safe, high quality and environmentally and socially responsible natural gas transmission pipeline system supporting the economic development of the country while protecting the sustainability of the natural resources*".

In addition, TANAP has developed a Company-wide Integrated Management System (IMS) outlining an organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for the development, implementation, execution, review and maintenance of TANAP's Policies.

As part of their IMS, TANAP requires that all contractors, including the EPCM, comply with the principles established in their environmental and social plans and policies and, as part of the compliance, that each contractor have their own Environmental and Social Management System (ESMS) to describe the organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for the implementation and execution of the activities under their responsibility.

EPCM's project management is governed by the Project Execution Plan (WRP-PLN-PRM-GEN-001). This document is the EPCM ESMS, which sits under the Project Execution Plan and alongside other management documentation related to construction, health and safety, quality, and security, among others. The purpose of this document is to set out a system for management of environmental and social issues associated with the EPCM scope of work on the TANAP Project. This document is also consistent with the WorleyParsons Health, Safety and Environmental Policy (see Appendix 1) as a guiding policy document.

The ESMS will be reviewed, revised and reissued periodically to reflect the current status of environmental and social management and its documentation.

Specifically, this document describes the following:

- Principles under which this document was developed.
- Scope of this ESMS
- Process for identifying and evaluating the environmental and social aspects of the project.
- Legal and other requirements.
- Objectives, targets and Key Performance Indicators (KPIs) set for achieving continual improvement in environmental and social performance;
- Organisational roles and responsibilities;
- Operational controls;

- Training;
- Document control, record keeping and communication; and
- Monitoring and reporting;
- Management review.

The EPCM ESMS has been developed to comply with the ISO 14001:2015 standard for an EMS. Construction Contractors shall also develop and implement their own ESMS's according to ISO 14001:2015, and aligned with the TANAP IMS and the EPCM ESMS, thus ensuring compliance with TANAP's Environmental and Social Policy.

2. EPCM ESMS PRINCIPLES

The EPCM ESMS has been developed in line with the following principles:

- Understanding the environmental and social goals;
- Acknowledging that managers, employees and third parties are responsible for the implementation of the ESMS and for the environmental and social performance of the Project;
- Identifying , evaluating and systematically documenting environmental and social aspects and impacts of the project activities to foster their proactive management;
- Complying with legal and other requirements;
- Establishing objectives and targets to avoid or reduce the environmental and social impacts;
- Establishing programs to meet the objectives and targets, oriented to continuous improvement;
- Implementing monitoring programs in order to support the verification of legal compliance and environmental/social performance;
- Ensuring the awareness and competence of personnel regarding policies, objectives and targets;
- Conducting periodic internal and external audits; and,
- Reviewing progress in achieving the objectives and targets and make improvements.

The EPCM ESMS has been developed and will be implemented with the following management philosophy:

- it is dynamic and can accommodate change and improvements;
- it facilitates alignment between all phases of the TANAP Project's implementation;
- it integrates all elements of the TANAP Project under EPCM's scope;
- it applies the "Plan-Do-Check-Act" consistent with the ISO 14001:2015 standard; and
- it aims to achieve continual improvement throughout the design and construction phases of the TANAP Project.

Important benefits of establishing and implementing a robust ESMS include cost savings; reduced risk and liabilities; increased operational efficiency and effectiveness; improved external relations with stakeholders and public image; improved internal and external communication; and enhanced employee stewardship.

2.1 International Standard for an ESMS (ISO 14001)

The ISO 14001 standard establishes a framework for the structure, development and implementation of an ESMS. The ISO 14001 "Plan-Do-Check-Act" philosophy and Continual Improvement model are illustrated in Figure 1.

Figure 1: SO 14001 Model

This ESMS has been developed to comply with the ISO 14001:2015 standard for an EMS. The model indicated above has therefore been embedded in this ESMS, with the ultimate aim of continual improvement.

TANAP Contractors, including their Subcontractors, shall also develop and implement their own ESMS's according to ISO 14001:2015, and aligned with the TANAP IMS and the EPCM ESMS.

Table 1 indicates how the requirements of ISO 14001 are met in this document and other plans and procedures.

Table 1: Satisfaction of Key ISO Requirements

ISO Requirement	**Reference**
Environmental Policy	See Appendix 1
Environmental and Social Aspects	The project ESIA Report has identified the majority of aspects and impacts. Through EPCM Management of Change procedure (WRP-PCD-PRM-GEN-005) new aspects are identified and assessed. Aspects and Impacts Register – see Appendix 2 of this document.
Legal and other requirements	The project ESIA Report has identified the legal requirements. Authority Approval Plan (BCH-MAN-PAL-GEN-001) Permitting Procedure (TNP-PCD-PAL-GEN-001)
Resources, roles, responsibilities	See Section 6 of this document.
Competence, training and awareness	See Section 8 of this document
Communication	Stakeholder Engagement Plan (WRP-PLN-ENV-GEN-003) Contractor Coordination Specification (WRP-SPC-PRM-GEN-001) See Section 9.3 of this document.
Documentation	Document Control Procedure (WRP-PLN-DCC-GEN-001).
Operational Control	See Section 7 of this document
Emergency Preparedness and Response	See Section 2.2 of this document
Monitoring and Measuring	See Sections 6 and 10 of this document
Evaluation of Compliance	EPCM Project Audit Plan (WRP-PLN-QAC-GEN-004 See Section 6 and 10 of this document
Non-conformity, corrective action and preventive action	Non-Conformance and Corrective Action Procedure for Environmental and Social Issues (WRP-PCD-ENV-GEN-002)

	See Section 7 of this document.
Control of records	Document Control Procedure (WRP-PLN-DCC-GEN-001). See Section 9 of this document
Audit	See Sections 10.3 and 10.4 of this document
Management review	See Section 11 of this document

2.2 EPCM ESMS Scope

The EPCM ESMS establishes the basis and mechanisms to help ensure the successful management of the environmental and social aspects and impacts of the Project's activities that are responsibility of the EPCM. The scope of the EPCM ESMS therefore covers:

- the environmental and social components of the development of the Detailed Design (procurement and detailed engineering);
- the management of Construction Contractors (CC) and Engineering, Procurement and Construction Contractors (EPCs) in relation to environmental and social aspects and impacts of their scopes or work. Project elements include, but are not limited to, the construction of the pipeline (onshore and offshore), stations (compressor stations, metering stations, block vale stations, pigging stations, and off-take stations), SCADA, access roads, camps and ancillary facilities.

With regard to planning for emergency response, the Construction Contractors will be required to develop plans to address emergency situations. These plans will be reviewed and approved by EPCM to ensure that they adequately address environmental aspects of emergency situations. The plans will include information related to notification of EPCM and authorities, as required. EPCM has its Health, Safety and Environment Incident Reporting and Investigation Procedure (WRP-PCD-HSE-Gen-011) which would dictate how EPCM reports incidents, including emergencies.

3. ENVIRONMENTAL AND SOCIAL ASPECTS AND IMPACTS

The TANAP project-wide ESIA Report (TNP-REP-ENV-GEN-001 and TNP-REP-ENV-GEN-002 [Turkish and English versions]) identified environmental and social baselines and aspects for the entire route of the pipeline. The ESIA assessed the impact of the project on these baselines to determine project impacts and risks. Mitigation measures were outlined to reduce and or avoid such impacts and risks. The environmental and social impacts associated with the construction and pre-commissioning phases of the Project are amongst those presented in the Table 2-1 Impact Register (Appendix 4-5 of the ESIA Report), along with the associated recommended mitigation measures. The Biodiversity Action Plan (CIN-REP-ENV-GEN-017) superseded the ESIA in relation to flora and fauna commitments.

The design controls, safeguards, mitigation measures and monitoring activities that aim to avoid, prevent, minimise (or where this is not possible, offset) potential adverse environmental and social impacts, and enhance positive impacts, presented in the approved ESIA Report, constitute commitments of the TANAP Project. These have been compiled in the Appendix 4-7 “Commitments Register” of the ESIA Report. The Commitments Register therefore lists commitments of the Project, with the identification of impacts on project components and the monitoring plans, permitting and/or additional studies required.

The development of the EPCM ESMS shall ensure that the commitments listed in the Commitments Register related with the design phase of the Project will be addressed during the development of the detailed design, and that those related with the construction of the Project will be addressed and implemented by the EPCs and CCs, under EPCM supervision.

In addition, new aspects and impacts will be identified through application of the processes in accordance with TANAP Project Change Management Procedure (WRP-PCD-PRM-GEN-005). EPCM will maintain an aspects and impacts register (see Appendix 2) that will add to the aspects and impacts already identified in the ESIA Report. If any new mitigation measures are required as a result of a new impact, this will be discussed/agree with TANAP, noted in the Aspects and Impacts Register, and informed to the CC through a site instruction or letter.

4. LEGAL AND OTHER REQUIREMENTS

This ESMS takes account of legal requirements, international best practice and TANAP policies.

A detailed description of the legal, political and institutional framework is provided in Chapter 4 of TANAP Project ESIA Report 'Legal, Political and Institutional Framework'. A summary of the list of relevant legal and policy requirements and standards is attached in Appendix 3 of this document.

The general hierarchy of the E&S guiding principles and requirements applicable to the Project is illustrated in Figure 2.

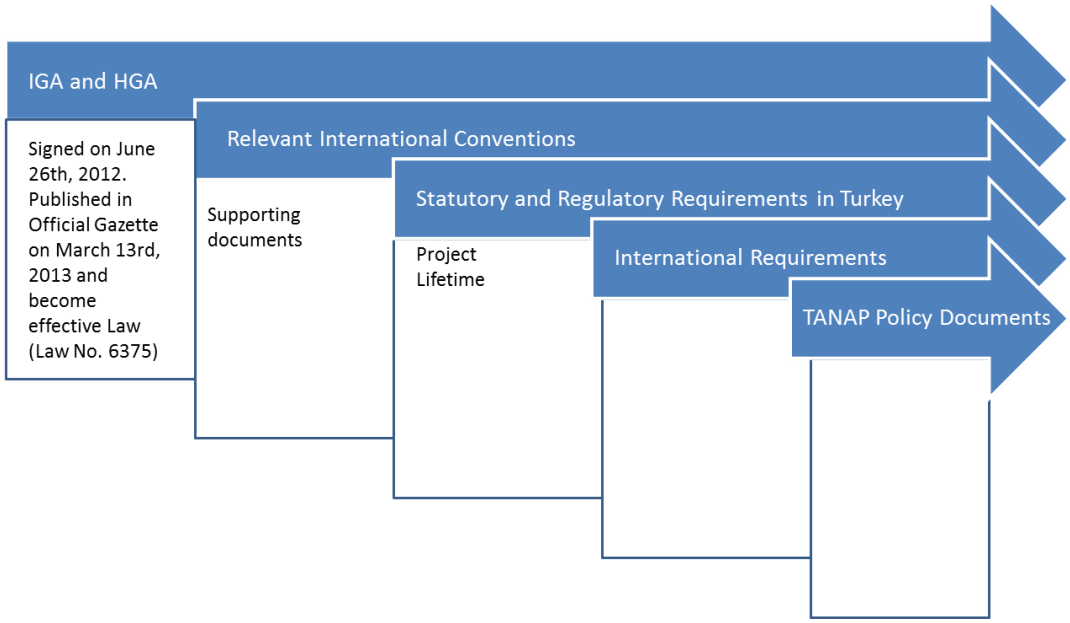

Figure 2: Hierarchy of the Project's Legal and Other requirements

These requirements have been incorporated in the EPCM ESMS and will be included in the EPCs and CCs' ESMSs and ESMPs. EPCs and CCs have been provided with the approved ESIA and other relevant information and documentation as part of their bid documentation so as to guide them in the development of their documentation in a way that would ensure compliance with these requirements.

5. OBJECTIVES, TARGETS AND KPIS

Compliance with the requirements and principles of this ESMS shall be measured against the objectives and targets set, using the KPI's defined.

5.1 Objectives

TANAP's objective for the project in relation to the environmental and social aspects of the project is zero harm to the environment and community.

Specific objectives the EPCM aims to achieve on the TANAP Project are to:

- ensure the commitments listed in the Commitments Register (per ESIA) related with the design of the pipeline (engineering) are addressed during the development of the detailed design;
- ensure the commitments listed in the Commitments Register (per ESIA) related with the construction of the Project and the responsibility of the EPCs and CCs, are addressed and implemented during the construction phase, under EPCM supervision;
- ensure applicable national and international environmental and social laws, regulations, standards and requirements related with design and construction are identified, understood, and complied with;
- establish a monitoring and inspection mechanism to document that commitments are being achieved;
- provide assistance to EPCs and CC (and their subcontractors) in the preparation of their ESMS and project-specific ESMPs; and
- ensure key staff is adequately trained and are competent to follow procedures.

5.2 KPI's and Targets

KPIs, with corresponding performance targets, will be used as a way to measure compliance with project commitments and continually improve environmental and social performance. KPIs for EPCM performance have been agreed with TANAP. EPCM has established KPIs (for Construction Contractor performance.

5.2.1 EPCM KPIs and Targets

EPCM will report monthly to TANAP on the following KPIs (See Table 2).

Table 2: EPCM KPIs

EPCM KPIs						
		Type	Period	Target	Actual	Brief Notes
1.0	Environment audits completed vs planned	KPI	Quarterly	100%		
2.0	Social audits completed vs planned	KPI	Quarterly	100%		
3.0	Environment trainings completed vs planned	KPI	Quarterly	100%		
4.0	Social trainings completed vs planned	KPI	Quarterly	100%		
5.0	Total % of environmental non compliances closed within agreed timeframe	KPI	Monthly	100%		
6.0	Total % of social non compliance closed within agreed timeframe	KPI	Monthly	100%		
7.0	% of E/S field staff hired as per plan	KPI	Quarterly	100%		
8.0	# of fines for environmental violations	Measure	Monthly	N/A		
9.0	# of fines greater than 1000 TL for environmental violations	KPI	Monthly	0		
10.0	ESMS Management review undertaken	Measure	Yearly	1		

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5.2.2 Contractor KPIs and Targets

The EPCM has established measurable environmental and social monitoring KPIs to track Project performance. The aim is to achieve defined objectives and targets, and evaluate and improve Project environmental and social performance. See Table 3.

Indicators fall into the following categories:

- Key Performance Indicators – are measured against a given value. The expectation is that the target value will be met.
- Performance Indicators – are measured against a target, with an expectation that there will be continual improvement toward meeting the target.
- Measures – are reported to give an indication of the volume or quantity of a project impact.

Based on monthly reporting against the KPIs, EPCM will assess whether CCs are performing well, performing with some risk, or performing with significant risk against each indicator, using a color coding system. EPCM will also assess whether changes in performance over time are positive or negative. This will allow management actions to be developed to improve “at risk” performance.

Table 3: KPIs for Construction Contractors

ENVIRONMENTAL & SOCIAL KPIs FOR MAIN PIPELINE CONTRACTORS				
		Type	**Period**	**Target**
1.0	**ENVIRONMENTAL MANAGEMENT SYSTEM**			
1.1	Environment audits completed vs planned	KPI	Quarterly	100%
1.2	Social audits completed vs planned	KPI	Quarterly	100%
1.3	Environment trainings completed vs planned	KPI	Quarterly	100%
1.4	Social trainings completed vs planned	KPI	Quarterly	100%
1.5	Total % of environmental non compliances closed within the agreed timeframe	KPI	Quarterly	100%
1.6	Total % of social non compliance closed within the agreed timeframe	KPI	Quarterly	100%
1.7	# of fines for environmental violations	Measure	Monthly	N/A
1.8	# of fines greater than 1000 TL for environmental violations	KPI	Monthly	0
2.0	**GHG EMMISSIONS**			
2.1	Tonnes of CO2 emitted per km of pipeline laid	Measure	Monthly	N/A
3.0	**POLLUTION PREVENTION - AIR QUALITY**			
3.1	% of test results compliant with legal standards	KPI	Monthly	100%
3.2	# of tests carried out near senstive receptors	Measure	Monthly	N/A
3.3	# of complaints received related to dust, and/or odor	KPI	Monthly	0
3.4	% of non compliances raised by EPCM which are closed within agreed timeframe	KPI	Monthly	100%
4.0	**POLLUTION PREVENTION - NOISE**			
4.1	% of test results compliant with legal standards	KPI	Monthly	100%
4.2	# of tests carried out near senstive receptors	Measure	Monthly	N/A
4.3	# of complaints related to noise	KPI	Monthly	0
4.4	% of non compliances raised by EPCM which are closed within agreed timeframe	KPI	Monthly	100%
5.0	**POLLUTION PREVENTION - VIBRATION**			
5.1	% of blasts monitored	KPI	Monthly	100%
5.2	# of baseline monitoring locations measured	Measure	quarterly	N/A
5.3	# of complaints related to vibration	KPI	Monthly	0
5.4	% of non compliances raised by EPCM which are closed within agreed timeframe	KPI	Monthly	100%
6.0	**POLLUTION PREVENTION - LAND**			
6.1	# of spills to land of volume greater than 50 litres	KPI	Monthly	0

7.0	**WATER MANAGEMENT**			
7.1	% of tests/samples compliant with legal standards for effluent discharge	KPI	Monthly	100%
7.2	% tests/samples compliant with legal standards for potable water	KPI	Monthly	100%
7.3	% tests/samples compliant with Project hydrotest water discharge requirements	KPI	Monthly	100%
7.4	# of spills to water	KPI	Monthly	0
7.5	Total water abstraction (m3)	Measure	Monthly	N/A
7.6	# of complaints received regarding negative impact to third party water quality or quantity	KPI	Monthly	0
7.7	% of non compliances raised by EPCM which are closed within agreed timeframe	KPI	Monthly	100%
8.0	**WASTE MANAGEMENT**			
8.1	Non hazardous waste generated (kg)	Measure	Monthly	N/A
8.2	Hazardous waste generated (kg)	Measure	Monthly	N/A
8.3	% of waste segregated	KPI	Monthly	100%
8.4	Waste recycled (kg)	Measure	Monthly	N/A
8.5	Waste reused (kg)	Measure	Monthly	N/A
8.6	# of complaints received regarding poor waste management affecting third parties	KPI	Monthly	0
8.7	% of non compliances raised by EPCM which are closed within agreed timeframe	KPI	Monthly	100%
9.0	**ECOLOGICAL MANAGEMENT**			
9.1	# of project related injured/dead fauna	Measure	Monthly	0
9.2	# of off-ROW disturbances	KPI	Monthly	0
9.3	# of incident/damage to sensitive areas	KPI	Monthly	0
9.4	% of survival rate of transplanted flora	KPI	Annual	75%
9.5	% of non compliances raised by EPCM which are closed within agreed timeframe	KPI	Monthly	100%
10.0	**EROSION CONTROL AND REINSTATEMENT**			
10.1	# of complaints related to sedimentation to off ROW areas and/or waterbodies	Measure	Monthly	N/A
10.2	# of non compliances related to topsoil/subsoil segregation	KPI	Monthly	0
10.3	% of vegetation cover post reinstatement	PI	Monthly	positive trend
11.0	**AGGREGATE**			
11.10	% of quary sites used that are properly licensed	KPI	Monthly	100%
12.0	**TRAFFIC MANAGEMENT**			
12.1	# of traffic or access related complaints received	KPI	Monthly	0
12.2	# of traffic incidents involving third parties	KPI	Monthly	0
13.0	**CULTURAL HERITAGE**			
13.1	# of known archaeological/cultural heritage sites damaged during construction activities	KPI	Monthly	0
13.2	# of times work stopped by Contractors to report chance finds.	Measure	Monthly	N/A
13.0	% of non compliances raised by EPCM which are closed within agreed timeframe	KPI	Monthly	100%

14.0	**COMMUNITY RELATIONS**			
14.1	% of CLO hired and deployed against the plan	KPI	Monthly	100%
14.2	Total # of complaints	Measure	Monthly	N/A
14.3	% of compliants that are received that are registered in OSID within 48 hours	KPI	Monthly	100%
14.4	% of complaints that are closed within 30 days.	KPI	Monthly	90%
14.5	# of work blockages resulting in down time for crews	Measure	Monthly	N/A
15.0	**EMPLOYMENT**			
15.1	% of unskilled staff employed from affected provinces	KPI	Monthly	100%
15.2	Out of 100% unskilled staff employed from affected province, % that is employed from affected district	KPI	Monthly	90%
15.3	Out of the 90% of unskilled staff employed from affected district, % that is employed from affected villages	KPI	Monthly	80%
15.4	% of semi skilled staff employed from affected provinces	KPI	Monthly	100%
15.5	# of semi skilled staff employed from affected villages	Measure	Monthly	N/A
15.6	% of skilled staff employed from a national level	KPI	Monthly	80%
15.7	# of community complaints relating to recruitment issues	PI	Monthly	negative trend
15.8	# of worker grievances	Measure	Monthly	N/A
15.9	# of worker strikes	Measure	Monthly	N/A
16.0	**PROCUREMENT AND SUPPLY**			
16.1	% of goods procured locally (village, district or province affected by pipeline)	Measure	Quarterly	N/A
16.2	% of services that are procured locally (village, district or province affected by pipeline)	Measure	Quarterly	N/A
16.3	# of complaints relating to the procurement process	Measure	Quarterly	N/A
16.4	# of complaints received from suppliers regarding payment from EPCs for goods or services	PI	Quarterly	negative trend
17.0	**COMMUNITY SAFETY**			
17.1	# of community safety initiatives implemented	Measure	Quarterly	N/A
17.2	# of community safety trainings done	Measure	Monthly	N/A
18.0	**LAND ACCESS**			
18.1	# of land parcels entered without signed Land Delivery document from LRE/TANAP	KPI	Monthly	0
18.2	# of land parcels entered without Land Entry document signed between landowner and CC	KPI	Monthly	0
18.3	# of parcels for which EPCM refuses to sign Land Exit Protocol due to inadequate reinstatement.	KPI	Monthly	0

6. ORGANISATIONAL ROLES AND RESPONSIBILITIES

The key aims of this Chapter are the following:

- To describe the roles and responsibilities for TANAP, the EPCM and EPCs / CC during the project implementation;
- To define the EPCM E&S management and organisational structure;

6.1 Division of Responsibilities

The key primary responsibilities of central entities involved in the overall E&S organisation are summarised in below. :

Table4: Overall Environmental and Social Organization of TANAP Project

Management Level	Summary of Key Responsibilities
TANAP E&S Team	Ensure that TANAP's EMS policies are periodically reviewed by the management and conveyed to all Project areas. Responsible to assure the proper implementation of Third Party monitoring and auditing to ensure performance of the ESMS, in compliance with established requirements and commitments. Monitor ESMS performance through review of information provided by the EPCM, including KPIs, reports, audits, and meetings. Report environmental and social performance to senior management, authorities and other relevant stakeholders. .
EPCM E&S Management and Monitoring Team	Develop, implement and maintain the EPCM ESMS Ensure that Contractor's scope-specific ESMSs and ESMPs are developed and implemented in line with the EPCM ESMS and the requirements of the Project ESIA Report. Monitor and report on the Contractor's implementation of their ESMS and ESMPs. Track the impacts of the Project against the ESMS objectives and KPIs. Work with the Contractors where improvement to the implementation of their ESMSs and ESMPs is necessary to help ensure compliance with Project requirements and commitments. Identify non-conformances and develop corrective or preventive actions as required. Report to TANAP regarding Contractors' and EPCM's performance against

Management Level	Summary of Key Responsibilities
	their ESMS, ESMP and KPIs. Stop work activities in the event of serious breaches of rules that may cause serious impacts on environment and community, or on the reputation of the Project. Ensure that environmental and social aspects are addressed through effective implementation of TANAP Project Change Management Procedure (MOC) Procedure. Ensure regular training occurs for workforce and community to be aware of the Environmental and Social requirements of the Project. Ensure environmental input is included in technical reviews of the project activities, as required.
Contractors E&S Implementation Team	Develop and implement scope-specific ESMSs and ESMPs and procedures consistent with the guidelines included in this ESMS and the requirements of the Project ESIA Report. Inspect and report the Contractor's performance of the Works against the Project E/S KPIs. Implement corrective actions agreed with EPCM as a result of non-conformances or incidents. Provide training to workforce and community as required by the Environmental and Social requirements of the Project. Coordinate and implement required pre-construction activities. Report the environmental and social performance of Works to the EPCM Ensure that adequate and sufficient expertise is provided for execution of the works in accordance with the project E/S requirements.

6.2 EPCM Management Team

Effective management of environmental and social issues in relation to pipeline construction will be achieved through an integrated management team using a variety of monitoring and inspection tools to verify compliance.

EPCM will use a team of qualified personnel to undertake the management of environmental and social issues related to the project using a combination of resources. Specifically:

- A couple of individuals, based in London, will continue to interface with stations', and offshore engineering teams as detailed design is completed for those activities.

- Ankara based E/S team will be responsible for ensuring consistency of compliance across the project and for integrating environmental and social management into further project activities, such as compressor stations and the off-shore crossing. The Ankara based team will also be responsible for compiling all reports on environmental and social compliance to TANAP, and for supporting the site based teams to address issue with Contractor Management that may not be resolved adequately at site.
- Site based E/S team will be responsible for day to day assurance monitoring and management of the CCs in relation to environmental and social issues. This will be accomplished through daily site inspections, site audits and day to day interaction with CC teams. The E/S site team will report to the EPCM Construction Manager on site, will work through the site organisation to address environmental and social issues that arise during construction, and will have a functional reporting line to the Ankara team.

See Table 5 for a description of responsibilities for key members of each of the above mentioned teams, and Figure 3 for Organisation Chart demonstrating the relationships between the teams.

Table 5: EPCM Team Responsibilities with Regard to E/S Management

Project Role	**Responsibility with Regard to E/S Management**	**Location**
Project Director	Overall responsible for ensuring EPCM responsibilities are fulfilled. Supply of resources such as human resources, specialised skills, financial resources.	London/Ankara
Environmental and Social Design Interface Team	Ensure E/S commitments are adequately integrated into remaining design engineering. Assist in developing or managing studies as required for input to design. Support to Ankara and site based E/S teams as required.	London/Ankara
Deputy Project Manager	Support to in-country E/S team to ensure EPCM responsibilities are met. .	Ankara
Construction Director	Support in-country E/S team to ensure E/S is integrated into the construction program and activities Ensure site Construction Management Interface with EPCM and CC Construction Management to ensure adequate attention is paid to key environmental and social issues if they arise.	Ankara
HSSE Manager	Reporting E/S compliance to EPCM Project Director; highlight issues that may require project management attention. Interfacing with Construction Management to ensure that	Ankara

	site teams give full support to E/S requirements. Ensuring E/S Ankara team has adequate resources to fulfil its obligation to support site teams. Providing overall leadership for E/S Ankara team. Providing overall strategic guidance to site E/S teams, in coordination with Construction Management. Interfacing with TANAP on E/S issues.	
Environment and Social Manager	Coordination, supervision, providing overall leadership for E/S management, organisation and planning. Reporting to TANAP on the performance of CC in relation to E/S management. Preparation or revision of E/S documentation, plans and procedures as required. Participation in the identification of significant impacts for the project, and assisting to develop relevant preventive and corrective actions. Coordination of environmental and social information flow. Ensuring that E/S mitigation measures are addressed during the detailed engineering phase and implemented and controlled during the construction and commissioning phase. Developing and implementation an environmental and social audit program and sharing lessons learned between CCs.	Ankara
E/S Compliance Manager	Ensuring consistency of compliance across multiple contractors. Reviewing and analysing documentation and reporting coming from the site teams. Preparing reports for TANAP. Lead site audits. Provide support and training to site E/S staff. Assist in implementing or reviewing additional environmental or social studies/assessment that may be conducted as the project progresses.	Ankara

Environment Compliance Lead/ Social Compliance Lead	Support site E/S teams to ensure compliance is achieved consistently across CC activities. Participate in NCR, CAR, Incident Investigation, and Audits implementation and closure. Interfacing with third party auditors, as required. Interact with CC/EPC and EPCM site teams to ensure issues are resolved in a timely manner. Ensure project process, procedures and policies are implemented consistently across all construction sites.	Ankara
Environmental Interface Coordinator/Social Interface Coordinator	Functional advice and support to site teams. Ensuring records and registers maintained in Ankara are accurate and up to date. Collating lessons learned to share across project activities. Preparing “Lessons Learned” briefings or training to share with CC. Provide advice on legal requirements. Quality assurance of data entered in the Online Stakeholder Identification Database (OSID) from EPCM and CC Community Liaison Officers.	Ankara
Ad Hoc Expert Support Team (between 4-6 individuals with specific technical experience such as flora, fauna, archaeology, etc.)	Undertaking specialised audits or studies. Preparing additional specialist procedures as required Assisting with audits to ensure implementation of specialist procedures To advise EPCM on specialist mitigation of CCs plans as necessary.	Ankara
Lot Managers	Ensure E/S issues are being adequately addressed at site by CCs. Support E/S site teams to ensure they are able to adequately implement their duties and obligations.	Site based
Spread Managers	Manage site based environmental, community liaison and heritage teams on daily basis. Ensure E/S constraints and requirements are being respected by CCs.	Site based

	Raise E/S concerns to the attention of Lot Manager. Assist site E/S teams to raise CARs, NCRs and incident reports as required. Participate in environmental and social incident investigations as required. Participate in and provide input to emergency response drills. Participate in weekly site meetings with CCs to raise environmental and social issues, as required.	
Environmental Lead	Day-to-day monitoring of CC activities in relation to environmental commitments and management. Proactive interaction with CC staff to address issues immediately. Ensure consistency of environmental performance across the Lot. Implement environmental and social training for EPCM site based staff. Support CC E/S site based training. Interface with Third Party Monitors. Provide written weekly report to E/S team in Ankara.	Site based
Environmental Inspector (EIs)	Day-to-day monitoring of CC activities in relation to environmental commitments and management. Documentation of contractor activities – both positive and negative. Proactive interaction with CC staff to address issues immediately. Review any extra work space requests made by CCs, to ensure compliance with E/S mitigations. Reporting daily to Spread Manager to identify any issues of non-compliance and/or anticipate issues than may become non complaint or incidents. Report incidents immediately to both Construction Management and Ankara functional team.	Site based
Community Liaison Officers (CLOs)	Day-to-day monitoring of CC activities in relation to social/community relations commitments and management. Documentation of contractor activities – both positive and negative.	Site based

	Proactive interaction with CC staff to address issues immediately. Reporting daily to Spread Manager to identify any issues of non-compliance and/or anticipate issues than may become non complaint or incidents. Upload meetings, actions and grievances accurately into OSID. Undertake pro-active community liaison activities as required, such as community safety briefings, liaison with local authorities, etc. Follow-up on grievance closure.	
Cultural Heritage Officer (CHOs)/Archaeologist	Day-to-day monitoring of CC activities in relation to cultural heritage commitments and management. Documentation of contractor activities – both positive and negative. Direct interaction with representative of the Museum Directorate Archaeologist, in line with the Chance Finds Procedure (WRP-PCD-ENV-GEN-003) Proactive interaction with CC staff to address issues immediately. Participation in the Chance Finds Procedure. Reporting daily to Spread Managers and/or Lot Manager to identify any issues of non-compliance and/or anticipate issues than may become non complaint or incidents.	Site based

Figure 3: EPCM E/S Organisation – Ankara

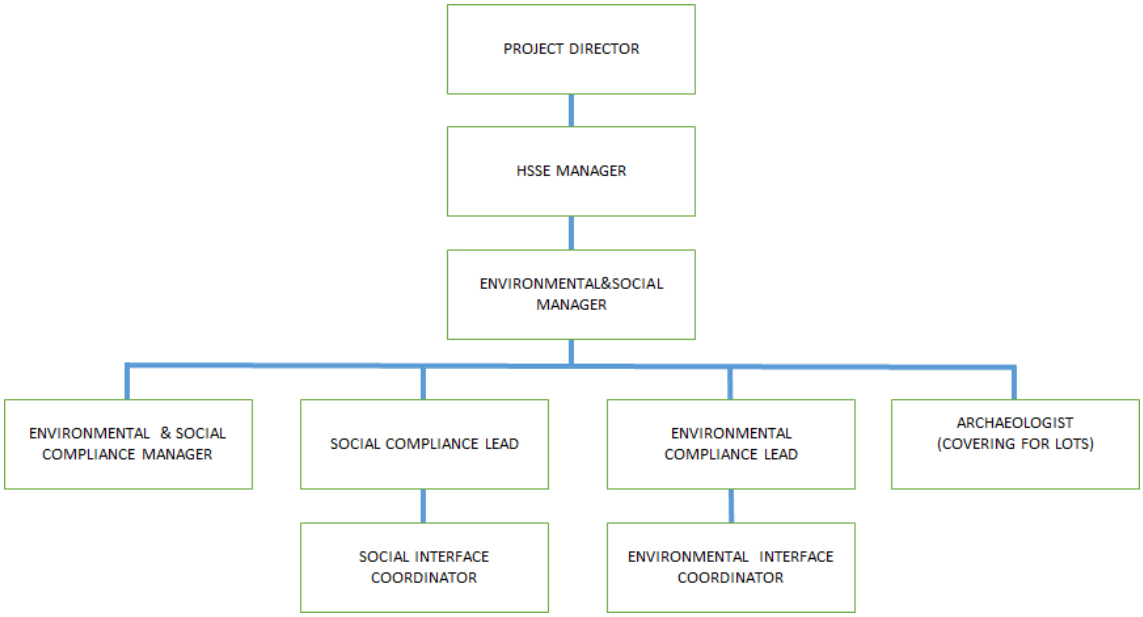
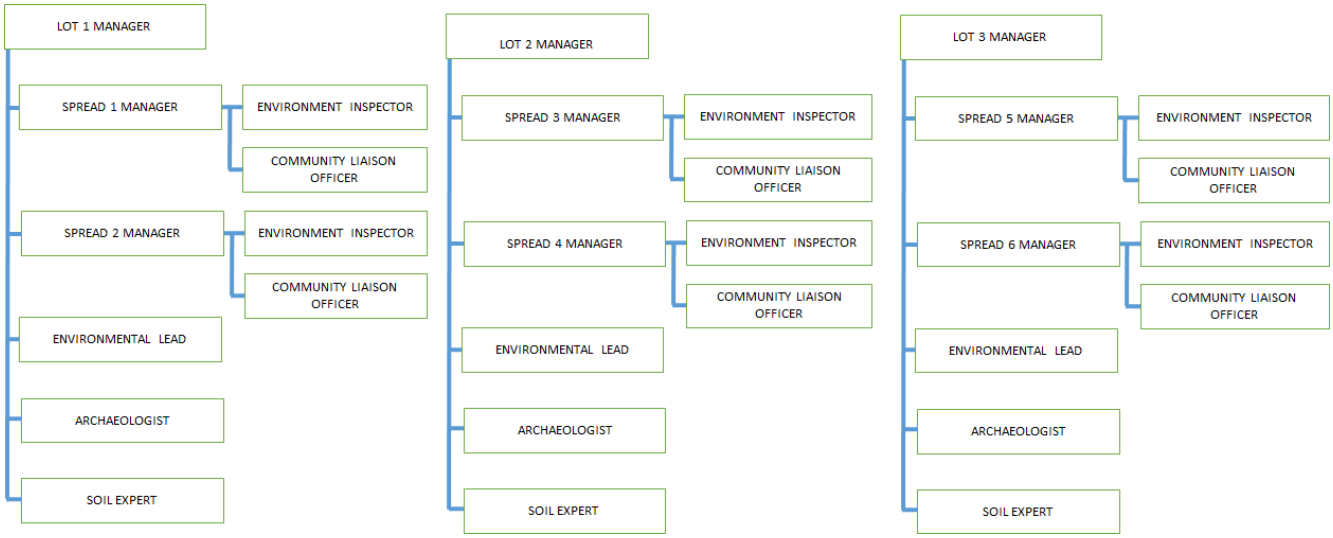


Figure 3: EPCM E/S Organisation – Site-Based



6.3 Contractor Management

Contractors shall have the responsibility to fulfil all project requirements with adequate and qualified personnel working under an appropriate organizational structure and able to ensure that their sub-contractors also comply with the project requirements. Adequate and qualified personnel will be

employed by the Contractors to allow the proper management of environmental issues, community relations and natural resources.

Contractors will ensure that the following competencies are included in their teams:

- Environmental experts (Inspectors, Trainers);
- Cultural heritage experts;
- Ecological/Biological experts;
- Soil/landscaping experts; and
- Social/ Community Relations experts.

7. OPERATIONAL CONTROLS

Operational controls and procedures relate to management of key environmental and social issues. Additional procedures will be developed and diversified over time as required, to meet project requirements. CC will develop their own procedures to meet Project requirements.

7.1 Environmental and Social Control of Engineering Activities

This section sets out the EPCM's approach to ensure that the commitments listed in the Commitments Register are integrated in the detailed design of the project components.

EPCM has engaged in a series of work sessions with TANAP to clarify the commitments set out in the Commitment Register of the ESIA. Agreement on applicability of the commitments has been reached (WRP-LST-ENV-GEN-001). For each of the applicable commitments, the Environmental and Social Interface Team liaise directly with the Engineering Teams (and/or other departments within the EPCM, as applicable – HSE, Security, etc.) regarding its integration and all eventual issues that may arise during the development of the Detailed Design.

In order to do so, the following general process will be followed:

- Environmental and Social Interface Team in London has identified applicable commitments in the Commitments Register that need to be addressed through the design of the pipeline and AGI's (or other facilities);

- Environmental and Social Interface Team has sent the list of commitments mentioned above to the relevant Engineering Teams;

- Environmental and Social Interface Team has promoted internal discussion regarding the implementation of each commitment with the relevant Engineering Teams. This is achieved:
    - by discussing each commitment listed with the Lead Engineer, who in turn will distribute it amongst the other team members and compile their contributions, when a new work session with the Environmental and Social Interface Team will occur to discuss each commitment in detail;
    - by promoting Work Sessions / Workshops with the presence of representatives of each discipline potentially affected by the commitments listed

  The Environmental and Social Interface Team is responsible for ensuring that the commitments are managed through engineering design and that relevant environmental and social aspects and mitigations associated with the construction are noted in key engineering deliverables (drawings, specifications, etc.). This process ensures that risks associated with identified potential environmental and social aspects are lowered to as low as reasonably practical.

  Additionally, ESIA commitments are assessed against specifications provided by bidding vendors, in the case of supply of equipment, and by contractors bidding for aspects of the project. In the case of vendors, if the bidding packages fail to meet the requirements, best available techniques (if available) are implemented into the vendor package design in order

to meet the requirements. In the case of bidding contractors, criteria (determined by the commitment in the ESIA) are provided to the bidding construction contractors and assessment of how the contractors can best meet these commitments is compared through their submitted documentation. Assessment includes whether the contractors meets international standards (e.g. ISO14001). This robust process ensures the best contractor is employed to fulfil the commitments and thereby lowers the risk of non-compliance to ESIA commitments.

Lastly, risks are also identified through interdisciplinary ENVID, HAZID and HAZOP workshops which identify cumulative risks associated with combinations of engineering scopes of work. Any additional risks which are identified are captured in the Aspects and Impacts Register.

7.2 Environmental and Social Control of Procurement Activities

EPCM has developed specifications which outline the environmental and social requirements applicable for supply of materials or provision of services to the Project (Health, Safety, Social and Environmental Requirements for Suppliers and Vendors. WRP-SPC-HSE-GEN-001). In the case that EPCM contracts a service or supplies directly, this document is provided to suppliers. EPCM does not contract directly with CCs or EPCs.

7.3 Environmental and Social Control of Construction Activities

The EPCM Management Team will use the following procedures and plans to perform its role to monitor the performance of CCs and ensure compliance with project requirements. In addition, CCs and EPCs will be expected to develop their own ESMS, EMSPs and procedures as Operational Controls.

Non-conformance and Corrective Action Procedure for Environmental and Social Issues (WRP-PCD-ENV-GEN-002). E/S Site teams will be working with CC teams in the field on a daily basis to ensure actions are taken to avoid becoming a non-confirming situation. In the case that non-conformances do arise, Non-Conformance Reports (NCR), which include Corrective Actions, will be issued to CCs. CCs will be required to respond and implement corrective actions in an agreed timeframe. Corrective Actions will be verified in the field by EPCM Site E/S team prior to closing NCRs.

HSE Incident Reporting and Investigation Procedure (WRP-PCD-HSE-GEN-011). This procedure outlines the roles/responsibilities and steps to be taken in the event of an environmental incident , which may be the result of an emergency situations. An Incident Register will be kept by the E/S Site teams to track closure of corrective actions, which will be verified in the field.

Chance Finds Procedure (WRP-PCD-ENV-GEN-003). This procedure outlines the roles/responsibilities and the steps to be taken in the case of a chance find during construction activities. Implementation of the procedure provides control on impacts to heritage resources.

Grievance Procedure (WRP-PCD-ENV-GEN-004). EPCM has developed a grievance procedure that is consistent with the TANAP Grievance Management Procedure (TNP-PCD-SOC-GEN-001). The EPCM procedure outlines the roles and responsibilities or the EPCM staff in relation to taking, investigating and closing grievances.

TANAP Project Change Management Procedure (WPR-PCD-PRM-GEN-005). Changes are inevitable during development and execution phases of the TANAP Project. In order to capture and manage all manner of changes, EPCM has developed an overall MoC Procedure that includes assessment of environmental and social impacts of change. The procedure defines a systematic approach for evaluating all changes that have significant impact on Cost, Schedule, Safety, Environment and Technical Integrity. This Procedure identifies the overall Project approach to managing these changes, such that the impact is evaluated, controlled, recorded and traceable. The Environmental and Social Management of Change Procedure (WRP-PCD-ENV-GEN-005) originally drafted as part of this ESMS has been canceled in light of the overall procedure. Changes to the pipeline route are addressed by the Route Change Review and Approval Procedure (WRP-PCD-PPL-GEN-006).

GHG Monitoring and Reporting Specification and Procedure (WRP-SPC-ENV-GEN-003). This document has been cancelled as TANAP intends to remove this from EPCM scope.

7.4 Construction Contractor ESMPs

Construction Contractors are required to develop their own ESMSs, consistent with this document and TANAP IMS, and to develop a set of Environmental and Social Management Plans that will define how they will implement the commitments outlined in the ESIA. EPCM will review and approve these plans, prior to construction commencing, to ensure that they are adequate. CC will also have their own procedures for controlling environmental and social management, including NCR procedure and Incident procedure, which will be consistent with the relevant EPCM procedures.

These documents shall be submitted to and subject to the approval by the EPCM. The aim is to translate the Project's agreed environmental and social commitments into concrete actions during the construction of the Project, and to demonstrate the way in which the EPCs and CCs will ensure compliance with commitments applicable to their respective work packages.

In addition, Method Statements will be produced, which will include all the commitments applicable to a specific phase, component, or geographic location of the Project. Method Statements are also subject to approval by EPCM. Method statements will include, but are not limited to road crossings, river crossings, steep slopes, RoW clearing and grading, and site specific reinstatement or erosion control, as required.

The ESMPs must address the following groups of issues as outlined in the ESIA:

- **Flora and Fauna** – identification of measures to be taken to minimise potential impacts on the biological environment; outline management actions to reduce loss or alteration of ecologically sensitive areas; , define seasonal construction periods; etc.

- **Waste Management** – including identification of waste streams and management actions including minimization, recycling, collection, storage, treatment and disposal of waste which will be generated during site preparation, construction and pre-commissioning phases of the project. Procedures will be adopted that reduce the risks of environmental degradation and the creation of environmental liabilities.
- **Pollution Prevention** – including actions to manage and monitor impacts to air, land, and water, and also manage/monitor noise and vibration impacts.
- **Water Management** - includes the identification of the project water sources such as surface water and groundwater, and management actions associated with Project industrial and domestic water use. This includes minimization and control of use, and the recycling, treatment and disposal of water which will be used and generated during site preparation, construction and pre-commissioning phases of the project.
- **Erosion Control and Reinstatement** - aims at preventing, minimizing and controlling the production of sediments during the construction activities, through design and adequate erosion control and management during construction, as well as ensuring an adequate reinstatement and rehabilitation of the area and of its original landscape characteristics.
- **Aggregate Management** - identify estimated quantities and possible sources of aggregates as well as potential impacts and recommendations for impact mitigation.
- **Greenhouse Gas Emissions** – aim to decrease GHG emissions throughout the construction period and provide input into TANAP's carbon footprint measuring and monitoring tool.
- **Traffic Management** – addressing traffic safety, traffic planning and management of environmental issues (dust, vibration) associated with heavy traffic. .
- **Cultural Heritage Management** – ensure avoidance of significant impacts on cultural and archaeological resources within the project area and protect late find through implementation of the procedure for chance findings during the construction and land preparation phases.
- **Emergency Response** - define the actions and procedures which will be implemented to prevent emergencies and/or to respond in a planned manner to minimize the respective potential damages owing to emergencies during all phases of the project, including spill response.
- **Camp Management** – aim to manage conduct inside the camp and relationships with local villages nearby camps.
- **Community Relations** - aim to build and consolidate relationships with all stakeholders (involving people, institutions, groups and other stakeholders who may be affected by the Project) during the site preparation, construction and pre-commissioning phases of the Project.
- **Community Safety**- aim to reduce any project impacts on the safety of local residents due to project activities during the site preparation, construction and pre-commissioning phases of the project, with specific focus on community safety awareness and training workers.
- **Worker Management** – will address mobilisation of workers, recruitment strategy/plan, recruitment procedure, contracts, HR policies, communication, retrenchment and training.
- **Procurements and Supply** –aim to maximize the local supply of products and services to be used during the site preparation, construction and pre-commissioning phases.
- **Emergency Response Pan** – will address Contractor's response in the case of emergency situations. The environmental aspects of emergency situations will be included.

Each ESMP will be required to have its specific objectives, and will identify management controls, mitigation measures, monitoring actions, and follow-up and verification actions for addressing the key environmental and social issues. Table of Contents for each ESMP will include, at a minimum:

1. Purpose/Objectives
2. References/Abbreviations
3. Relationship to other plans/procedures
4. Roles and Responsibilities
5. Implementation and Management Actions
6. Training
7. Monitoring and Reporting.

8. TRAINING, AWARENESS AND COMPETENCE

EPCM recognises that effective environmental and social awareness training is a key requirement for successful ESMS implementation. Training of both EPCM and Contractor staff is necessary, with the most detailed and specific training aimed at the Contractor workforce.

Contractors will be required to develop training programmes relevant to their scopes of work, which will be reviewed and approved by EPCM. EPCM expects that it will pay a role in supporting CCs to develop training packages that are effective and relevant. Training records will be kept by CC for audit purposes and training data will be included in regular reports.

In addition, EPCM will undertake environmental and social training for its staff according to the below tracking matrix/register (see Table 6). Training in Management of Change is undertaken by the Project Controls Department of EPCM. The need for additional training is assessed on a periodic basis as new staff is added or new aspects of the project are implemented. At a minimum, training requirements will be reviewed during the annual management review.

Table 6: Training Tracking Matrix

E/S TRAINING TRACKING MATRIX	ESMS overview	General E/S induction	Social/cultural induction	Social competency	Cultural heritage	NCR	Incident investigation	OSID	Social risk mgt
Project mgt London									
Engineering London									
Project and construction mgt Ankara									
Construction field staff									
Spread 1									
Spread 2									
Spread 3									
Spread 4									
Spread 5									
Spread 6									
Spread 7 - TBA									
Spread 8 - TBA									
Environmental staff									
Lot 1 - Env't Lead (Gulden Baydar)									
Lot 1 - Env't Inspector (Derya Camurdanoglu)									
Lot 1 - Env't Inspector (TBC)									
Lot 1 - Soil Specialist (Dogan Akara)									
Lot 2 - Env't Lead (Emre Hakyemez)									
Lot 2 - Env't Inspector (Inci Karakaya)									
Lot 2 - Env't Inspector (Ulku Kocer)									
Lot 2 - Soil Specialist (Serafettin Gordebak)									
Lot 3 - Env't Lead (Mutlu Erdem)									
Lot 3 - Env't Inspector(Nagihan Terzi)									
Lot 3 - Env't Inspector (Yucel Gungor)									
Lot 3 - Soil Specialist (TBC)									
Lot 4 - Env't Lead									
Lot 4 - Env't Inspector									
Lot 4 - Env't Inspector									
Lot 4 - Soil Specialist									
CLOs									
Lot 1 - CLO (Ugur Kadioglu)									
Lot 1 - CLO (Hasan Karakaya)									
Lot 2 - CLO (Ozan Hakverdi)									
Lot 2- CLO (Taylan Ozdan)									
Lot 3 - CLO (Onur Acar)									
Lot 3 - CLO (Gizem Feliz)									
Lot 4 - CLO (TBD)									
Lot 4 - CLO (TBD)									
Archaeologists									
Lot 1 - Arch (Erkan Atay)									
Lot 2 - Arch (Emrah Cankaya)									
Lot 3 - Arch (Mehmet Sagir)									
All Lots - Arch (Omer Gundogan)									
Lot 4 - Arch (Mehmet Altun)									

	Not applicable
	Completed and sign up sheet on file
	Required by not undertaken as yet
	Not completed

9. DOCUMENT CONTROL, RECORD KEEPING AND COMMUNICATION

The core documentation related to this ESMS is the ESIA Report and Commitment Register, as well as the EPCM procedures and plans related to implementation of this ESMS. CC are required to have their own ESMS, the core of which are the ESMPs and procedures.

9.1 Document Control

The ESMS and associated plans and procedures will be controlled as per the Document Control Procedure (WRP-PLN-DCC-GEN-001). The aim of document control is to ensure that all documents relevant to this ESMS are created, tracked, stored, reviewed and maintained in compliance with the requirements of ISO 14001 and approved Project procedures.

Generally, the objectives of the DCC are to ensure that ESMS-related documents are:

- located;
- reviewed, updated and approved;
- in use with current versions;
- removed when it is obsolete and kept only for information or legally required;
- legible and dated; and
- assigned retention periods.

The core ESMS documentation to be managed during the Project shall consist of, but not be limited to:

- The ESMS
- The environmental and social aspects register;
- The Commitments Register;
- The operational procedures and plans.

9.2 Record Keeping

Records are requisite evidence of the on-going operation and correct application of the EPCM ESMS. Effective identification, control, categorisation, storage and disposal of records are essential to the successful implementation of the ESMS.

Environmental and social records will be retained stored and reported as required by the Document Control Plan Manual (WRP-PLN-DCC-GEN-005) and system to ensure the following:

- Clear procedures for identification and maintenance;
- records are legible, identifiable and traceable;
- records are retrievable and protected with defined retention periods; and
- Records clearly demonstrate compliance\non-conformance.

Environmental and social records will include but not limited to:

- Information on applicable environmental and social legislation, guidelines and other requirements;
- Environmental objectives and targets;
- Complaint records;
- Training records;
- Incident reports,
- Non-conformance reports
- Daily Reports;
- Information on significant environmental aspects;
- Audit reports;
- KPIs
- Internal & external communication;
- Management Review records.

9.3 Communication

Timely, accurate and effective communication of information to stakeholders is a key aspect of ESMS implementation. Communication on environmental and social issues is primarily aimed at achieving the following:

- Promoting environmental and community awareness;
- Reinforcing employees' environmental and social responsibilities;
- Informing employees and contractors about environmental and social risks and the Project's environmental and social standards;
- Communicating progress towards defined objectives and targets;
- Sharing best practices and common problems/solutions; and
- Communicating with project stakeholders.

EPCM has established the following communication methods to support the coordination and communication among disciplines and within the EPCM E/S and TANAP teams:

- Weekly EPCM Management meetings are held in Ankara to highlight any issues of concern to Construction and Project Management.
- Weekly TANAP-EPCM Construction Coordination meetings are held in Ankara to highlight any issues of concern to TANAP Construction and Project Management.
- Weekly meetings between EPCM E/S Management and TANAP E/S Management to review progress on key actions and activities.

Communication with CCs will be through weekly construction meetings on site (attended by EPCM E/S representatives), weekly E/S coordination meetings (attended by EPCM E/S and CC E/S senior representatives), regular meetings with CC Management Teams in Ankara (as required), and weekly and monthly reporting from CC to EPCM.

Communication with external parties is outlined in the Stakeholder Engagement Plan (WRP-PLN-ENV-GEN-003), which has been developed to guide dialogue with stakeholders throughout the Project. The SEP provides a framework for categorising stakeholders based on their level of interest in and ability to influence the Project. Engagement activities are then developed based on the

classification. TANAP, with the support and participation of EPCM, is the primary entity responsible for implementing the SEP.

The ESMPs of CC, some of which will describe in detail how they will implement the community relations and communications requirements as described in the ESIA, will be consistent with the SEP.

10. MONITORING AND REPORTING

10.1 EPCM and Construction Contractor Monitoring

Contractors have responsibility for observing, documenting and reporting their compliance with Project E&S requirements and their overall environmental and social performance. Contractors are responsible for the compliance and performance of their Subcontractors.

CC are responsible for demonstrating their compliance with the ESIA commitments through:

- Development of ESMPs that define how the ESIA commitments will be addressed.
- Immediate reporting of any significant environmental or social incident
- Daily reporting to document what activities have been undertaken to manage environmental and social issues
- Weekly reporting to document activities on going and highlight any areas of concern
- Monthly reporting to report on KPIs as well as other background measures and verifications.
- Implementation of regular training programs
- Tracking of non-compliances and incidents, as well as subsequent corrective/preventive actions and lessons learned that can be implemented to avoid repeat NCR or incidents.
- Record keeping for audit purposes

The main E/S aspects to be monitored during construction are:

- Air emissions (Pollution Management Plan);
- Carbon emissions (Carbon Footprint Measurement and Monitoring Programme
- Air quality (Pollution Management Plan);
- Noise and vibrations (Pollution Management Plan);
- Effluent water discharge (Water Management Plan);
- Surface water at river crossings (Water Management Plan);
- Water abstraction – for water consumption in construction camps and hydrostatic testing (Water Management Plan);
- Groundwater quality and level in community wells and monitoring wells at compressor stations (Water Management Plan);
- Waste production and disposal (Waste Management Plan);
- Soil contamination – oil spills etc.(Pollution Management Plan)
- Erosion (Erosion, Reinstatement and Landscaping Plan);
- Reinstatement focusing on Environmentally Sensitive Areas (ESA) and Critical Habitats (Erosion, Reinstatement and Landscaping Plan);
- Cultural and archaeological resources (Cultural Heritage Management Plan);
- Grievances – (Community Relations Plan)
- Community safety trainings/initiatives (Community Safety Plan)
- Recruitment and employment (Recruitment and Worker Management Plan)
- Procurement from local sources (Procurement and Supply Plan)

EPCM Site E/S team will undertake the following monitoring and verification activities to manage CC compliance with ESIA commitments:

- Daily inspections and checklists

- Daily interaction and dialogue on performance with the CCs.
- Daily interaction with local communities and landowners.
- Participation in regular audits.
- Daily reporting to the respective EPCM Lot Manager and Spread Managers, highlighting any issues that need to be addressed with CC at his level.
- Participating in weekly construction meetings to minute specific issues of concern.
- Raising CARs and NCRs and verifying/tracking closure
- Raising Incident Reports, including Corrective Actions, and tracking closure
- Monitoring progress on closure of grievances.
- Evaluating public attitudes toward project activities
- Monitoring CC recruitment process.
- Weekly reporting to Ankara functional team and EPCM Construction Management to highlight any on-going issues of concern.

Ankara E/S team will undertake the following to manage CC compliance with ESIA commitments:

- Review and approve CC ESMPs
- Implement an auditing program, which is included in this ESMS.
- Participate in management level construction meetings to address issues of concern that are not being resolved at site.
- Ensure consistency of compliance across contractors through regular meetings with CC and in project alignment meetings.
- Share lessons learned across contractors.
- Report regularly to TANAP.

10.2 Reporting

The CC will provide a weekly and a monthly Environmental and Social Performance Report. EPCM will also provide aggregated weekly and monthly reports to TANAP.

The CC Weekly Report will include the following information:

- Environment: activities completed; two week look ahead of activities; issues of concern; supporting photos
- Social: activities completed; two week look ahead of activities; issues of concern; supporting photos.
- Cultural Heritage: activities completed; two week look ahead of activities; issues of concern; supporting photos
- Up to date NCR and Incident Registers, with corresponding corrective actions.

The Construction Contractor's Monthly report will provide quantitative reporting, using reporting registers that will be agreed between CC and EPCM. The Monthly Report will include the following information:

- Summary of Project staff on site and in headquarters offices
- Report on agreed KPIs
- Metrics on:
    - NCRs
    - Incidents

  - Waste
  - Fauna
  - Flora (seed collection, seasonal constraints, etc.)
  - Water consumption
  - Water quality
  - Surface water issues
  - Air quality
  - Noise
  - Vibration
  - Aggregate use
  - GHG emissions
  - Chance finds
  - Employment
  - Grievances
  - Key engagement activities
  - Work stoppages
  - Demobilisation
  - Goodwill gestures
  - Training
- Issues of concern and proposed management actions

The EPCM E/S Site team will provide a weekly report to the EPCM Construction Management and to the E/S functional team in Ankara. The EPCM E/S Site weekly report will include:

- Environment: activities completed; two week look ahead of activities; issue of concern; supporting photos
- Social: activities completed; two week look ahead of activities; issue of concern; supporting photos
- Cultural Heritage: activities completed; two week look ahead of activities; issue of concern; supporting photos
- Comments on Contractor's NCR and Incident registers – areas of concern, etc.
- Areas of concern and proposed solutions/assistance required.

EPCM Ankara team will provide aggregated weekly and monthly reports to TANAP.

The weekly report to TANAP will be in "faceplate" format and will address weekly activities, forward plan, areas of concern, and proposed mitigations for the areas of concern for environment (including heritage) and social issues.

EPCM's monthly report to TANAP will provide aggregated quantitative information. Monthly reports will include the following information:

Onshore pipelines –

- Areas of Concern

  Lot 1 - Fernas
  Lot 2 - SYA:
  Lots 3 - Tekfen
- Aggregated Summary Tables
  A. NCR Summary

B. Incident Summary
C. Waste Metrics Table
D. Dead/Injured/Trapper Fauna register
E. Flora register (seed collection, seasonal constraints, etc)
F. Water Consumption Register
G. Camp Water Quality Sampling Dates – (NCRs will be captured in NCR register)
H. Surface Water Issues – (NCRs will be captured in NCR register)
I. Air Quality
J. Noise
K. Vibration
L. Aggregate Use Table
M. GHG Emissions Register
N. Chance Finds Register
O. Employment Statistics
P. Grievance Statistics
Q. Key Engagement Activities
R. Work Stoppage Register
S. Demobilisation Statistics
T. Goodwill Gestures
U. Training Register

Offshore Pipeline

- Activities completed
- Two week look ahead of activities
- Issues of concern

Stations

- Activities completed
- Two week look ahead of activities
- Issues of concern

10.3 EPCM Audits

EPCM Audits are an important element of the ESMS to help identify areas requiring improvement and corrective actions to ensure compliance with Project requirements. Audits can help ensure that mechanisms for managing E&S performance are in place and working effectively.

Audits will be scheduled in line with the overall EPCM Project Audit Plan (WRP-PLN-QAC-GEN-004).

Objectives of EPCM audits are to:

- Demonstrate the ESMS is functioning effectively, properly implemented and maintained;
- Give reasonable assurance that Project activities are compliant with the ESMS and required legal and other requirements;
- Identify the root causes of E&S audit non-conformance findings;
- Recommend corrective and preventive actions, to assist the Project in achieving and sustaining compliance.
- Provide confirmation that corrective actions are completed effectively and efficiently;
- Inform EPCM and TANAP management of the Project E&S performance;
- Contribute to continual E&S improvement.

EPCM audits will be organised and implemented to address the following general elements:

- compliance with ESMS procedures and policy;
- compliance with ESMS objectives and targets;
- adequacy of control measures;
- employee skills and training;
- practices in the workplace.

Compliance audits will be carried out by the EPCM Ankara team, with participation of London-based team or external auditors as required. At a minimum, audits will be conducted quarterly and will focus on one Lot each quarter. Audits will cover environmental, social, and archaeological aspects of the project. Locations will be camps, ROW, AGI locations, and other ancillary locations including heavily used access roads, quarries, etc. Specific areas of auditing will be developed and decided prior to the audit based on the feedback from EPCM E/S Site teams and will focus on current project activities.

Prior to the site visits, an audit plan will be developed, including definition of objective, scope, location, methods and team. The audit team will gather as much documentation as possible for review prior to the site visit. The team will develop an audit checklist, depending on the specific ESMPs that will be covered in the audit. CC will be given at least one week advance notice of an EPCM audit.

Upon arrival at site, the audit team will conduct an opening meeting, undertake relevant inspections of the camp and RoW, review documentation and records as relevant, interview personnel, conduct environmental sampling (if required), and conduct a site close out meeting to share initial findings. Any issue of non-conformance will be addressed in the close out meeting so that auditees can immediately being to review and implement corrective actions.

After conclusion of the site visit, the audit team will review all the gathered documentation, follow-up any outstanding issues, prepare a draft audit report that will be distributed to CC and others for review/comment (within an agreed timeframe), finalise the report, issue NCR for issues of non-conformance. Audit reports should be issued within 2 weeks of concluding the site visit.

The audit team shall follow up closure of audit actions and CARs/NCRs that were opened as a result of audits through regular communication with the EPCM E/S Site team. Status of CARs and NCRs will be reported through relevant registers.

10.4 Third Party Audits

According to the “Programme Related to the Realization of Issues in 4th Item of 9th Clause of Competency Communique “Liabilities of Institutions/ Agencies taking Competency Certificate” “In the Case of Obtaining EIA Positive Decision Document” the project owner would give authorization to one of the institutions/agencies that has competency certificate in order to check whether the commitments are performed or not during land preparation and construction period of the project. The institution/agency authorized by the project owner is responsible to monitor the activities and fill the Construction Period Monitoring-Control Form in Appendix-4 of the Competency Communique according to the commitments given in the EIA Report and submit this form to the Ministry in 20 working days starting from the end of monitoring control periods.

Accordingly, as stipulated by the Competency Communique, the authorized institution/company undertaking the monitoring activities will submit Monitoring-Control Forms in 3 month periods to General Directorate of Environmental Impact Assessment, Permits and Control and all pertinent Provincial Directorates of Environment and Urbanization until the completion of construction activities."

A licensed independent Third Party Monitor (TPM), named to the MoEU and under contract to TANAP, will monitor the performance of Contractors and EPCM in regards to E/S activities and compliance. TPM will be managed by TANAP and reports will be provided to the appropriate Turkish authorities, TANAP and the EPCM. To facilitate Third Party inspections and audits, CC and the EPCM will provide access to all work(s) sites and provide all necessary assistance to facilitate the implementation of inspection and audit programmes.

Findings of the daily TPM reports will be shared with EPCM site staff on daily basis. EPCM site staff will coordinate with TPM representatives to review the findings and address issues. The TPM non-conformance register will be reviewed regularly on site to ensure those items that are agreed to be on conformances are tracked through to closure.

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11. MANAGEMENT REVIEW

Continual improvement is a key element of the ISO 14001 standard for an ESMS. Continual improvement will be a recurring process to enhance the EPCM ESMS, and associated processes and procedures, and to improve the EPCM Environmental and Social performance consistent with the Project requirements and commitments. To achieve the aim of continual improvement, management reviews will be conducted annually or when major project activities are begun (for instance, award of the off-shore pipeline construction contract) to evaluate the suitability and effectiveness of the EPCM ESMS and Project requirements and commitments.

The management reviews will be carried out by the EPCM management including at a minimum In-country E/S Manager, Construction Director and In-country EPCM Manager. The reviews will identify opportunities for improvement, including environmental policies, objectives and targets. Management reviews will be documented through Minutes of Meeting which will be distributed to parties affected by the review and any changes that have resulted from the review.

Management reviews will include, but will not be limited to the following:

- Findings of incident investigations;
- Review of KPIs
- Review of audit results;
- Compliance with legal requirements;
- Compliance with Project commitments;
- Review of non-conformances and corrective actions;
- Grievance and complaint records;
- Stakeholder engagement records;
- Training records;
- Changing Project conditions that may prompt change management
- Follow up actions from prior management reviews; and
- Reports on emergency preparedness and response.

The results of management reviews will include actions, if necessary, to update objective and targets consistent with the goal of continual improvement, as well as eventual need of adjustment to new or updated environmental and social TANAP policies. The ECPM will be responsible for ensuring the results of the management reviews are implemented by EPCs, CCs and their subcontractors (as applicable), monitored and reported. This approach will ensure procedures, objectives and targets and overall performance of the EPCM ESMS are continually improved whenever possible, and remains in line with the TANAP IMS.

APPENDIXES

APPENDIX 1. WORLEYPARSONS HEALTH, SAFETY AND ENVIRONMENT POLICY

WorleyParsons
resources & energy

EcoNomics

Health, Safety and Environment Policy

WorleyParsons is committed to achieving its vision of zero harm to people and assets, and zero environmental incidents. OneWay™, our enterprise wide integrity framework, establishes the corporate expectations for progressing us towards this zero harm vision and it applies to all our people, contractors, products and services.

WorleyParsons requires an active commitment to, and accountability for, health, safety and the environment from all employees and contractors.

Our policy is to:

- Comply with all applicable laws, regulations and standards, customer requirements; and apply company standards where laws do not exist
- Consult and seek contributions from our people on issues that have the potential to affect the environment and their health and safety
- Lead, train and motivate our people, contractors and suppliers to work in a safe and responsible manner
- Identify, assess and manage risks that impact health, safety and the environment prior to commencing activities and when circumstances change
- Foster a culture that empowers and supports anyone intervening to safeguard people and to protect the environment
- Require contractors and suppliers to manage health, safety and environment using standards and practices that align with ours
- Implement health management programs including effective injury management and rehabilitation to maintain and improve the well-being of WorleyParsons' people
- Drive continual improvement in health, safety and environmental performance through open reporting and effective assessment and analysis of our performance, leadership and engagement with our stakeholders

The responsibility for application of this policy rests with us all.

Andrew Wood
Chief Executive Officer

January 2013

002-000 CMM-010 (007906) CHM-0114
Rev 12 (Jan 2013)

OneWay™
to zero harm

APPENDIX 2. ASPECTS AND IMPACT REGISTER

Impacts Identified through project HAZIDS post ESIA development					
Construction and Operation	Operational and emergency venting	Occupational health and social community impact	• Operational / planned venting: Only critical staff to be in vicinity, provided with PPE to mitigate sound levels of 130db	Chapter 8,11, 13	BCH-ACS-RSM-GEN-058
Operations	Fire water retention	Potential surface water contamination	• As per the Drainage and Design Philosophy Criteria, fire water due to presence of oil or other contaminants is not suitable for disposal in local water courses; oil skimmers can by deployed onto the surface of the retention pond based on visual assessment if oil has been identified. The oil skimmer would pump off the surface oil to a liquid waste receptacle. This waste receptacle (e.g. intermediate bulk container) would be later transported to an off-site licensed waste facility.	Chapter 8,11, 13	BCH-ACS-RSM-GEN-011 WRP-SPC-CVL-GEN-006
Construction	Hydrotest water disposal	Potential contamination of drainage and water ways	• Construction Contractor to obtain permits from local authorities, hydro-test water management plan to include sample and analysis of disposal water, determine disposal location based on sample and analysis results provide spill prevention Spill Prevention, Control, and Countermeasures program to respond to any issues of spilled test water, provide sufficient storage for test water that is awaiting treatment/disposal. Tanks/ponds containing test water must be secure to prevent wildlife/public entry, protected from storm water run-on, sufficient in capacity for a 24 hr/100 yr. rainstorm (direct rainfall only), have safeguards in place to capture leaks, and be useable for a sufficient length of time to ensure water can be properly treated/disposed. If earthen ponds are used then the sediment in the pond should be analysed after test water is emptied to verify it has not become contaminated and establish a test water	Chapter 8,11, 13	BCH-ACS-RSM-GEN-089 Construction Contractor Pollution Prevention Plan

			tracking system, auditable by Client.		
Construction and Operations	Compressor stations Hazardous waste disposal	Contamination of soils and water from Hydrocarbon contaminated filters, pig trap residues, spent lube oil, batteries from UPS system etc. Improperly contained / handled, subject to spillage.	• Compressor stations have segregated hazard waste storage areas. Note: metering stations, BVS and unmanned facilities do not have segregated storage areas, but expected good practice will be to remove all waste at end of maintenance task. The wastes are classified hazardous and shall be managed and disposed to a licensed waste facility.	Chapter 8,11, 13	BCH-ACS-RSM-GEN-082 Construction Contractor Waste Management Plan Operational and maintenance Plan
Construction / Pre-commissioning / Commissioning	Process Hazards - Toxic pipeline coating chemicals Toxic pipeline hydro testing chemicals (glycol, biocide and oxygen scavenger if used) Use of methanol for dehydration Polyurethane foam components (toxicity and potential exothermic reactions). Use of silica grit in abrasive blasting Bentonite based drilling mud waste disposal	Toxic injury to personnel Aquatic and ground water toxicity during transportation and handling Fire due to Flammability	• Construction Contractors to develop Pollution Prevention Plans • All chemicals used e.g. biocide and O2 scavengers (added to hydrotest water) need to be safely stored. Chemical additives like this are generally supplied to the site in drums. • Ensure that these drums are stored in accordance with procedures. • Use non toxic chemicals with a reduced environmental impact. • Optimize the location of the injection points (upstream of the water pumps)	Chapter 8,11, 13	BCH-ACS-RSM-GEN-041 Construction Contractor Waste Management Plan Construction Contractor Pollution Prevention Plan WRP-ACS-RSM-GEN-256
Operation,	Compressor station	Hydrocarbon	• Compressor stations have segregated hazard	Chapter 8,11,	BCH-GUI-TSF-GEN-001

decommissioning	hazardous waste generation and disposal	contaminated filters, pig trap residues, spent lube oil, batteries from UPS system etc. Improperly contained / handled, subject to spillage	waste storage areas. Note: metering stations, BVS and unmanned facilities do not have segregated storage areas, but expected good practice will be to remove all waste at end of maintenance task	13	BCH-ACS-RSM-GEN-082 Construction Contractor Waste Management Plan Construction Contractor Pollution Prevention Plan
Design / construction	Un controlled changes to permitted design	Unknown impact to the environment	• TANAP are advised of proposed changes through the AAN / MoC process (e.g. reroutes, station relocations and access road locations). Risks are highlighted and recommendations are provided to TANAP for them to consider.	Chapter 8,11, 13	WRP-ACS-RSM-GEN-276 TANAP Project Change Management Procedure WRP-PCD-PRM-GEN-001
Commissioning and operations	GHG emissions	Impact to atmosphere and local community	• EPCM will notify TANAP if there is a change in expected quantity of natural gas to be released (during cold a venting incident). TANAP will then seek approval from the authorities based on any deviation from the permit they have obtained from government.	Chapter 13 Appendix 2.7	ESIA WRP-ACS-RSM-GEN-276
Commissioning and operations	Pigging waste (accumulated in lines during construction)	Contamination of environment	• Pigging waste will be categorised as hazardous waste and will be disposed to licenced waste facilities in line with stations construction constructor waste management plans	Chapter 8,11, 13	ESIA WRP-ACS-RSM-GEN-278
Construction	Potential contaminated soils	Contamination / human health	• A plan (register) is in place to provide high level qualitative assessment of any potential risks associated with contamination soils. The register is to be used to help develop site specific assessments materials waste and handling strategies as appropriate.	Chapter 8,11, 13	WRP-REG-ENV-GEN-001 WRP-ACS-RSM-GEN-281
Impacts Identified through Project Incident Investigations					
Operation	Camp Waste water system	Sewage spill to underlying soils from split pipe / joint connecting to the lift	• Compaction of ground below the tank and associated pipework is sufficiently compacted to ensure subsidence does not create movement of pipework causing stress on pipes and	Chapter 8,11, 13	Construction Contractor Pollution Prevention Plan

		tank.	connections resulting in a spill.		
Operation	Camp Waste water system	Sewage spill impacting to storm water drain.	A.1. Ensure rainwater does not enter the sewage drain system by implementing adequate sealing around manholes, limiting storm water ingress.	Chapter 8,11, 13	Construction Contractor Pollution Prevention Plan
Construction phase; camp operation	Camp waste water system	Sewage spill to drain	A.2. Ensure pumps for sewage are properly sized and there are back up pumps available as required.	Chapter 8.11 and 13	Construction Contractor Pollution Prevention Plan

APPENDIX 3: STATUTORY AND REGULATORY REQUIREMENTS, PROJECT STANDARDS

STATUTORY AND REGULATORY REQUIREMENTS, PROJECT STANDARDS

The applicable national and international statutory and regulatory requirements, agreements, policies, standards, authorizations, and principles that establish the basis of this ESMS, the ESMPs, objectives, targets and KPIs are summarised below:

INTER-GOVERNMENTAL\HOST GOVERNMENTAL AGREEMENTS

Intergovernmental Agreement (IGA) for the TANAP Project was signed on October 25, 2011, the Memorandum of Understanding on December 24, 2011, and the Host Government Agreement (HGA) on June 26, 2012; the agreements signed in the scope of the Project are listed in chronological order below:

Intergovernmental Agreement - 25 October 2011

"The Intergovernmental Agreement Between the Government of the Republic of Turkey and the Government of the Republic of Azerbaijan Concerning The Sales of Natural Gas To The Republic of Turkey and the Transit Passage of Natural Gas Originating From The Republic of Azerbaijan Across The Territory of The Republic of Turkey and The Development of A Standalone Pipeline For The Transportation of Natural Gas Across The Territory of the Republic of Turkey", was signed in İzmir on 25 October 2011.

This Agreement was approved by Law no 6349 dated 29.06.2012which was published in the Official Gazette on 12.07.2012.

Memorandum of Understanding - 24 December 2011

"Memorandum of Understanding between the Government of the Republic of Turkey and the Government of the Republic of Azerbaijan Concerning the Development of a Standalone Pipeline for the Transportation of The Natural Gas Originating and Transiting from the Republic of Azerbaijan across the Territory of the Republic of Turkey", was signed on 24 December 2011 in Ankara.

This Agreement was approved by Law no 6342 dated 29.06.2012, which was published in the Official Gazette on 12.07.2012. Following approval by Council of Ministers, the Agreement was published in the Official Gazette on 11 October 2012 and entered into force.

Within the framework of the Memorandum of Understanding between the Government of the Republic of Turkey and the Government of the Republic of Azerbaijan that was signed on 24 December 2011, Trans Anatolian Gas Pipeline Company B.V was established.

Host Government Agreement – 26 June 2012

"The Host Government Agreement between the Government of the Republic of Turkey and the Government of the Republic of Azerbaijan Concerning The Trans-Anatolian Natural Gas Pipeline System", and its attachment, "The Host Government Agreement (HGA) between the Government of the Republic of Turkey and The Trans Anatolian Gas Pipeline Company B.V Concerning Trans-Anatolian Natural Gas Pipeline System", were signed on 26 June 2012 in Istanbul.

These Agreements were approved by Law no 6375 dated 02.01.2013, which was published in the Official Gazette on 17.01.2013. Following approval by Council of Ministers, the Agreements were published in the Official Gazette on 19 March 2013 and entered into force.

Following signature of Intergovernmental Agreement and Host Government Agreement on 26 June 2012, TANAP Doğalgaz İletim A.Ş. was established and the Trans Anatolian Gas Pipeline Company B.V has transferred its rights and obligations under Host Government Agreement to TANAP Doğalgaz İletim A.Ş. with the approval of Ministry of Energy and Natural Resources of Turkey. The companies assigned by two countries to form a project-specific joint consortium are SOCAR and the Petroleum Pipeline Corporation (BOTAŞ).

The Host Government Agreement requires Project Environmental and Social Standards complying with National Laws and also taking due account of international standards and practices generally prevailing in the Natural Gas pipeline industry, including relevant Performance Standards of the International Finance Corporation.

National Legislation, Standards and Guidance Documents

National Legislation

The Turkish legal framework for environmental protection was developed in line with national and international initiatives and standards, and some of them have been revised recently to be harmonized with the EU Directives in the scope of pre-accession efforts of Turkey to the EU. The main legal basis for TANAP in the Turkish environmental legislation is the Environment Law no. 2872, which was published in the Official Gazette no. 18132 dated 11.08.1983 and amended by Law no. 5491 dated 26.04.2006. The structure of the Turkish environmental legislation constitutes of primarily the Environment Law, and following relevant laws, regulations, by-laws and notifications. The objective of the Environment Law is to protect the environment in accordance with the sustainable development principles. The Environment Law defines the measures and prohibitions, basic liabilities of the state and citizens. Relevant principles and procedures are designated by the regulations issued by the Ministry of Environment and Urbanization.

The Project is subject to the Law on the Transit Transport of Petroleum with Pipelines (Law no. 4586), which was published in the Official Gazette no. 24094 and dated 29.06.2000. This law defines the requirements for transit pass of petroleum or hydrocarbons via pipelines and provides the basis for implementation of the provisions of international agreements of which Turkey is a part for each transit petroleum pipeline project.

Survey, route determination, engineering, financing, expropriation, construction, commissioning, operation, maintenance, repair, extension, dispatch from stations, storage, management, decommissioning, environmental reinstatement activities after decommissioning and all other activities related to the project are covered by the aforementioned law.

Land to be acquired in the scope of the project will be expropriated by the General Directorate of BOTAŞ, assigned as the Nominated Official Authority based on the Host Government Agreement as per the Law on Expropriation no. 2942.

For the use of the forest lands, agricultural lands, pasture lands and surface water along the project route; Law on Forestry no. 6831, Law on Soil Conservation and Land Use no. 5403, Law on Pasture no. 4342, Law on Agricultural Reform on Land Arrangement in Irrigational Areas no. 3083, Law on Improvement and Inoculation of Olive Orchards no. 3573 and Law on Aquatic Products no. 1380 will be taken into account respectively and the requirements of the relevant legislation will be fulfilled.

The provisions of Cultural and Natural Entities Protection Law and Law No 2863 will be complied with. The required permits will be obtained from the Ministry of Culture and Tourism before the field surveys, and all field surveys will be carried out in coordination with the Ministry of Culture and Tourism and Local Directorates of the Ministry. Registered and unregistered sites are taken into account in route selection.

Shore Law no. 3621 and corresponding regulations will be adopted for all works relating to the Marmara Sea crossing.

Necessary permits will be obtained according to the Communique on Implementation Process of Shore Structures and Facilities.

National Standards

The reference to the national environmental regulations defining the standards for wastewater discharges, emissions, noise and vibration are provided below. The emission limits values for the compliance with these standards are given below in Project Standards.

Waste Water Discharge

The domestic wastewater generated during land preparation, construction and operation phases of the project will be treated at Package Wastewater Treatment Plants based on the parameters “Project Domestic Wastewater Discharge Standards”, of Regulation on the Control of Water Pollution. The treated wastewater will be discharged to the nearest receiving body provided that the limit values are not exceeded.

The non-domestic wastewaters will be subject to “Industrial Wastewater Discharge Standards” of the same regulation.

Emissions

The dust emissions (PM10) occurring during the construction phase of the project will be compared with the limit values of Regulation on Assessment and Management of Air Quality.

The standard values in “Annex IV: Emission Limits for Gas Turbine” of the Regulation on “Large Combustion Plants” will be met for NOx and CO emissions generated from the stacks of compressor stations during operation phase of the project.

Noise and Vibration

The noise values measured at the closest sensitive receptors or settlement areas during the construction phase will not exceed the limit values given in “Table 5, in Annex-VII” of the Regulation on the “Assessment and Management of Environmental Noise”.

Compliance to the limit values in “Table 6 and in Table 7, in Annex-VII” of the Regulation on the “Assessment and Management of Environmental Noise” will be provided for the vibration generated by blasting, heavy vehicles, and other equipment used during the construction phase.

The noise values measured at the closest sensitive or settlement areas during the operation phase will not exceed the limit values given in “Table 4, in Annex-VII” of the Regulation on the “Assessment and Management of Environmental Noise”.

International Standards and Guidelines

The Equator Principles (EPs) are a set of voluntary environmental and social guidelines that have been adopted by a significant number of financial institutions influential in the project finance market (collectively the Equator Principles Financial Institutions, EPFIs). The EPs comprise a set of ten broad principles that are underpinned by environmental and social policies, standards and guidelines.

The EPFIs have ten principles[1]:

- Principle 1: Review and Categorization
- Principle 2: Environmental and Social Assessment
- Principle 3: Applicable Environmental and Social Standards
- Principle 4: Environmental and Social Management System and Equator Principles Action Plan
- Principle 5: Stakeholder Engagement
- Principle 6: Grievance Mechanism
- Principle 7: Independent Review
- Principle 8: Covenants
- Principle 9: Independent Monitoring and Reporting
- Principle 10: Reporting and Transparency The World Bank – International Finance Corporation (IFC) has developed performance standards, policies, general environmental, health and safety guidelines, and industry-specific environmental, health and safety guidelines on social and environmental sustainability, to minimize negative environmental and social impacts of projects it supports, and to optimize benefits.

[1] The listed principles are Equator Principles version III which are effective as 4th of June 2013. The transition period for EP III ended on 31 December 2013 and EP III is mandatory for all new transactions (where the mandate is signed after 31 December 2013) from 1 January 2014. EP III does not apply retroactively, therefore, EP Association Members are not expected to switch from EP II to EP III for transactions where the mandate was signed before 1 January 2014.

The World Bank – International Finance Corporation (IFC) has developed performance standards, policies, general environmental, health and safety guidelines, and industry-specific environmental, health and safety guidelines on social and environmental sustainability, to minimize negative environmental and social impacts of projects it supports, and to optimize benefits. IFC 2012 Performance Standards (IFC 2012 PSs) have been considered the main reference as they represent the most recent environmental and social standards issued by an International Financial Institution.

The IFC have produced the EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP), as defined in IFC's Performance Standard 3 on Pollution Prevention and Abatement. Reference to the EHS Guidelines by IFC clients is required under Performance Standard 3. When one or more members of the World Bank Group are involved in a project, these EHS Guidelines are applied as required by their respective policies and standards.

Other International standards and guidelines include:

- WHO Ambient Air Quality Standards;
- WHO Drinking Water Standards.
- International Union for Conservation of Nature (IUCN) Red Data Book (RDB) for protected species (fauna and flora);
- Action Plan for the conservation of marine vegetation in the Mediterranean Sea. Adopted in 1999 within the framework of the Barcelona Convention for the Protection of the marine environment and the coastal region of the Mediterranean;
- Strategic Action Programme for the conservation of Biological Diversity (SAP BIO) in the Mediterranean Region. Adopted by Contracting Parties of Barcelona Convention on 2003;
- Priority habitats according to the SAP/BIO Protocol (Barcelona Convention) (1999);
- Biodiversity in Impact Assessment Background Document to Decision VIII/28 of the Convention on Biological Diversity: - CBD Technical Series No. 26;
- The Action Plan for the Conservation of Mediterranean Marine Turtles (UNEP-MAP);
- The MED POL Programme (the marine pollution assessment and control component of MAP).

INTERNATIONAL CONVENTIONS

Turkish national environmental legislation is complemented by a variety of international conventions ratified by Turkey to fulfil its international commitments. These international conventions must also be adhered to in all phases of the project:

- Convention on the international transportation of hazardous wastes, Basil, ratified by Turkey on 1994
- Convention on the persistent organic pollutants, Stockholm, ratified by Turkey on 2010
- United Nations Climate Change Framework Convention, Bonn, ratified by Turkey on 2004
- Convention on Protection of Ozone Layer, Vienna, ratified by Turkey on 1991 Convention on Long-Range Trans-boundary Air Pollution, ratified by Turkey on 1983 Convention on Biological Diversity. Turkey ratified this convention in 1992.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Turkey is a member country).
- International Convention for the Prevention of Pollution from Ships (MARPOL), ratified by Turkey on 1990
- Convention on Migratory Species of Wild Animals (CMS) (Turkey is a not yet member country).
- Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar) (Turkey is a contracting body)
- Convention concerning the Protection of World Cultural and Natural Heritage (WHC) (Turkey ratified this convention)
- ITPGR or the International Treaty on Plant Genetic Resources for Food and Agriculture (Turkey is a member country)
- Convention for the Conservation of European Wildlife and Natural Habitats (BERN) (1984) (ratified by Turkey)
- Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (RAMSAR) (1994) (ratified by Turkey)
- Cartagena Protocol on Biosafety (2004) (ratified by Turkey)
- European Landscape Convention (2001) (ratified by Turkey)
- Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona) (1981) and its protocols including the Protocol on Special Protected Areas and Biodiversity in the Mediterranean (1988) (ratified by Turkey)
- Convention for the Protection of the Black Sea Against Pollution (Bucharest) (1994) and its protocols including the Protocol for the Protection of Biological and Landscape Diversity in the Black Sea (2004) (ratified by Turkey)
- Convention to Combat Desertification (CCD) (1998) (ratified by Turkey)
- European Convention for the Protection of Pet Animals (ratified by Turkey)

- Convention on substances depleting Ozone Layer, Montreal, ratified by Turkey on 1991
- Kyoto Protocol, ratified by Turkey on 2009

LOCAL CORPORATE REQUIREMENTS

The project is committed to structure the corporate systems to ensure the following minimum national legislation requirements.

All permits required by the Environment Law and other applicable legislation will be obtained in accordance with the project activities.

The definition of projects for which an ESIA report has to be prepared, the ESIA process and the relevant principles and procedures are given in detail in the Regulation on Environmental Impact Assessment. Annex 1 of the regulation points out the projects subject to full ESIA studies and Annex 2 of the regulation points out the projects subject to selection and elimination criteria.

Article 30 in Annex 1 of the regulation on EIA states that "*Pipelines for the transportation of gas, oil or chemicals with a diameter over 600 mm and a length of more than 40 km*" are included in the list of projects subject to EIA studies. The TANAP Project is 56-inch and 48-inch pipeline system of over 1,800km and is therefore subject to ESIA studies. The project has already obtained an EIA positive certificate in compliance with the Regulation on ESIA.

The Project ESIA can be accessed via this link:

TANAP Project ESIA

Crossings

The planned TANAP Project will cross at several locations highways, roads, village roads, railways, rivers, stream, irrigation channels, electricity supply lines, water pipelines and sewage systems and other pipelines which exist on the project route. Protocols will be signed to obtain the permits for the aforementioned crossings with the relevant central or regional authorities (Ministry of Defence, Regional Directorates or General Directorate of State Railways, Regional Directorates or General Directorate of Highways, Regional Directorates or General Directorate of State Hydraulic Works, BOTAŞ Petroleum Pipeline Corporation, All Provincial Special Administrations, Provincial Irrigation Channel Corporations, etc.) prior to the construction phase. TANAP will prepare and submit the relevant detail and typical construction drawings for crossings to the relevant authorities for approval and to obtain the crossing permits. The crossings will be installed with compliance to the construction drawings and relevant authority requirements.

Water

The potable and domestic water needs during the construction phase will be fulfilled according to the requirements of the Regulation on Water Intended for Human Consumption and Public Sanitation Law. The required permits will be obtained from the Regional Directorate of State Hydraulic Works to dig wells where municipal water cannot be provided.

Waste

The solid waste that would occur at all stages of project will be stored separately in impermeable, closed containers according to their properties; solid waste which can be recycled, which cannot be recycled, medical wastes and hazardous waste. Labelling will be provided for each type of waste and all waste storage containers will be placed on an impermeable surface which will not cause rain water contamination and discharge to the surrounding areas. The waste storage area should be covered to prevent rainwater from coming into contact with the waste.

It is planned to make use of the existing Regular Solid Waste Landfills and Recycle, Storage and Disposal Facilities licensed by MoEU and not to establish waste landfills in the scope of the project.

Forestry\Agriculture\Fisheries

Permits for the use of areas qualified as forest in the scope of the project will be obtained as per Article 17 of the Forestry Law no. 6831 and permit studies and procedures will be conducted in line with the relevant instructions of the General Directorate of Forestry and Water Affairs. These will be obtained prior to construction.

In addition, necessary permits will be obtained for the use of agricultural areas for non-agricultural purposes within the scope of the project, from the relevant Provincial Directorates of Food, Agriculture and Livestock and/or the Ministry of Food, Agriculture and Livestock, as applicable, as per the provisions of Law no. 5403 on Soil Conservation and Land Use (published in the Official Gazette no. 25880 dated 19.07.2005) and Law on Agrarian Reform Relevant to Land Arrangement on Irrigation Areas no. 3083 (published in the Official Gazette no. 18592 dated 01.12.1984)

In the presence of areas qualified as pasture in the project area, necessary application for the amendment of the allocation purpose of the areas in question will be made prior to the execution of the investment with regard to Law on Transit Passage of Petroleum by Pipelines (Law no. 4586), and necessary permits will be obtained prior to construction.

In cases where the surface water existing on the project route is subject to the defined locations in the Fishery Products Law no. 1380, application will be made to Provincial Directorate of Food, Agriculture, and Livestock as per Article 7 of the regulation and authority approval will be obtained prior to construction.

The provisions of the approved plans on the project route (at all scales) will be considered as per Pubic Settlement Law no. 3194. The pipeline and the permanent above ground

installations will be inserted on the Land Allocation Plans and other relevant master and application plans following detailed design phase and after the EIA process. The buildings in the scope of the project will be installed with compliance to master and application plans, regulations, licences and technical requirements regarding Public Settlement Law and building licence will be obtained.

Cultural Heritage

The necessary permits will be obtained from the General Directorate of Cultural Entities and Museums and relevant Cultural Entities Protection Regional Boards for the archaeological sites which are on the project route. For registered archaeological sites on pipeline route where route change is not possible, trial pits and/or salvage excavations will be conducted with the Decision taken by the relevant Regional Cultural Entities Protection Board under supervision of relevant Museum Management. The authority opinions are given in the ESIA Appendix 4.3. The issues indicated in the Commitments Register will be fulfilled.

If any cultural entity in the scope of the Law on Cultural and Natural Entities Protection on the project route is crossed during the construction, the construction activity will be stopped and the Directorate of Museum will be informed in accordance with the relevant legislation.

For the mine sites on the project route, correspondence with the General Directorate of Mining Affairs and Provincial Special Administrations was carried out. The authority opinions are given in Appendix 4.3 of the ESIA report. Protocols will be issued with the mine licence owners and necessary permits will be obtained. The issues indicated in the Commitments Register will be fulfilled.

Permitting

It is required to obtain environmental permit(s) for the facilities prior to the operation phase according to the Regulation on Permits and Licences to be Secured According to Environment Law. Operation of natural gas pipeline itself is not subject to operational environmental permits according to the aforementioned regulation; however, due to the activities that will take place at the above ground installations, such as combustion plants at the compressor stations, environment permit(s) are required to be obtained in the scope of Project.

The environmental permit will cover all Project activities that are subject to permits according to the regulation (e.g., emission permit, discharge permit, environmental noise permit). The application for environmental permits shall approve compliance with the regulation and shall document that the commitments provided in the Commitments Register will be fulfilled.

However, before starting construction the commitments on permits cannot be documented, so a “Provisional Activity Certificate” will be obtained. The activities are allowed to be started with the receipt of the certificate, which is effective for one year and the required information, licenses, and permits will be provided within this period. The application for an environmental

permit shall be made when the required procedures are completed three months before the effective date of Provisional Activity Certificate ends. If the procedures cannot be completed for the application within this period, the period of validity of the Provisional Activity Certificate is extended provided by a letter citing justification. Once the environmental permit is received, the period of validity is five years and three months; prior to the end of this period an application shall be prepared by the EPCM and TANAP, and resubmitted by TANAP for a permit extension.

Each phase of the TANAP Project will be conducted within compliance to the required legal procedures according to the national and international legislation and authority opinions. The authorities have informed Ministry of Environment and Urbanization about their significant issues on the Project, also taking into consideration the public opinions and suggestions received during public participation meetings in the scoping phase of the Project. Within the Project many procedures will be implemented to address significant issues.

Relevant European Regulations

The European Union (EU) legal instruments include approximately 300 directives covering environmental protection, polluting and other activities, production processes, procedures and procedural rights as well as products (e.g., EIAs, access to information on the environment and combating climate change). Quality and related emissions standards are set for air, waste management, water, nature protection, industrial pollution control, chemicals and genetically modified organisms, noise and nuclear safety and radiation protection. The project applicable EU Legislation is listed below:

EIA Directive

- 85/337/EEC Council Directive on the assessment of the effects of certain public and private projects on the environment (EIA Directive). The EIA Directive of 1985 has been amended three times, in 1997, in 2003 and in 2009 (EIA Directive)

Nature Protection

- 2009/147/EEC The Birds Directive (Birds Directive)
- 92/43/EEC Council Directive on the conservation of natural habitats and of wild fauna and flora (Habitats Directive)

Pollution Control

- 2010/75/EC Directive on industrial emissions (integrated pollution prevention and control) (2010/75/EC)
- 2008/1/EC Directive concerning integrated pollution prevention and control (IPPC) (2008/1/EC)
- 2004/42/CE Directive on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products (2004/42/CE)
- 84/360/EEC Council Directive on the combating of air pollution from industrial plants (revised with 91/692/EEC numbered Directive) (84/360/EEC)

Climate Change

- EC/1005/2009 Regulation on substances that deplete the ozone layer (EC/1005/2009)
- 2009/30/EC Directive (amending Directive 98/70/EC) as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC (2009/30/EC)

- 280/2004/EC Decision concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol (280/2004/EC
- 2002/3/EC Directive relating to ozone in ambient air (2002/3/EC

Air Quality

- 2008/50/EC Directive on ambient air quality and cleaner air for Europe (2008/50/EC)
- 2001/81/EC Directive on national emission ceilings for certain atmospheric pollutants (2001/81/EC)
- 1999/30/EC Directive relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air (1999/30/EC)
- 2000/69/EC Directive relating to limit values for benzene and carbon monoxide in ambient air (2000/69/EC)
- 99/30/EC Directive relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air (99/30/EC)
- 94/63/EC Directive on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations (94/63/EC)
- 93/12/EEC Council Directive relating to the sulphur content of certain liquid fuels (revised with 99/32/EC numbered Directive, EC/1882/2003 numbered Regulation and 2005/33/EC numbered Directive) (93/12/EEC)
- 98/70/EC Directive relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC (revised with 2000/71/EC and 2003/17/EC numbered Directives and EC/1882/2003 numbered Regulation) (98/70/EC)
- 97/68/EC Directive on emissions of gaseous and particulate pollutants from internal combustion engines in non-road mobile machinery (97/68/EC)

Water Quality

- 2000/60/EC Directive establishing a framework for Community action in the field of water policy (2000/60/EC)
- 2008/105/EC Directive on environmental quality standards in the field of water policy (2008/105/EC)
- 80/68/EEC Directive on the protection of groundwater against pollution caused by certain dangerous substances as amended by Directive 91/692/EEC (further amended by Regulation 1882/2003/EC) (91/692/EEC)
- 2006/118/EC Directive on the protection of groundwater against pollution and deterioration (2006/118/EC)

- 98/83/EC Drinking Water Directive (98/83/EC)
- 91/271/EEC Urban Waste Water Treatment Directive (revised with 98/15/EC numbered Directive and 93/481/EEC Numbered Decision) (91/271/EEC)
- 75/440/EEC Surface Water Directive (74/440/EEC)

Waste Management

- 2008/98/EEC Waste Framework Directive (2008/98/EEC)
- EC/850/2004 Regulation on persistent organic pollutants (EC/850/2004)
- EC/1013/2006 Regulation on shipments of waste (EC/1013/2006)
- 2006/66/EC Directive on batteries and accumulators and waste batteries and accumulators (2006/66/EC)
- 99/31/EC Directive on the landfill of waste (99/31/EC)
- 96/59/EC Directive on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) (96/59/EC)
- 94/62/EC Directive on packaging and packaging waste (94/62/EC)
- 91/689/EEC Directive on hazardous waste (91/689/EEC)

Noise

- 2002/49/EC Directive relating to the assessment and management of environmental noise (2002/49/EC)

General

- 2001/42/EC Directive on the assessment of the effects of certain plans and programmes on the environment (2001/42/EEC)
- 90/313/EEC Directive on the freedom of access to information on the environment (revised with 2003/4/EC numbered Directive) (90/313/EEC)

INTERNATIONAL

The HGA states that TANAP "*shall also take due account of international standards and practices generally prevailing in the Natural Gas pipeline industry".*

Consequently, the development and implementation of the TANAP IMS considers applicable international standards and best practice in the natural gas pipeline industry. These are:

- IFC Performance Standards and Guidance Notes 2012 Edition (PS IFC 2012)
- IFC Environmental, Health, and Safety Guidelines – (EHS IFC)
- Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention, 1983) (CMS 1983)

TANAP PROJECT STANDARDS

A regulatory review has been conducted to determine the project standards. As part of this review, Turkish Regulations, IFC Guidelines and European Directives are compared to identify the most stringent Project applicable standards.

Below, the environmental standards from all applicable regulatory requirements are listed. The project standards, which the Project will be in full compliance with, are specifically defined as the most stringent requirements of these regulatory requirements for the following components:

- Air Quality;
- Wastewater Discharges;
- Drinking Water;
- Noise and Vibration Emissions; and
- Soil Pollution.

The following section compiles the project standards that will ensure the full compliance of the Project with the abovementioned regulatory requirements. In exceptional circumstances variations may be considered if, as a minimum, Turkish standards are complied with and Best Available Technology (BAT) studies indicate that standards are acceptable outcomes.

Appendix 3 Table A Project Ambient Air Quality Standards

Project Air Quality Standards			
SO2 (µg/m3)	Hourly	350 (2019) (not to exceed more than 24 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	24 hr	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	Yearly and Winter Season (Oct 1 – March 31) (for wildlife and ecosystem)	20 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
NO2 (µg/m3)	Hourly	200 (2024) (not to exceed more than 18 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	Yearly	30	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – Guidelines for Europe (for ecosystem)
NOx (µg/m3)	Yearly (for vegetation)	30 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
PM10 (µg/m3)	24 hr (For human health)	50 (2019) (not to exceed more than 35 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)

Project Air Quality Standards			
	Yearly (for human health)	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
PM2.5 (µg/m3)	24 hr	25 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	1 year	10 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
Lead (µg/m3)	Yearly (human health) (LTL)	0.5	Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
Benzene (µg/m3)	Yearly	5 (2021)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
Project Air Quality Standards			
			Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
CO (mg/m3)	Max daily 8 hr average	10 (2017)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
Ozone (µg/m3)	Maximum daily 8 hr average	100 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health

LTL: Long Term Limit

STL: Short Term Limit

Appendix 3 Table B Project Emission Limits for Gas Fuel Combustion Facilities

Turkish Regulation on Large Combustion Plants - Emission Limits for Gas Fuel Combustion Facilities (08.06.2010 dated and 27605 numbered)					
Fuel Type	**Thermal power**	**Emission Limits (mg/Nm^3)**			
		Dust	**SO_2**	**NO_2 (NO and NO_2)**	**CO**
Natural Gas, Fuel Gas, LPG etc.	50 MW≤Thermal Power of the Fuel≤300 MW	5	35	150	100
	Thermal Power of the Fuel ≥ 300 MW			100	
Blast-Furnace Gas		10	200	200	
Gas occurred in Iron-Steel Industry and can be used in another sectors		30	400* 200**		
Liquified Gas		5	5		
Low-calorie gases in coke furnace		30	400		
Low- calorie gases in blast-furnaces		10	200		

* Low calorific value gases occurring in coke furnace
** Low calorific value gases occurring in blast furnace

Appendix 3 Table C Project Domestic Wastewater Discharge Standards

Project Domestic Wastewater Discharge Standards				
Parameter	**Unit**	**Concentration (mg/L)**	**Minimum Treatment Efficiency (%)**	**Reference regulatory requirements**
Biochemical Oxygen Demand (BOD5)	mg/L	25	70-90 40	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Chemical Oxygen Demand (COD)	mg/L	125	75	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Suspended Solids (SS)	mg/L	35 35 (more than 10,000 p.e.) 60 (2,000-10,000 p.e.)	90 90 (more than 10,000 p.e.) 70 (2,000-10,000 p.e.)	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
pH	-	6-9		IFC General EHS Guidelines
Total Nitrogen	mg/L	10		IFC General EHS Guidelines
Total Phosphorus	mg/L	2		IFC General EHS Guidelines
Oil and Grease	mg/L	10		IFC General EHS Guidelines
Total Coliform Bacteria	MPN**/100mL	400*		IFC General EHS Guidelines

* Not applicable to centralized, municipal wastewater treatment systems which are included in EHS Guidelines for Water and Sanitation.

** MPN = Most Probable Number

The provisions set in Turkish Urban Wastewater Treatment Regulation, of which the discharge quality standards will be valid by 31.12.2014, are exactly the same with the provisions set in EU Directive 91/271/EEC on Urban Wastewater Treatment. The EU Directive 91/271/EEC sets the general rule of; secondary treatment in all areas, and tertiary treatment with enhanced removal of nutrient is required for sensitive areas.

Appendix 3 Table D Drinking Water Standards

Project Drinking Water Standards			
Microbiological Parameters			
Parameter	**Unit**	**Parameter Value /100 mL**	**Reference regulatory requirements**
Escherichia coli (E.coli)	-	*0/100 ml*	*Regulation on Water for Human Consumption Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption*
Enterococcus	-	*0/100 ml*	
Coliform bacteria	-	*0/100 ml*	
Chemical Parameters			
Parameter		**Unit**	**Parameter Value**
Acrylamide	µg/l	0,1	**Reference Regulatory Requirements**
Antimony	µg/l	2	Regulation on Water for Human Consumption Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption, except Antimony, Cadmium and Vinyl Chloride. WHO parameters are used as project standards for these parameters.
Arsenic	µg/l	10	
Benzene	µg/l	1	
Benzopyrene	µg/l	0,01	
Boron	mg/l	1	
Bromate	µg/l	10	
Cadmium	µg/l	3	
Chromium	µg/l	50	
Copper	mg/l	2	
Cyanide	µg/l	50	
1,2-Dichloracethane	µg/l	3	
Epichlorhydrin	µg/l	0,1	
Fluoride	mg/l	1,5	
Lead	µg/l	10	
Mercury	µg/l	1	
Nickel	µg/l	20	
Nitrate	mg/l	50	
Nitrite	mg/l	0,5	
Pesticides	µg/l	0,1	
Total pesticides	µg/l	0,5	
Polycyclic aromatic hydrocarbons	µg/l	0,1	
Selenium	µg/l	10	
Tetrachloroethane and Trichloroethane	µg/l	10	

Trihalomethanes-total	µg/l	100	
Vinyl chloride	µg/l	0,3	

Appendix 3 Table E Industrial Wastewater Discharge Standards

Parameter	Unit	Composite Sample (2 hr)	Composite Sample (24 hr)	Reference Regulatory Requirement
Chemical Oxygen Demand (COD)	mg/l	400	300	Regulation on Water Pollution Control Table 19: Mixed Industrial Wastewater Discharge Standards (Industries for which sector identification cannot be done)
Total Suspended Solids (TSS)	mg/l	200	100	
Oil & Grease (O&G)	mg/l	20	10	
Total Phosphorus	mg/l	2	1	
Total Chromium	mg/l	2	1	
Chromium (Cr+6)	mg/l	0.5	0.5	
Lead (Pb)	mg/l	2	1	
Total Cyanide (CN-)	mg/l	1	0.5	
Cadmium (Cd)	mg/l	0.1	-	
Iron (Fe)	mg/l	10	-	
Fluoride (F-)	mg/l	15	-	
Copper (Cu)	mg/l	3	-	
Zinc (Zn)	mg/l	5	-	
Mercury (Hg)	mg/l	-	0.05	
Total Kjeldahl Nitrogen	mg/l	20	15	
Fish Biotest (ZSF)	-	10	10	
Colour	(Pt-Co)	280	260	
pH	-	6-9	6-9	

Appendix 3 Table F Noise Standards for Industrial Facilities

Noise Standards for Industrial Facilities			
Receptor	**Period**	**Noise Level**	**Reference regulatory requirement**
Noise sensitive areas - with training, culture and health areas, summer houses and camps	**LAeq (dBA) Day-time 06:00 – 19:00**	60	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Industrial Facilities
	LAeq (dBA) Evening-time 19:00 – 22:00	55	
	LAeq (dBA) Night-time 22:00 – 06:00	50	
Combination of commercial and noise sensitive areas - with dense residential buildings	**One Hour LAeq (dBA) Daytime 07:00 - 22:00**	55	IFC General EHS Guidelines - Noise Standards based on WHO Guidelines
	One Hour LAeq (dBA) Night time 22:00 - 07:00	45	
Industrial areas	**LAeq (dBA) Day-time 06:00 – 19:00**	70	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Industrial Facilities
	LAeq (dBA) Evening-time 19:00 – 22:00	65	
	LAeq (dBA) Night-time 22:00 – 06:00	60	

Appendix 3 Table G Noise Standards for Construction Sites

Noise Standards for Construction Sites		
Activity **(Construction, Demolition and Renovation)**	**Noise Level** **LAeq (dBA)** **Day-time (06:00 – 19:00)**	**Reference regulatory requirement**
Building	70	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Construction Sites
Road	75	
Other sources	70	

Soil Quality Standards

"Regulation on Soil Pollution Control and Point Source Contaminated Sites" originally published in the Official Gazette no. 27605, dated 8 June 2010; and amended on 14 June 2012 in the Official Gazette no. 28323 stating that the binding articles provisionally would be effective as of 08 June 2013. There was another amendment to the regulation on 11 July 2013. The recent amendment states that the binding articles for the investigation of soil contamination, risk assessment criteria, reporting process will be in force 06 May 2015.

The preceding regulation, namely the Soil Pollution Control Regulation (SPCR), which became ineffective as of 8 June 2010, did not provide specific guidelines related to dealing with specific types of contamination or activities. The limits given by SPCR did not differentiate the land use type and, thus, did not provide soil pollution limits for industrial areas. The SPCR required compliance with the limits given in the regulation regardless of where the site was located.

In the new regulation, the contaminant indicator parameters for soil for pipeline transport are given by defining generic threshold values indication of contamination.

ENVIRONMENTAL ACTION PLAN
ANNEX 3 CC SUB-MANAGEMENT PLANS

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P3-A	DIC	24.11.2014	**Discipline Internal Check**
P3-B	IDC	24.12.2014	**Interdisciplinary Check**
P3-0	IAA	15.01.2015	**Issued As Approved**
P3-1	Re-IAA	25.11.2015	**Re-Issued As Approved**
P3-2	Re-IAA	20.07.2016	**Re-Issued As Approved**

HOLDS

No.	Section	Description	Input From	Planned Date

WorleyParsons resources & energy	TANAP

TANAP

TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Document No.	**PLK-PLN-ENV-PL4-008**	Rev	Status
		P4-C	**IFR**
Document Title	**AGGREGATES MANAGEMENT PLAN**		
Tag No's			
Contractor	**PUNJ LLOYD-LİMAK-KALYON JV**		
Contractor Document No.	**PLK-PLN-ENV-PL4-008**	Contractor Rev.	**P4-C**

Tick Box	Descriptions	Signature & Date
☐	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
☐	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

Punj Lloyd / Limak / Kalyon	**TANAP** **TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT** **48" ONSHORE PIPELINE CONSTRUCTION LOT 4**	TANAP / WorleyParsons resources & energy

AGGREGATES MANAGEMENT PLAN

Rev.	Status	Date	Status Description	Issued by	Checked by	Approved by
P4-A	DIC	19/6/2016	Discipline Internal Check	BASA	KALF	MALB
P4-B	IDC	20/6/2016	Inter-Discipline Check	BASA	YOGD	SINV
P4-C	IFR	21/6/2016	Issued for Review	YOGD	KALF	MALB

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P4-A	DIC	20/6/2016	Discipline Internal Check
P4-B	IDC	20/6/2016	Inter-Discipline Check
P4-C	IFR	21/6/2016	Issued for Review

HOLDS

No	Section	Description	Input from	Planned Date

Table of Contents

1 INTRODUCTION

1.1 Background

The Trans Anatolian Natural Gas Pipeline will be built to transport natural gas emanating from the South Caucasus Pipeline Company Pipeline in Georgia to the Trans-Adriatic Pipeline in Greece. In addition to the mainline termination, dedicated off-takes will be provided to BOTAŞ at strategic points in the Republic of Turkey. Contract of Lot 4 of this project is awarded to PUNJ LLOYD – LİMAK Joint Venture and consists mainly of a 48" Onshore Pipeline Construction and also other Above Ground Installations.

1.2 Scope

This Aggregates Management Plan (AMP), identifies the estimated requirements for aggregates and the potential impact of aggregate sourcing and recommends appropriate measures to mitigate them.

Contractor is committed to ensuring that the mining of aggregates for the Project is undertaken in a manner that minimizes environmental risks and which is open to managerial and technical scrutiny.

1.3 Purpose

For the purpose of this Plan, the term 'aggregate' is defined as a mass or body of rock particles, mineral grains, or any of several hard, inert materials, such as sand, gravel, slag or crushed stone used for mixing with a cementing or bituminous material to form concrete, mortar, or plaster, or used alone as in ballast or graded fill (The American Geological Institute, 1984).

Typically, the extraction of these minerals is derived from the following sources:

- Borrow pits (sand and gravel deposits)
- Quarries

Mining aggregates from these sources may present a range of potential environmental risks. These include:

- Impacts to surface water and groundwater;
- Noise and vibration;
- Impacts to air quality;
- Visual impacts;
- Impacts to biodiversity and sensitive habitats;
- Impacts to archaeological sites and cultural heritage.
- Temporary impacts on traffic
- Erosion and sedimentation

1.4 Definitions

CLIENT	TANAP DOĞALGAZ İLETİM A.Ş.
PROJECT	Trans Anatolian Natural Gas Pipeline Project (TANAP)
EPCM	WorleyParsons Proje Yönetimi ve Mühendislik Limited Şirketi
CONTRACTOR	PUNJ LLOYD – LİMAK Joint Venture
CONTRACT	48" Onshore Pipeline Construction Contract for Trans-Anatolian Natural Gas Pipeline Lot 4
Aggregate	Defined as a mass or body of rock particles, mineral grains, or any of several hard, inert materials, such as sand, gravel, slag or crushed stone

Aggregate Source	Any licensed quarry, riverbed (excluding active riverbeds), or borrow pit that will be used as a source of aggregates during the construction of the TANAP Pipeline Project Lot 4

1.5 Abbreviations

TANAP	Trans Anatolian Gas Pipeline Project
EPCM	WorleyParsons Proje Yönetimi ve Mühendislik Limited Sirketi
ROW	Right of Way (along pipeline route)
H&S	Health and Safety
E&S	Environment and Social
AMP	Aggregate Management Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
PPP	Pollution Prevention Plan
WMP	Waste Management Plan
ppp	Pollution Prevention Plan
TMP	Traffic Management Plan
QA/QC	Quality Assurance / Quality Control

1.6 References

	Document Number	Document Title
1.	ESIA Report (Turkish and English)	(TNP-REP-ENV-GEN-001 AND 002)
2.	Environmental and Social Management Plan	(ILF-PLN-ENV-GEN-001)
3.	Aggregate Management Plan	Appendix 5.6 of ESIA Report
4.	Records of Commitments	Appendix 4.7 of ESIA
5.	Legislative Framework	Chapter 4 of ESIA Report
6.	Contractor Environmental and Social Management Plan	PLK-PLN-ENV-PL4-001-P4-C
7.	Contractor Pollution Prevention Plan	PLK-PLN-ENV-PL4-005-P4-C
8.	Contractor Waste Management Plan	PLK-PLN-ENV-PL4-006-P4-C
9.	Contractor Traffic Management Plan	PLK-PLN-SOC-PL4-004-P4-C
10.	Contractor Community Safety Management Plan	PLK-PLN-SOC-PL4-005-P4-C
11.	Contractor Environmental and Social Training Plan	PLK-PLN-ENV-PL4-011-P4-C
12.	Contractor Erosion, Reinstatment and Landscaping Plan	PLK-PLN-ENV-PL4-002-P4-C
13.	Contractor Cultural Heritage Management Plan	PLK-PLN-ENV-PL4-009-P4-C

2 RESPONSIBILITIES

2.1 Project Manager

- Overall responsibility for implementation and of this plan
- To provide necessary resources to minimize environmental risks associated with aggregate supply.

2.2 Construction Manager

- Will be responsible for ensuring that all site staff, including sub-contractors and activities comply with the contructor AMP,
- Will follow-up actions associated with the implementation of this plan each in his work area.

2.3 Project HS Manager

- To ensure the implementation of this procedure.

2.4 Environmental Manager

- Will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with the Contractor AMP,
- Will prepare, implement and monitor the AMP,
- Will attend the environmental meetings, to inform the participants about the aggregates management performance and problems of the workplace's aggregates management system,
- Will evaluate the compliance with laws, regulations, Project ESIA and CLIENT Requirements,
- Will ensure the elimination of the environmental risks related to aggregates management,
- Will ensure that appropriate permitted/licensed quarries are obtained
- Will issue non compliances when commitments are not applied.
- Will update the off-RoW Aggregate Consumption Register (Annex A) on a monthly basis and provide it to EPCM

2.5 Environmental Inspector(s)

- Will provide awareness trainings on aggregates management to the personnel,
- Will audit and inspect the quarries in the quarry management point of view,
- Will monitor their activities to ensure correct preparation, handling, and transportation of aggregates and disposal of waste aggregate.

2.6 Supervisors and Foremen

- To ensure that they are performing proper transportation and handling of aggregates.

Contructor will apply to the competent institutions in order to determine the procedures to open a quarry if available quarries don't provide the conditions or a new quarry is required.

Contructor will manage the activities according to Mining Act and related regulations and environmental law and take all necessary permissions for performing.

3 METHOD

3.1 GENERAL REQUIREMENTS

Before starting construction activities, Contractor will estimate the amount of aggregate materials that will be needed. Contractor will implement the following commitments as a part of AMP:

- Aggregates will only be sourced from licensed sources
- All excavated materials will be screened and reused to the extent deemed feasible by the Contractor to minimise the need for new aggregates

TANAP Project, aggregate material requirement of the Lot 4 Construction activities will be defined by the Contractor. Locations and types of these materials will be used are presented in Table 3.1

Table 3.1 Aggregate Requirements for Lot 4 Construction

Location	**Type of Material**
Access roads	0-80 mm Sieve Material
RoW-Bedding	0-10 mm Sieve Material
RoW-Padding	0-20 mm Sieve Material
Backfilling	0-200 mm Material
General Facilities (Stations)	0-80 mm Sieve Material
Stock Pipe Yards	0-80 mm Sieve Material
Total	

Note: *Estimated quantities will be defined by the Contractoraccording to the Project requirements.*

To supply of aggregate material that will be used for the activities in LOT-4, Contractor will comply with the principles mentioned below;

- Aggregates will only be obtained from licensed quarries,
- All excavated materials will be screened and reused as far as possible to minimize the need for aggregate material,
- Potential increase and related other impacts of the traffic load will be taken into consideration to minimise these effects related to transportation of aggregate materials,
- Erosion and sediment control measures will be implemented,
- Living habitats and Archaeological sites in the project area and its close proximity will be taken into consideration for the activities to be performed for aggregate material supplying purposes
- Measures will be taken to minimize the impact on water resources,
- Amount of wastes to be resulted from the aggregate material supplying activities will be kept minimum as far as possible

A suggested list of quarries along the lot 4 pipeline corridor is given In Appendix B.

Wherever the material excavated from the pipeline trench is suitable for use as bedding and fill, Contractor will use it rather than new quarried material for that purpose.

Contractor will study the disposal of excess soil and rock and incorporate the priorities for reuse. Fill and padding will not be obtained by extraction from third-party facilities unless Contractor can demonstrate to EPCM's satisfaction that it cannot practically be obtained through reuse and/or processing of excavated material.

If extraction of aggregate materials from existing or newly established quarries will be undertaken in a manner that verifiably minimizes environmental and social risks, through the mitigations identified in this plan, such as:

- Roads status and traffic load,
- Drainage conditions and erosion potential of the area,
- Flora and Fauna,
- Cultural heritage,
- Current provincial plans and policies,
- Proximity to residential areas,
- Visual Impact,
- Accessibility,
- Security,

Where no aggregate extraction operations exist that meet the needs of Contractor and thus it is required to open new quarries during construction, Contractor will get necessary permits and licences to open and operate the quarry. The requirements of the Turkish EIA regulation will be followed during the permitting process. EPCM will have the right to inspect and audit these quarries to be compliant with the project and regulatory requirements.

3.2 POTENTIAL IMPACTS OF AGGREGATE SOURCING

Quarrying may give rise to a range of environmental impacts. In the long term, significant changes to landform and landscape are likely to occur, whilst in the shorter term significant impacts include the generation of dust and the impact of noise and vibrations on nearby communities due to excavation and blasting.

This section outlines the potential impacts to which aggregate sourcing can give rise. Potential impacts can be divided into short-term impacts (those which are limited to the construction period) and long-term impacts (those which occur as part of construction and continue on a long-term scale, even after closure of the quarry).

3.2.1 Short Term Impacts

The potential short-term impacts of aggregate sourcing are anticipated mainly during the construction of the TANAP Project Lot 4 Construction.

Short term impacts include;

- Noise Disturbance
- Degradation of air quality due to airborne dust from traffic, blasting and excavation,
- Temporary increases in traffic flows on the road network during transportation of aggregate materials,

- Water pollution from potential spills, from accumulated contaminants on site, and from stockpiles, waste aggregate heaps or debris tailings,
- Uncontrolled disposal of quarry excess material,
- Modification of local topography (especially aggregate stock areas).

3.2.2 Long Term Impacts

The potential long-terms impacts of aggregate sourcing during the construction and operation of the TANAP P/L Project Lot 4 Construction include:

- Visual impacts and landscape treatment (visual scars through bad landscape management);
- Impacts to biodiversity (encroaching upon sensitive habitats, nature conservation or protected areas etc.)
- The loss of vegetative cover due to the construction of access roads and pathways leading to erosion;
- Pollution to rivers, streams, from run-off (sediment in run-off can create deposition, impact habitats, abrade flora and fauna, and lead to increased erosion of stream banks).

3.3 AGGREGATE MANAGEMENT MEASURES AND PROCEDURES

3.3.1 Key Issues

Quarry working and reinstatement, by its very nature, is site specific and there are no international standards applicable. However, there are a number of best practice procedures that will ensure good management while also ensuring optimum use of the aggregate resource.

The key potential issues that will be addressed in terms of mitigation include the following:

- Noise and vibration
- Air quality
- Archaeological and Cultural Heritage
- Impact to Biodiversity and Sensitive Habitats
- Landscape planning to reduce Visual impacts
- Water pollution
- Waste management
- Temporary traffic control and management
- Erosion and sedimentation
- Impacts on settlement
- Decommissioning of Site

The following section provides the recommended best practice procedures needed to ensure adequate aggregate management for the TANAP Project. Concractor will apply them with the mitigation measures outlined in the ESMP (PLK-PLN-ENV-PL4-001) and in compliance with the standards outlined in PPP (PLK-PLN-ENV-PL4-005).

3.3.2 Noise Disturbances

Noise from quarrying can be a major cause of disturbance to the local communities. However, impacts of noise will be reduced at the outset through appropriate mitigation measures.

These may include:

- Maintenance of an acceptable distance between the operation and noise sensitive land-uses;
- Avoidance of severe gradients on haul roads;
- Use of acoustic fencing and baffle mounds;
- Fitting of silencers on equipment and the use of rubber linings on certain sections of the plant and the maintenance of equipment;
- Restrict blasting to permitted hours of operation.

3.3.3 Impacts to Air Quality

As with noise, dust emissions can be reduced and properly controlled by careful planning and quarry management.

Mitigation measures to reduce impacts to the air quality may include:

- Locate features with dust creating potential, such as stockpiles, away from and downwind of
- residential properties and other sensitive land-uses;
- Apply vehicle speed restrictions on and around the site;
- Apply appropriate wheel cleaning facilities;
- Dampen haul roads and stockpiles;
- Use fine water sprays and sheeting of lorries;
- Prompt re-vegetation or application of sealants and dust suppressants to disturbed areas
- (including waste and topsoil piles);
- Enclose dust generating fixed plant and machinery;

The potential for creating fly rock may also be reduced by avoiding secondary blasting and using screen nets.

Contractor will ensure that these mitigation measures are enforced through adequate monitoring and through regular supervision and reporting in line with the Pollution Prevention Plan (PLK-PLN-ENV-PL4-005).

3.3.4 Archaeology

The likely presence of sites of potential archaeological interest should be identified at the earliest possible opportunity. Contractor will comply with the procedures set out in Cultural Heritage Management Plan (PLK-PLN-ENV-PL4-009) during the quarrying of aggregates.

3.3.5 Impacts to Biodiversity and Sensitive Habitats

The main impact of surface mining operations on biodiversity is from disturbance to habitats, vegetation removal and land clearance. High dust levels generated in mining operations may affect both aquatic and terrestrial ecosystems, e.g. by smothering plants. Also, contamination of surface watercourses may occur from leaching. This can affect fish and other aquatic fauna and flora.

The impact of quarrying on biodiversity can be reduced by:

- Minimising the amount of land uptake required to undertake the operation, and the amount of
- vegetation required to be removed;
- Leaving a buffer zone between the workings and sensitive habitats and wildlife corridors;
- Phased stages in operation to minimize the extent of disturbance at any given time and to
- optimise the opportunity for site rehabilitation;
- Treatment and control of storm water run-off (gravel filters, straw bales etc.) prior to discharge
- into any surface watercourse.

3.3.6 Visual impacts

Best practice in terms of landscape planning is to ensure that the visual amenity of the surrounding landscape is maintained and that the site is not visually intrusive.

In terms of visual intrusions, there are a number of measures that can reduce the visual impact of quarry operations. These include:

- employing a method, phasing and direction of working which takes account of views (local, medium and distant) into the site and is chosen as the least intrusive);
- phase working and progressive restoration to minimize the amount of land being worked at any one time;
- careful design and siting of plants, location and height of stockpiles and siting of internal haul roads/conveyors;
- screening measures (planting of hedgerows, trees, shrubs etc), constructing earth bunds etc.

3.3.7 Water Pollution

Run-off has the potential to pollute surface waters and groundwater sources. Mitigation should ensure that control of run-off from the quarry yard and dewatering of the pit is regulated.

<u>Surface Water Impacts:</u>

The primary surface water concerns associated with quarrying are the preservation of riparian vegetation and habitats of nearby streams and estuaries, control of sediment-laden run-off, and prevention of erosion.

To address these issues, mitigation measures should include:

- Prompt clean-up of any spills (refer to Pollution Prevention Plan (PLK-PLN-ENV-PL4-005).
- Provision of secondary containment structures for aboveground tanks that store petroleum products and chemicals;

- Implementation of sediment, erosion, and storm water flow control measures such as building"soft" structures such as ponds, swales, wetlands or "hard" drainage structures, such as pipes and concrete channel;
- Schedule extraction operations so as to avoid periods of high rainfall;
- Allowing internal drainage to settle in sediment control ponds or to be filtered through straw bales, gravel-filters or filter fences prior to discharge;
- Proper orientation and maintenance of the sedimentation ponds.

Groundwater Impacts:

Groundwater impacts are generally associated with the soils in the vicinity of the quarry, the underlying geology, the amount of rainfall, the depth of the pit, the proximity of the pit to wells in the area, and the blasting practices.

Mitigation measures to address these impacts can include:

- Operation and maintenance of equipment in a manner that prevents fuels, lubricants, coolants, hydraulic fluid, or petroleum products from being discharged onto the ground or into surface waters;
- Weekly checks of mitigation measures to ensure that they are functioning properly.

3.3.8. Waste Management

The uncontrolled disposal of quarry waste can have a major impact on the environment. Generally, waste material storage areas should be well screened from public view and should not pose a threat to surface or underground water supplies and should not provide a nuisance to local residents, or other sensitive receivers, by way of blown dust or grit.

Moreover, collection of and recycling of waste oils and lubricants, and prevention measures for potential spills will be applied on-site.

Contractor will use waste management methods as outlined in Waste Management Plan (PLK-PLN-ENV-PL4-006).

3.3.9 Temporary Traffic Control and Management

Contractor will define routes by which aggregate will be transported to the point of use, and will estimate numbers of traffic movements, speeds and times of travel to transport aggregate materials to the site.

If the aggregate has to be transported through residential areas, Contractor will propose measures that will be used to ensure the safety of the community and minimise the nuisance impact of traffic movements (such as restricted traffic hours and speed limits). Contractor will visually monitor aggregate transportation.

Community notification will be undertaken when works are likely to cause dust or offensive noise to impact on the public and nearby residents. Contractor will comply with the mitigation measures outlined in Traffic Management Plan (PLK-PLN-SOC-PL4-004).

If a new quarry may be opened for this Project, Contractor will take the increased traffic impact of operating a quarry into consideration. Contractor will communicate with the local community on the management of the increased traffic load.

3.3.10 Erosion and Sediment Control

Quarry operations can lead to erosion if not properly mitigated. The main forms of erosion associated with quarrying are splash, sheet, rill, gully on-site, and stream and channel off-site.

Another issue related to quarrying is the production of sediment. Sediment, when transported through run-off, to nearby watercourses, can impact the water quality and act as a pollutant. High levels of sediment deposition can also lead to increased erosion of stream banks and can cause flooding.

Mitigation measures to address these impacts may include:

- sediment control structures (e.g. detention and retention basins) should be provided to intercept and treat surface run-off prior to discharge;
- all permanent surface water facilities including catch basins, pipes etc will be cleaned to be free of clogging;
- any off-site catch basins that required protection will also be cleaned.

3.3.11 Decommissioning of Site

Contractor will prepare a landscape plan in order to minimize the visual impacts of operating the quarry opened by Contracto for this Project. Other quarries already existing will continue to be used by its owner until the termination of its operations permit. Those quarries will follow their individual reinstatement and landscape plans officially approved during their own ESIA process.

Decommissioning of the quarry site, that may be opened by Contractor for this Project, will involve the reinstatement and rehabilitation of the site through appropriate environmental planning. The term reinstatement describes the general process whereby the land surface should be returned to either its original conditions or to some form of beneficial use. Reinstatement and Landscape Plan to be prepared by Contractor will be presented to EPCM for approval.

The reinstatement plans will reflect the following points:

- Reclamation of open pit areas and abandoned campsites;
- The area will be cleaned of quarry operation equipment and all the sediment and erosion control structures will be removed from site;
- Return land to conditions of supporting prior land use, equivalent uses, or other acceptable uses;
- Elimination of significant adverse effects on adjacent water courses;
- Use of overburden for backfill and of topsoil for reclamation to the extent feasible;
- When local topography has been disturbed, it will be restored as close to the original contours as possible, preferably to grades 2:1 or less. Contouring of slopes will minimize erosion and runoff;
- Erosion-prone areas may require re-vegetation to limit future problems. Until new growth is established, mulch or hydroseeding will be used to stabilize the bare ground to control erosion;
- Re-vegetation should consist of native species of vegetation and of other species that are environmentally acceptable;
- The ultimate goal is to establish an acceptable long-term use or uses appropriate to the particular locality where the quarry is located.

3.3.12 Impacts on Settlements

Contractor will apply the Community Safety Management Plan (PLK-PLN-SOC-PL4-005) and the Traffic Management Plan, (PLK-PLN-SOC-PL4-004) during the material supply from the quarries to minimize the potential impact of settlements.

3.3.13 Decommissioning of Site

Contractor will prepare a landscape plan in order to minimize the visual impacts of operating the quarry opened by Contractor for this Project. Other quarries already existing will continue to be used by its owner until the termination of its operations permit. Those quarries will follow their individual reinstatement and landscape plans officially approved during their own EISA process.

Decommissioning of the quarry site, that may be opened by Contractor for this Project, will involve the reinstatement and rehabilitation of the site through appropriate environmental planning. The term reinstatement describes the general process whereby the land surface should be returned to either its original conditions or to some form of beneficial use. Reinstatement and Landscape Plan to be prepared by Contractor will be presented to EPCM for approval.

The reinstatement plans will reflect the following points:

- Reclamation of open pit areas and abandoned campsites.
- The area will be cleaned of quarry operation equipment and all the sediment and erosion control structures will be removed from site.
- Return land to conditions of supporting prior land use, equivalent uses, or other acceptable uses.
- Elimination of significant adverse effects on adjacent water courses.
- Use of overburden for backfill and of topsoil for reclamation to the extent feasible.
- When local topography has been disturbed, it will be restored as close to the original contours as possible, preferably to grades 2:1 or less. Contouring of slopes will minimize erosion and runoff.
- Erosion-prone areas may require re-vegetation to limit future problems. Until new growth is established, mulch or hydroseeding will be used to stabilize the bare ground to control erosion.
- Re-vegetation should consist of native species of vegetation and of other species that are environmentally acceptable.
- The ultimate goal is to establish an acceptable long-term use or uses appropriate to the particular locality where the quarry is located.

4 TRAINING

Personnel that routinely work in aggregate resourcing activities will receive an overview of project aggregates management requirements in addition to all other related environmental and social management plans relating to the quarries/borrow pits activities.

Course Title	**Aggregate Management**
Duration	TBD
Key Objective(s)	To make attendees aware of the measures / work practices required for aggregate management as well the requirements of the Aggregate Management Plan
Issues to be covered	Requirements of the Aggregate Management Plan Procedures to be followed for aggregate management
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	Related staff of subcontractors

5 MONITORING

Contructor's environmental inspectors will be monitoring visually the following measures:

- sedimentation prevention measures to ensure that they are functioning properly
- storing waste materials as per standards
- dust prevention measures such as usage of fine water sprays, sheeting of lorries in addition to dampening haul roads and stockpiles
- vehicle speed restrictions on and around the site

Contructor will carry out necessary analysis as stated in Contructor's Pollution Prevention Plan (PLK-PLN-ENV-PL4-005) for any grievance (related to aggregate operations) raised when/if advised by Contructor's social team.

6 REPORTING

Contructor will submit Monthly reports to the EPCM. The monthly report will include Aggregate Consumption Register, as given in the Annex A and the NCRs and incidents as per the format provided by EPCM. The following issues will be also recorded and reported by Contractor:

- Number of complaints on the dust, noise, vibration and the traffic resulting from quarry/borrow pit operations
- Recorded damages on the roads during transportation of quarry material
- Number of tours per day to and from the quarry and borrow pits
- Amount of aggregate consumption
- NCR
- Incidents

7 RECORDS

- Off-RoW Aggregate Consumption Register (Annex A)
- Consignment notes (sevk fişleri),
- Permits & Licenses of quarries
- Protocols with aggregate supply facilities

Appendix A - OFF RoW AGGREGATE CONSUMPTION REGISTER

Appendix A - OFF ROW AGGREGATE CONSUMPTION REGISTER

OFF ROW AGGREGATE CONSUMPTION REGISTER – LOT 4			
Date	**Source**	**Volume(m^3)**	**Weight (ton)**
	Total to date :		

Appendix A - OFF ROW AGGREGATE CONSUMPTION REGISTER

OFF ROW AGGREGATE CONSUMPTION REGISTER – LOT 4			
Date	**Source**	**Volume(m^3)**	**Weight (ton)**
	Total to date :		

Appendix B - LIST of QUARRIES ALONG THE LOT 4 PIPELINE CORRIDOR (AS PROVIDED)

APPENDIX B-LIST OF QUARRIES ALONG THE LOT 4 PIPELINE CORRIDOR (AS PROVIDED)

Name of the company/name of the owner	Province	District	Village	Licence Group
Özkar İnş. San. Ve Tic. A.Ş.	Balıkesir	Manyas	Hacıosmanlar	1 (a) Group Mine Licence
Şaban TOPAL	Balıkesir	Manyas	Kızık	1 (a) Group Mine Licence
Abdurrahman ŞEMŞEK	Balıkesir	Manyas	Dura	1 (a) Group Mine Licence
Metin BAHADIR	Balıkesir	Manyas	Çal Köyü	1 (a) Group Mine Licence
Karayolları 14.Bölge Müdürlüğü	Balıkesir	Manyas	Yeniköy	1 (a) Group Mine Licence
Temiz Beton Mad.İnş.Ltd.Şti.	Balıkesir	Susurluk	Aziziye	1 (a) Group Mine Licence
Odaman Agrega Beton San ve Tic.Ltd.Şti	Balıkesir	Susurluk	Balıklıdere	1 (a) Group Mine Licence
Odaman Agrega Beton San ve Tic.Ltd.Şti	Balıkesir	Susurluk	Balıklıdere	1 (a) Group Mine Licence
Pişkindemirier Ltd.Şti.	Balıkesir	Susurluk	Beyköy	1 (a) Group Mine Licence
Çebitaş Inş.Mad.Turz.San.ve Tic. A.Ş.	Balıkesir	Susurluk	Söve	1 (a) Group Mine Licence
Sencer Yapı Taah.Tic.ve San.Ltd.Şti.	Balıkesir	Bandırma	Yeşilçomlu	1 (a) Group Mine Licence
Sencer Yapı Taah.Tic.ve San.Ltd.Şti.	Balıkesir	Bandırma	Yeşilçomlu	1 (a) Group Mine Licence
Sencer Yapı Taah.Tic.ve San.Ltd.Şti.	Balıkesir	Bandırma	Yeşilçomlu	1 (a) Group Mine Licence
Ahmet Salih DİLMAÇ	Balıkesir	Gönen	Merkez	1 (a) Group Mine Licence
Province Special Administration	Balıkesir	Gönen	Tahtalı	1 (a) Group Mine Licence
GönenMunicipality	Balıkesir	Gönen	Kumköy	1 (a) Group Mine Licence
Gönen Irrigation	Balıkesir	Gönen	Orta oba	1 (a) Group Mine Licence
A	Bilecik	Bozöyük	Dombayçayırı	1 (a) Group Mine Licence
B-C	Bilecik	Bozöyük	Dombayçayırı	1 (a) Group Mine Licence
D	Bilecik	Bozöyük	Dombayçayırı	1 (a) Group Mine Licence
Directorate of Highways 14.District	Bursa	M.Kemal Faşa	Ocaklı	1 (a) Group Mine Licence
Province Special Administration	Bursa	İnegöl	Mezit	1 (a) Group Mine Licence

Province Special Administration	Bursa	Karacabey	Hayırlar	1 (a) Group Mine Licence
Province Special Administration	Bursa	Karacabey	Hayırlar	1 (a) Group Mine Licence
Province Special Administration	Bursa	Harmancık	Gıılözü	1 (a) Group Mine Licence
Province Special Administration	Bursa	Yenişehir	Kızılhisar	1 (a) Group Mine Licence
Province Special Administration	Bursa	İznik	Kırıntı	1 (a) Group Mine Licence
Province Special Administration	Bursa	Orhaneli	Çeki	1 (a) Group Mine Licence
Province Special Administration	Bursa	Karacabey	Doğla	1 (a) Group Mine Licence
Directorate of Highways 14.District	Bursa	Yenişehir	Demirboğa	1 (a) Group Mine Licence
Province Special Administration	Bursa	Gürsu	Ericek	1 (a) Group Mine Licence
Province Special Administration	Bursa	Orhaneli	Girencik	1 (a) Group Mine Licence
Province Special Administration	Bursa	Biiyükorhan	Kınık	1 (a) Group Mine Licence
Province Special Administration	Bursa	İznik	Nüzhetiye	1 (a) Group Mine Licence
Province Special Administration	Bursa	Harmancık	Çakmak	1 (a) Group Mine Licence
Province Special Administration	Bursa	İnegöl	Karalar	1 (a) Group Mine Licence
Province Special Administration	Bursa	Mudanya	Kaymakoba	1 (a) Group Mine Licence
Province Special Administration	Bursa	İnegöl	İskanive	1 (a) Group Mine Licence
Province Special Administration	Bursa	M.Kemal Paşa	Ocaklı	1 (a) Group Mine Licence
Province Special Administration	Bursa	Yenişehir	Kavaklı	1 (a) Group Mine Licence
Province Special Administration	Bursa	Keleş	Denizler	1 (a) Group Mine Licence
Province Special Administration	Bursa	Keleş	Durak	1 (a) Group Mine Licence
Province Special Administration	Bursa	Kesici	Babasultan	1 (a) Group Mine Licence
Province Special Administration	Bursa	Orhaneli	Dağgüneyi	1 (a) Group Mine Licence
Province Special Administration	Bursa	Yenişehir	Marmaracık	1 (a) Group Mine Licence
Province Special Administration	Bursa	Büyükoıhan	Aktaş	1 (a) Group Mine Licence
Province Special Administration	Bursa	Kestel	Turan	1 (a) Group Mine Licence
Province Special Administration	Bursa	İznik	Sansarak	1 (a) Group Mine Licence

Province Special Administration	Bursa	İznik	Tacir	1 (a) Group Mine Licence
Province Special Administration	Bursa	M.Kemal Paşa	Alpagut	1 (a) Group Mine Licence
Province Special Administration	Bursa	M.Kemal Paşa	Kocakoru	1 (a) Group Mine Licence
Mustafakemalpaşa Municipality	Bursa	M.Kemal Paşa	Koşuboğazı	1 (a) Group Mine Licence
Directorate of Highways 14.District	Bursa	Yenişehir	Ebe	1 (a) Group Mine Licence
Directorate of Highways 14.District	Bursa	Yenişehir	Alaylı	1 (a) Group Mine Licence
Directorate of Highways 14.District	Bursa	Yenişehir	Alaylı	1 (a) Group Mine Licence
Province Special Administration	Edirne	U.KÖPRÜ	MAKSUTLU	1 (a) Group Mine Licence
Province Special Administration	Edirne	MERKEZ	HÜYÜKLÜIATAR	1 (a) Group Mine Licence
Province Special Administration	Edirne	HAVSA	BAKIŞLAR	1 (a) Group Mine Licence
Province Special Administration	Edirne	LALAPAŞA	HÜSAYİNPİNAR	1 (a) Group Mine Licence
Province Special Administration	Edirne	İPSALA	İBRIKTEPE	1 (a) Group Mine Licence
Province Special Administration	Edirne	U. KÖPRÜ	YENİKÖY	1 (a) Group Mine Licence
Province Special Administration	Edirne	KEŞAN	MERCAN	1 (a) Group Mine Licence
Province Special Administration	Edirne	KEŞAN	YAYLA	1 (a) Group Mine Licence
Province Special Administration	Edirne	HAVSA	ABALAR	1 (a) Group Mine Licence
Province Special Administration	Edirne	KEŞAN	GÖKÇETEPE	1 (a) Group Mine Licence
Province Special Administration	Edirne	İPSALA	TEFİKİYE	1 (a) Group Mine Licence
Province Special Administration	Edirne	LALAPAŞA	KÜÇÜKÖĞÜNLÜ	1 (a) Group Mine Licence
Province Special Administration	Edirne	KEŞAN	KIZKAPAN	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	SARICAALİ	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	NASUHBEY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	ALİBEYKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	ADASARHANLI	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	SUBAŞI	1 (a) Group Mine Licence

DSİ 11. District	Edirne	UZUNKÖPRÜ	ESKİKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	SEREM	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	HASIRCI ARNAVUT	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	KADIDONDURMA	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	PAŞAKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	PAŞAKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	PAŞAKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	ESF.TÇE	1 (a) Group Mine Licence
DSİ 11. District	Edirne	UZUNKÖPRÜ	GEMİCİ	1 (a) Group Mine Licence
DSİ 11. District	Edirne	ENEZ	SÜTÇÜLER	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	SULTAN BELDESİ	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	Y EN İCEGÖRECE	1 (a) Group Mine Licence
DSİ 11. District	Edirne	UZUNKÖPRÜ	ÇÖPKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	UZUNKÖPRÜ	GAZİMEHMF.T	1 (a) Group Mine Licence
DSİ 11. District	Edirne	UZUNKÖPRÜ	GAZİMEHMET	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	KARAYUSUFLU	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	RAHMANÇA	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	KÜPLÜ	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	SARICAALİ	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	SARPDERE	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	ESETÇE	1 (a) Group Mine Licence
GIDA TARIM VE HAYVANCILIK İL MÜDÜRLÜĞÜ	Edirne	UZUNKÖPRÜ	KURTTEPE	1 (a) Group Mine Licence
GIDA TARIM VE HAYVANCILIK İL MÜDÜRLÜĞÜ	Edirne	UZUNKÖPRÜ	SAÇLIMÜSELLİM	1 (a) Group Mine Licence
GIDA TARIM VE HAYVANCILIK İL MÜDÜRLÜĞÜ	Edirne	İPSALA	SARICAALİ	1 (a) Group Mine Licence
SÜLEYMAN ARIKAYA	Eskişehir	Sivrihisar	İstiklal Bağı	1 (a) Group Mine Licence

ERKAN ZAYIF	Eskişehir	Mahmudiye	Merkez	1 (a) Group Mine Licence
YETİM KUM	Eskişehir	Tepebaşı	Muhacır Akçayır	1 (a) Group Mine Licence
MEHMET SEVİNÇ	Eskişehir	Tepebaşı	Beyazaltın	1 (a) Group Mine Licence
GÜVENSOY MADENCİLİK	Eskişehir	Sivrihisar	Sadıkbağı	1 (a) Group Mine Licence
UMA MADENCİLİK	Eskişehir	Mahmudiye	Hamidiye	1 (a) Group Mine Licence
BILGİNOĞULLARI MADEN.	Eskişehir	Odunpazarı	Karapazar	
KOÇKAYA İNŞ.TAAH.	Eskişehir	Odunpazarı	Yörükkaracaören	
ALEMDAR MADEN.	Eskişehir	Mahmudiye	Merkez	
ÇİLEM MADEN.	Eskişehir	Odunpazarı	Knalıpınar	
EREK İNŞAAT	Eskişehir	Seyitgazi	Salihler	
AGRESAN MADEN.	Eskişehir	Odunpazarı	Yörükkaracaören	
SİMGE MADEN.	Eskişehir	İnönü	Merkez	
MEHMET HANİFI YILDIRIM	Eskişehir	Odunpazarı	Gümele	
ATICI MICIR HARFİYAT	Eskişehir	Tepebaşı	Kozkayı	
ÇİMSA A.Ş	Eskişehir	Odunpazarı	Süpren	
KÜPELİLER A Ş	Eskişehir	Tepebaşı	Muttalip	
SİNO GLOBAL MADEN.	Eskişehir	Beylikova	Doğray	
İNTAŞ A.Ş	Eskişehir	Tepebaşı	Cumhuriyet	
BİLGİNOĞULLARI A.Ş	Eskişehir	Tepebaşı	Çukurhisar	
ESTAŞ MADEN.	Eskişehir	Odunpazarı	Kireçköy	
BATI MADENCİLİK	Eskişehir	Odunpazarı	Kireçköy	
Yavuz FERİZ	Kütahya	Merkez	Çayca	1 (a) Group Mine Licence
Yeniköy Belediye Başkanlığı	Kütahya	Simav	Yeniköy	1 (a) Group Mine Licence
Güney Belediye Başkanlığı	Kütahya	Simav	Güney	1 (a) Group Mine Licence
Mehmet TOPAL	Kütahya	Emet	Eğrigöz	1 (a) Group Mine Licence
Simav Madencilik İnş.Taah.San.ve Tic.Ltd.Şti.	Kütahya	Simav	Kalkan	1 (a) Group Mine Licence
Emet Hazır Beton Nak.Inş.Mad.San veTic.Ltd.Şti.	Kütahya	Emet	Yenice	1 (a) Group Mine Licence
Balıköy Belediye Başkanlığı	Kütahya	Tavşanlı	Balıköy	1 (a) Group Mine Licence
Hisarcık Köylere Hizmet Götürme Birliği	Kütahya	Hisarcık	Güldüren	1 (a) Group Mine Licence

Yemişli Belediye Başkanlığı	Kütahya	Simav	Yemişli	1 (a) Group Mine Licence
Ahmet AKÇAY	Kütahya	Merkez	Çayca	1 (a) Group Mine Licence
Süleyman TEKEL	Kütahya	Simav	Kalkan	1 (a) Group Mine Licence
Recep SARI	Kütahya	Gediz	Eski Gediz	1 (a) Group Mine Licence
Emet Hazır Beton Nak.Inş.Mad.San ve Tic.Ltd.Şti.	Kütahya	Emet	Yenice	1 (a) Group Mine Licence
M-V TURİZM INŞ.SAN.VE TİC.LTD.ŞTİ.	Tekirdağ	MARMARA EREĞLİSİ		1 (a) Group Mine Licence
KUMYOL YAPI PLAS.SAN.TİC.A.Ş.	Tekirdağ	ÇORLU		1 (a) Group Mine Licence
ÇEBILER YAPI SAN.VE TİC.LTD.ŞTİ.	Tekirdağ	MARMARA EREĞLİSİ		1 (a) Group Mine Licence
TARIK. KARAEVLI	Tekirdağ	ÇORLU		1 (a) Group Mine Licence
AKGUN YAPI SAN. VE TİC.LTD.ŞTİ.	Tekirdağ	ÇORLU		1 (a) Group Mine Licence
GULDALLAR İNŞAAT A.Ş.	Tekirdağ	MARMARA EREĞLİSİ		1 (a) Group Mine Licence
TEKİN GRUP INŞ. SAN.VE TİC.A.Ş.	Tekirdağ	MERKEZ		1 (a) Group Mine Licence
KARDEŞOGULLARI HAF.İNŞ.TİC. LTD.ŞTİ.	Tekirdağ	ÇORLU		1 (a) Group Mine Licence
HUSNU ÇELEBİ	Tekirdağ	ÇERKEZKÖY		1 (a) Group Mine Licence
METİN AKGUN	Tekirdağ	ÇORLU		1 (a) Group Mine Licence
GRANİTEZ GRANİT SANAYİ VE DİŞ TİCARET LİMİTED ŞİRKETİ	Çanakkale	Ezine	Körüktaşı	II. Group Mine License
TEGAS MÜHENDİSLİK İNŞAAT VE MADENCİLİK SAN	Çanakkale	Merkez	AŞAĞIOKÇULAR	II. Group Mine License
BİGA MADEN SANAYİ VETİCARET LİMİTED ŞTİ.	Çanakkale	LAPSEKİ	ÇAM YURT	II. Group Mine License
OMYA MADENCİLİK SAN.VE TİC.A.Ş.	Çanakkale	BAYRAMİÇ	DALOBA	II. Group Mine License
BURSA ULAŞTIRMA BÖLGE MÜDÜRLÜĞÜ	Çanakkale	AYVACIK	KOCAKÖY	II. Group Mine License
NAGİHAN TUNA	Çanakkale	AYVACIK	İLYASFAKI	II. Group Mine License
SEDAT ALBAYRAK	Çanakkale	AYVACIK	TAMIŞ	II. Group Mine License
AKÇİN MADENCİLİK TUR. İNŞ.TEKST.HAYV.TARIM	Çanakkale	AYVACIK	AKÇİN	II. Group Mine License
GALİP EREN	Çanakkale	AYVACIK	ADATEPEBAŞI	II. Group Mine License

ÖNER BETON MAMUL. SAN. TUR. VE OTELCİLİK İNŞ. TAAH. TAŞ. TİC. PAZ. VE DIŞ TİC. LTD. ŞTİ.	Çanakkale	BİGA	KAPANBELENİ	II. Group Mine License
UZAN MADENCİLİK NAKLİYAT İnş. Yapı Malz.	Çanakkale	ÇAN	HALİLAĞA	II. Group Mine License
KARAYOLLARI 14.BÖLGE MÜDÜRLÜĞÜ	Çanakkale	BİGA	AYITDERE	II. Group Mine License
Faruk DUMAN	Çanakkale	BİGA	HOŞOBA	II. Group Mine License
FERNAS İNŞAAT LİMİTED ŞTİ.	Çanakkale	ÇAN	KULFAL	II. Group Mine License
TEKSER MADENCİLİK MAKİNA İNŞAAT SANAYİ VE TİCARET LİMİTED ŞİRKETİ	Çanakkale	BİGA	BEKİRLİ	
PARİON MADENCİLİK İNŞAAT SAN.VE TİC.	Çanakkale	BİGA	DEĞİRMENCİK	II. Group Mine License
OMYA MADENCİLİK SAN.VE TİC.A.Ş.	Çanakkale	BİGA	ÖRTÜLÜCE	
BİGA MADEN SANAYİ VETİCARET LİMİTED ŞİRKETİ	Çanakkale	BİGA	ESKİBALIKLI	II. Group Mine License
BİGA MADEN SANAYİ VETİCARET LİMİTED ŞİRKETİ	Çanakkale	Merkez	HALİLOĞLU	II. Group Mine License
EZİNE GÖKÇEBAYIR KÖYÜ MUHTARLIĞI	Çanakkale	EZİNE	GÖKÇEBAYIR	II. Group Mine License
ÖZDE MADENCİLİK NAK.TİC.VE SAN	Çanakkale	EZİNE	ÇINARKÖY	II. Group Mine License
MUSTAFA KANSU	Çanakkale	EZİNE	DERBENTBAŞI	II. Group Mine License
TROAS MİNERALS MAD.TURİZM TİCARET	Çanakkale	EZİNE	ALEMŞAH	II. Group Mine License
ONUR-SAN MADENCİLİK İNŞAAT HAZIR BETON TURİZM VE TAAHHÜT LİMİTED ŞİRKETİ	Çanakkale	ÇAN	YAYKIN	II. Group Mine License
Directorate of Highways 14.District	Çanakkale	ÇAN	OKÇULAR	
Directorate of Highways 14.District	Çanakkale	LAPSEKİ	ŞEVKETİYE	
TEGAS MÜHENDİSLİK İNŞAAT VE MADENCİLİK SAN	Çanakkale	GÖKÇEADA	DEREKÖY	II. Group Mine License
TAYLAN İNŞAAT TURİZM MADENCİLİK TAAHHÜT SANAYİ VE TİCARET LİMİTED ŞİRKETİ	Çanakkale	GÖKÇEADA	TEPEKÖY	II. Group Mine License
YENİCE BEŞ YAPI MADENCİLİK GIDA İNŞAAT TAAHHÜT NAKLİYAT ORMAN ÜRÜNLERİ İTHALAT İHRACAT TURİZM SANAYİ VE TİCARET LİMİTED ŞİRKETİ	Çanakkale	YENİCE	ÇALKÖY	II. Group Mine License

MUSTAFA KANSU	Çanakkale	YENİCE	SOFULAR	II. Group Mine License
AYDINLIK İNŞ. HAF. TAA. MAD. SAN. VE TİC. LTD. ŞTİ.	Çanakkale	LAPSEKİ	ŞAHİNLİ	II. Group Mine License
SÜTUN ENERJİ İTH.İHRMADENCİLİK SANAYİ	Çanakkale	MERKEZ	ELMACIK	II. Group Mine License
KATOPSAN KALE TOPRAK SANAYİ ADİ KOMANDİT ŞİRKETİ MEHMET BESİM SOYDAN VE ORTAKLARI	Çanakkale	MERKEZ	IŞIKLAR	II. Group Mine License
AYDINLIK İNŞ.HAF.TAAMAD.SAN.VE TİC.LTD. ŞTİ.	Çanakkale	YENİCE	NEVRUZ	II. Group Mine License
SÜTUN ENERJİ İTH.İHRMADENCİLİK SANAYİ	Çanakkale	MERKEZ	ÇANAKALAN	II. Group Mine License
SÜTUN ENERJİ İTH.İHRMADENCİLİK SANAYİ	Çanakkale	MERKEZ	AŞAĞIOKÇULAR	II. Group Mine License
AKÇANSA ÇİMENTO SANAYİ VE TİC.A.Ş.	Çanakkale	MERKEZ	SARAYCIK	II. Group Mine License
BİGA MADEN SANAYİ VETİCARET LİMİTED ŞİRKETİ	Çanakkale	MERKEZ	HALİLOĞLU	II. Group Mine License
MUSTAFA KANSU	Çanakkale	MERKEZ	OVACIK	II. Group Mine License
MUSTAFA KANSU	Çanakkale	MERKEZ	OVACIK	II. Group Mine License
AYDINLIK İNŞ.HAF.TAAH. MAD.SAN.VE TİC.LTD. ŞTİ.	Çanakkale	LAPSEKİ	ŞAHİNLİ	II. Group Mine License
Name of the company/name of the owner	Province	District	Village	Licence Group
AKÇANSA ÇİMENTO SANAYİ VE TİC.A.Ş	Çanakkale	MERKEZ	SARAYCIK	II. Group Mine License
AYDINLIK İNŞ.HAF.TAAH. MAD.SAN.VE TİC.LTD. ŞTİ.	Çanakkale	YENİCE	NEVRUZ	II. Group Mine License
KARAYOLLARI 14.BÖLGE MÜDÜRLÜĞÜ	Çanakkale	BİGA	HOŞOBA	II. Group Mine License
BİGA MADEN SANAYİ VETİCARET LİMİTED ŞİRKETİ	Çanakkale	YENİCE	AYVAGEDİĞİ	
HARUN DENİZ	Çanakkale	YENİCE	ÇALKÖY	II. Group Mine License

APPENDIX B-LIST OF QUARRIES ALONG THE LOT 4 PIPELINE CORRIDOR (AS PROVIDED)

Name of the company/name of the owner	Province	District	Village	Licence Group
Özkar İnş. San. Ve Tic. A.Ş.	Balıkesir	Manyas	Hacıosmanlar	1 (a) Group Mine Licence
Şaban TOPAL	Balıkesir	Manyas	Kızık	1 (a) Group Mine Licence
Abdurrahman ŞEMŞEK	Balıkesir	Manyas	Dura	1 (a) Group Mine Licence
Metin BAHADIR	Balıkesir	Manyas	Çal Köyü	1 (a) Group Mine Licence
Karayolları 14.Bölge Müdürlüğü	Balıkesir	Manyas	Yeniköy	1 (a) Group Mine Licence
Temiz Beton Mad.İnş.Ltd.Şti.	Balıkesir	Susurluk	Aziziye	1 (a) Group Mine Licence
Odaman Agrega Beton San ve Tic.Ltd.Şti	Balıkesir	Susurluk	Balıklıdere	1 (a) Group Mine Licence
Odaman Agrega Beton San ve Tic.Ltd.Şti	Balıkesir	Susurluk	Balıklıdere	1 (a) Group Mine Licence
Pişkindemirier Ltd.Şti.	Balıkesir	Susurluk	Beyköy	1 (a) Group Mine Licence
Çebitaş Inş.Mad.Turz.San.ve Tic. A.Ş.	Balıkesir	Susurluk	Söve	1 (a) Group Mine Licence
Sencer Yapı Taah.Tic.ve San.Ltd.Şti.	Balıkesir	Bandırma	Yeşilçomlu	1 (a) Group Mine Licence
Sencer Yapı Taah.Tic.ve San.Ltd.Şti.	Balıkesir	Bandırma	Yeşilçomlu	1 (a) Group Mine Licence
Sencer Yapı Taah.Tic.ve San.Ltd.Şti.	Balıkesir	Bandırma	Yeşilçomlu	1 (a) Group Mine Licence
Ahmet Salih DİLMAÇ	Balıkesir	Gönen	Merkez	1 (a) Group Mine Licence
Province Special Administration	Balıkesir	Gönen	Tahtalı	1 (a) Group Mine Licence
GönenMunicipality	Balıkesir	Gönen	Kumköy	1 (a) Group Mine Licence
Gönen Irrigation	Balıkesir	Gönen	Orta oba	1 (a) Group Mine Licence
A	Bilecik	Bozöyük	Dombayçayırı	1 (a) Group Mine Licence
B-C	Bilecik	Bozöyük	Dombayçayırı	1 (a) Group Mine Licence
D	Bilecik	Bozöyük	Dombayçayırı	1 (a) Group Mine Licence
Directorate of Highways 14.District	Bursa	M.Kemal Faşa	Ocaklı	1 (a) Group Mine Licence
Province Special Administration	Bursa	İnegöl	Mezit	1 (a) Group Mine Licence

Province Special Administration	Bursa	Karacabey	Hayırlar	1 (a) Group Mine Licence
Province Special Administration	Bursa	Karacabey	Hayırlar	1 (a) Group Mine Licence
Province Special Administration	Bursa	Harmancık	Gıılözü	1 (a) Group Mine Licence
Province Special Administration	Bursa	Yenişehir	Kızılhisar	1 (a) Group Mine Licence
Province Special Administration	Bursa	İznik	Kırıntı	1 (a) Group Mine Licence
Province Special Administration	Bursa	Orhaneli	Çeki	1 (a) Group Mine Licence
Province Special Administration	Bursa	Karacabey	Doğla	1 (a) Group Mine Licence
Directorate of Highways 14.District	Bursa	Yenişehir	Demirboğa	1 (a) Group Mine Licence
Province Special Administration	Bursa	Gürsu	Ericek	1 (a) Group Mine Licence
Province Special Administration	Bursa	Orhaneli	Girencik	1 (a) Group Mine Licence
Province Special Administration	Bursa	Biiyükorhan	Kınık	1 (a) Group Mine Licence
Province Special Administration	Bursa	İznik	Nüzhetiye	1 (a) Group Mine Licence
Province Special Administration	Bursa	Harmancık	Çakmak	1 (a) Group Mine Licence
Province Special Administration	Bursa	İnegöl	Karalar	1 (a) Group Mine Licence
Province Special Administration	Bursa	Mudanya	Kaymakoba	1 (a) Group Mine Licence
Province Special Administration	Bursa	İnegöl	İskanive	1 (a) Group Mine Licence
Province Special Administration	Bursa	M.Kemal Paşa	Ocaklı	1 (a) Group Mine Licence
Province Special Administration	Bursa	Yenişehir	Kavaklı	1 (a) Group Mine Licence
Province Special Administration	Bursa	Keleş	Denizler	1 (a) Group Mine Licence
Province Special Administration	Bursa	Keleş	Durak	1 (a) Group Mine Licence
Province Special Administration	Bursa	Kesici	Babasultan	1 (a) Group Mine Licence
Province Special Administration	Bursa	Orhaneli	Dağgüneyi	1 (a) Group Mine Licence
Province Special Administration	Bursa	Yenişehir	Marmaracık	1 (a) Group Mine Licence
Province Special Administration	Bursa	Büyükoıhan	Aktaş	1 (a) Group Mine Licence
Province Special Administration	Bursa	Kestel	Turan	1 (a) Group Mine Licence
Province Special Administration	Bursa	İznik	Sansarak	1 (a) Group Mine Licence

Province Special Administration	Bursa	İznik	Tacir	1 (a) Group Mine Licence
Province Special Administration	Bursa	M.Kemal Paşa	Alpagut	1 (a) Group Mine Licence
Province Special Administration	Bursa	M.Kemal Paşa	Kocakoru	1 (a) Group Mine Licence
Mustafakemalpaşa Municipality	Bursa	M.Kemal Paşa	Koşuboğazı	1 (a) Group Mine Licence
Directorate of Highways 14.District	Bursa	Yenişehir	Ebe	1 (a) Group Mine Licence
Directorate of Highways 14.District	Bursa	Yenişehir	Alaylı	1 (a) Group Mine Licence
Directorate of Highways 14.District	Bursa	Yenişehir	Alaylı	1 (a) Group Mine Licence
Province Special Administration	Edirne	U.KÖPRÜ	MAKSUTLU	1 (a) Group Mine Licence
Province Special Administration	Edirne	MERKEZ	HÜYÜKLÜIATAR	1 (a) Group Mine Licence
Province Special Administration	Edirne	HAVSA	BAKIŞLAR	1 (a) Group Mine Licence
Province Special Administration	Edirne	LALAPAŞA	HÜSAYİNPİNAR	1 (a) Group Mine Licence
Province Special Administration	Edirne	İPSALA	İBRIKTEPE	1 (a) Group Mine Licence
Province Special Administration	Edirne	U. KÖPRÜ	YENİKÖY	1 (a) Group Mine Licence
Province Special Administration	Edirne	KEŞAN	MERCAN	1 (a) Group Mine Licence
Province Special Administration	Edirne	KEŞAN	YAYLA	1 (a) Group Mine Licence
Province Special Administration	Edirne	HAVSA	ABALAR	1 (a) Group Mine Licence
Province Special Administration	Edirne	KEŞAN	GÖKÇETEPE	1 (a) Group Mine Licence
Province Special Administration	Edirne	İPSALA	TEFİKİYE	1 (a) Group Mine Licence
Province Special Administration	Edirne	LALAPAŞA	KÜÇÜKÖĞÜNLÜ	1 (a) Group Mine Licence
Province Special Administration	Edirne	KEŞAN	KIZKAPAN	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	SARICAALİ	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	NASUHBEY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	ALİBEYKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	ADASARHANLI	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	SUBAŞI	1 (a) Group Mine Licence

DSİ 11. District	Edirne	UZUNKÖPRÜ	ESKİKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	SEREM	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	HASIRCI ARNAVUT	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	KADIDONDURMA	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	PAŞAKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	PAŞAKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	PAŞAKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	ESF.TÇE	1 (a) Group Mine Licence
DSİ 11. District	Edirne	UZUNKÖPRÜ	GEMİCİ	1 (a) Group Mine Licence
DSİ 11. District	Edirne	ENEZ	SÜTÇÜLER	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	SULTAN BELDESİ	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	Y EN İCEGÖRECE	1 (a) Group Mine Licence
DSİ 11. District	Edirne	UZUNKÖPRÜ	ÇÖPKÖY	1 (a) Group Mine Licence
DSİ 11. District	Edirne	UZUNKÖPRÜ	GAZİMEHMF.T	1 (a) Group Mine Licence
DSİ 11. District	Edirne	UZUNKÖPRÜ	GAZİMEHMET	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	KARAYUSUFLU	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	RAHMANÇA	1 (a) Group Mine Licence
DSİ 11. District	Edirne	MERİÇ	KÜPLÜ	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	SARICAALİ	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	SARPDERE	1 (a) Group Mine Licence
DSİ 11. District	Edirne	İPSALA	ESETÇE	1 (a) Group Mine Licence
GIDA TARIM VE HAYVANCILIK İL MÜDÜRLÜĞÜ	Edirne	UZUNKÖPRÜ	KURTTEPE	1 (a) Group Mine Licence
GIDA TARIM VE HAYVANCILIK İL MÜDÜRLÜĞÜ	Edirne	UZUNKÖPRÜ	SAÇLIMÜSELLİM	1 (a) Group Mine Licence
GIDA TARIM VE HAYVANCILIK İL MÜDÜRLÜĞÜ	Edirne	İPSALA	SARICAALİ	1 (a) Group Mine Licence
SÜLEYMAN ARIKAYA	Eskişehir	Sivrihisar	İstiklal Bağı	1 (a) Group Mine Licence

ERKAN ZAYIF	Eskişehir	Mahmudiye	Merkez	1 (a) Group Mine Licence
YETİM KUM	Eskişehir	Tepebaşı	Muhacır Akçayır	1 (a) Group Mine Licence
MEHMET SEVİNÇ	Eskişehir	Tepebaşı	Beyazaltın	1 (a) Group Mine Licence
GÜVENSOY MADENCİLİK	Eskişehir	Sivrihisar	Sadıkbağı	1 (a) Group Mine Licence
UMA MADENCİLİK	Eskişehir	Mahmudiye	Hamidiye	1 (a) Group Mine Licence
BILGİNOĞULLARI MADEN.	Eskişehir	Odunpazarı	Karapazar	
KOÇKAYA İNŞ.TAAH.	Eskişehir	Odunpazarı	Yörükkaracaören	
ALEMDAR MADEN.	Eskişehir	Mahmudiye	Merkez	
ÇİLEM MADEN.	Eskişehir	Odunpazarı	Knalıpınar	
EREK İNŞAAT	Eskişehir	Seyitgazi	Salihler	
AGRESAN MADEN.	Eskişehir	Odunpazarı	Yörükkaracaören	
SİMGE MADEN.	Eskişehir	İnönü	Merkez	
MEHMET HANİFI YILDIRIM	Eskişehir	Odunpazarı	Gümele	
ATICI MICIR HARFİYAT	Eskişehir	Tepebaşı	Kozkayı	
ÇİMSA A.Ş	Eskişehir	Odunpazarı	Süpren	
KÜPELİLER A Ş	Eskişehir	Tepebaşı	Muttalip	
SİNO GLOBAL MADEN.	Eskişehir	Beylikova	Doğray	
İNTAŞ A.Ş	Eskişehir	Tepebaşı	Cumhuriyet	
BİLGİNOĞULLARI A.Ş	Eskişehir	Tepebaşı	Çukurhisar	
ESTAŞ MADEN.	Eskişehir	Odunpazarı	Kireçköy	
BATI MADENCİLİK	Eskişehir	Odunpazarı	Kireçköy	
Yavuz FERİZ	Kütahya	Merkez	Çayca	1 (a) Group Mine Licence
Yeniköy Belediye Başkanlığı	Kütahya	Simav	Yeniköy	1 (a) Group Mine Licence
Güney Belediye Başkanlığı	Kütahya	Simav	Güney	1 (a) Group Mine Licence
Mehmet TOPAL	Kütahya	Emet	Eğrigöz	1 (a) Group Mine Licence
Simav Madencilik İnş.Taah.San.ve Tic.Ltd.Şti.	Kütahya	Simav	Kalkan	1 (a) Group Mine Licence
Emet Hazır Beton Nak.Inş.Mad.San veTic.Ltd.Şti.	Kütahya	Emet	Yenice	1 (a) Group Mine Licence
Balıköy Belediye Başkanlığı	Kütahya	Tavşanlı	Balıköy	1 (a) Group Mine Licence
Hisarcık Köylere Hizmet Götürme Birliği	Kütahya	Hisarcık	Güldüren	1 (a) Group Mine Licence

Yemişli Belediye Başkanlığı	Kütahya	Simav	Yemişli	1 (a) Group Mine Licence
Ahmet AKÇAY	Kütahya	Merkez	Çayca	1 (a) Group Mine Licence
Süleyman TEKEL	Kütahya	Simav	Kalkan	1 (a) Group Mine Licence
Recep SARI	Kütahya	Gediz	Eski Gediz	1 (a) Group Mine Licence
Emet Hazır Beton Nak.Inş.Mad.San ve Tic.Ltd.Şti.	Kütahya	Emet	Yenice	1 (a) Group Mine Licence
M-V TURİZM INŞ.SAN.VE TİC.LTD.ŞTİ.	Tekirdağ	MARMARA EREĞLİSİ		1 (a) Group Mine Licence
KUMYOL YAPI PLAS.SAN.TİC.A.Ş.	Tekirdağ	ÇORLU		1 (a) Group Mine Licence
ÇEBILER YAPI SAN.VE TİC.LTD.ŞTİ.	Tekirdağ	MARMARA EREĞLİSİ		1 (a) Group Mine Licence
TARIK. KARAEVLI	Tekirdağ	ÇORLU		1 (a) Group Mine Licence
AKGUN YAPI SAN. VE TİC.LTD.ŞTİ.	Tekirdağ	ÇORLU		1 (a) Group Mine Licence
GULDALLAR İNŞAAT A.Ş.	Tekirdağ	MARMARA EREĞLİSİ		1 (a) Group Mine Licence
TEKİN GRUP INŞ. SAN.VE TİC.A.Ş.	Tekirdağ	MERKEZ		1 (a) Group Mine Licence
KARDEŞOGULLARI HAF.İNŞ.TİC. LTD.ŞTİ.	Tekirdağ	ÇORLU		1 (a) Group Mine Licence
HUSNU ÇELEBİ	Tekirdağ	ÇERKEZKÖY		1 (a) Group Mine Licence
METİN AKGUN	Tekirdağ	ÇORLU		1 (a) Group Mine Licence
GRANİTEZ GRANİT SANAYİ VE DİŞ TİCARET LİMİTED ŞİRKETİ	Çanakkale	Ezine	Körüktaşı	II. Group Mine License
TEGAS MÜHENDİSLİK İNŞAAT VE MADENCİLİK SAN	Çanakkale	Merkez	AŞAĞIOKÇULAR	II. Group Mine License
BİGA MADEN SANAYİ VETİCARET LİMİTED ŞTİ.	Çanakkale	LAPSEKİ	ÇAM YURT	II. Group Mine License
OMYA MADENCİLİK SAN.VE TİC.A.Ş.	Çanakkale	BAYRAMİÇ	DALOBA	II. Group Mine License
BURSA ULAŞTIRMA BÖLGE MÜDÜRLÜĞÜ	Çanakkale	AYVACIK	KOCAKÖY	II. Group Mine License
NAGİHAN TUNA	Çanakkale	AYVACIK	İLYASFAKI	II. Group Mine License
SEDAT ALBAYRAK	Çanakkale	AYVACIK	TAMIŞ	II. Group Mine License
AKÇİN MADENCİLİK TUR. İNŞ.TEKST.HAYV.TARIM	Çanakkale	AYVACIK	AKÇİN	II. Group Mine License
GALİP EREN	Çanakkale	AYVACIK	ADATEPEBAŞI	II. Group Mine License

ÖNER BETON MAMUL. SAN. TUR. VE OTELCİLİK İNŞ. TAAH. TAŞ. TİC. PAZ. VE DIŞ TİC. LTD. ŞTİ.	Çanakkale	BİGA	KAPANBELENİ	II. Group Mine License
UZAN MADENCİLİK NAKLİYAT İnş. Yapı Malz.	Çanakkale	ÇAN	HALİLAĞA	II. Group Mine License
KARAYOLLARI 14.BÖLGE MÜDÜRLÜĞÜ	Çanakkale	BİGA	AYITDERE	II. Group Mine License
Faruk DUMAN	Çanakkale	BİGA	HOŞOBA	II. Group Mine License
FERNAS İNŞAAT LİMİTED ŞTİ.	Çanakkale	ÇAN	KULFAL	II. Group Mine License
TEKSER MADENCİLİK MAKİNA İNŞAAT SANAYİ VE TİCARET LİMİTED ŞİRKETİ	Çanakkale	BİGA	BEKİRLİ	
PARİON MADENCİLİK İNŞAAT SAN.VE TİC.	Çanakkale	BİGA	DEĞİRMENCİK	II. Group Mine License
OMYA MADENCİLİK SAN.VE TİC.A.Ş.	Çanakkale	BİGA	ÖRTÜLÜCE	
BİGA MADEN SANAYİ VETİCARET LİMİTED ŞİRKETİ	Çanakkale	BİGA	ESKİBALIKLI	II. Group Mine License
BİGA MADEN SANAYİ VETİCARET LİMİTED ŞİRKETİ	Çanakkale	Merkez	HALİLOĞLU	II. Group Mine License
EZİNE GÖKÇEBAYIR KÖYÜ MUHTARLIĞI	Çanakkale	EZİNE	GÖKÇEBAYIR	II. Group Mine License
ÖZDE MADENCİLİK NAK.TİC.VE SAN	Çanakkale	EZİNE	ÇINARKÖY	II. Group Mine License
MUSTAFA KANSU	Çanakkale	EZİNE	DERBENTBAŞI	II. Group Mine License
TROAS MİNERALS MAD.TURİZM TİCARET	Çanakkale	EZİNE	ALEMŞAH	II. Group Mine License
ONUR-SAN MADENCİLİK İNŞAAT HAZIR BETON TURİZM VE TAAHHÜT LİMİTED ŞİRKETİ	Çanakkale	ÇAN	YAYKIN	II. Group Mine License
Directorate of Highways 14.District	Çanakkale	ÇAN	OKÇULAR	
Directorate of Highways 14.District	Çanakkale	LAPSEKİ	ŞEVKETİYE	
TEGAS MÜHENDİSLİK İNŞAAT VE MADENCİLİK SAN	Çanakkale	GÖKÇEADA	DEREKÖY	II. Group Mine License
TAYLAN İNŞAAT TURİZM MADENCİLİK TAAHHÜT SANAYİ VE TİCARET LİMİTED ŞİRKETİ	Çanakkale	GÖKÇEADA	TEPEKÖY	II. Group Mine License
YENİCE BEŞ YAPI MADENCİLİK GIDA İNŞAAT TAAHHÜT NAKLİYAT ORMAN ÜRÜNLERİ İTHALAT İHRACAT TURİZM SANAYİ VE TİCARET LİMİTED ŞİRKETİ	Çanakkale	YENİCE	ÇALKÖY	II. Group Mine License

MUSTAFA KANSU	Çanakkale	YENİCE	SOFULAR	II. Group Mine License
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AYDINLIK İNŞ.HAF.TAAMAD.SAN.VE TİC.LTD. ŞTİ.	Çanakkale	YENİCE	NEVRUZ	II. Group Mine License
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BİGA MADEN SANAYİ VETİCARET LİMİTED ŞİRKETİ	Çanakkale	MERKEZ	HALİLOĞLU	II. Group Mine License
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MUSTAFA KANSU	Çanakkale	MERKEZ	OVACIK	II. Group Mine License
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Name of the company/name of the owner	Province	District	Village	Licence Group
AKÇANSA ÇİMENTO SANAYİ VE TİC.A.Ş	Çanakkale	MERKEZ	SARAYCIK	II. Group Mine License
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HARUN DENİZ	Çanakkale	YENİCE	ÇALKÖY	II. Group Mine License

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc.No.	FRN-PLN-ENV-PL1-015	**Rev** **P4-0**	**Status** **IAA**
Document Title :	AGGREGATES MANAGEMENT PLAN		
Tag Nos.			
Contractor:	**FERNAS iNŞAAT A.S.**		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAA. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAA. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

FERNAS	**TANAP** TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT (LOT-1)	TANAP WorleyParsons resources & energy

Aggregates Management Plan

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP APPROVED
P4-A	DIC	13.05.2015	Discipline Internal Check	OZAD	GULA	OZKE	
P4-B	IDC	15.05.2015	Inter-Discipline Check	OZAD	GULA	OZKE	
P4-C	IFR	09.06.2015	Issued for Review	OZAD	GULA	OZKE	
P4-0	IAA	16.06.2015	Issued as Approved for Construction	OZAD	GULA	ÖZKE	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	13.05.2015	Discipline Internal Check
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P4-C	IFR	09.06.2015	Issued for Review
P4-0	IAA	16.06.2015	Issued as Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date
1				

Table of Contents

1. INTRODUCTION

1.1. Purpose and Scope

This Aggregates Management Plan (AMP), identifies the estimated requirements for aggregates and the potential impact of aggregate sourcing and recommends appropriate measures to mitigate them.

FERNAS is committed to ensuring that the mining of aggregates for the Project is undertaken in a manner that minimizes environmental risks and which is open to managerial and technical scrutiny.

This commitment will be realized through the identification, prior to Construction, of the location of aggregate sources, the quantities of aggregate material that will be required, and the measures that will be taken to effectively minimize the potential risks of aggregate extraction and transportation. The provisional list of available quarries and borrow pits for possible consumption during the project through official correspondences, that TANAP identified, will be used as the basis for identification.

For the purpose of this Plan, the term ‘aggregate’ is defined as a mass or body of rock particles, mineral grains, or any of several hard, inert materials, such as sand, gravel, slag or crushed stone used for mixing with a cementing or bituminous material to form concrete, mortar, or plaster, or used alone as in ballast or graded fill (The American Geological Institute, 1984).

Aggregate materials to be used for the project will be extracted from the quarries and borrow pits having necessary permits. However, supplying mining aggregates from these quarries may have some environmental risks, such as;

- Impacts on groundwater and surface water resources,
- Noise and vibration
- Impacts on air quality,
- Visual impacts,
- Erosion and sedimentation,
- Impacts on biodiversity and sensitive habitats,
- Impacts on archaeological and cultural heritage,

- Temporary impacts on traffic,
- Erosion and sedimentation,

1.2. Reference Documents and Relationship to Other Plans

- ESIA Report (Turkish and English) (TNP-REP-ENV-GEN-001 AND 002)
- EPCM Environmental and Social Management System (WRP-PLN-ENV-GEN 002)
- TANAP Environmental and Social Management Plan (TNP-PLN-ENV-GEN-001 P3-0)
- FERNAS Environmental and Social Management Plan (FRN-PLN-ENV-PL1-001),
- FERNAS Pollution Prevention Plan (FRN-PLN-ENV-PL1-009),
- FERNAS Waste Management Plan (FRN-PLN-ENV-PL1-012),
- FERNAS Traffic Management Plan (FRN-PLN-ENV-PL1-006),
- FERNAS Community Safety Management Plan (FRN-PLN-ENV-PL1-013),
- FERNAS Environmental and Social Training Plan (FRN-PLN-ENV-PL1-017),
- FERNAS Erosion, Reinstatement and Landscaping Plan (FRN-PLN-ENV-PL1-008)
- FERNAS Cultural Heritage Management Plan (FRN-PLN-ENV-PL1-016)

1.3. Abbreviations

Client **:** TANAP Doğalgaz İletim A.Ş.
Project **:** Trans Anatolian Natural Gas Pipeline Project (TANAP)
EPCM **:** Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi
CONTRACTOR **:** FERNAS Insaat A.S.
ESIA **:** Environmental and Social Impact Assessment
AMP **:** Aggregate Management Plan
PPP : Pollution Prevention Plan
ESMP : Environmental and Social Management Plan

1.4. Definitions

Aggregate: Defined as a mass or body of rock particles, mineral grains, or any of several hard, inert materials, such as sand, gravel, slag or crushed stone.

Aggregate Source: Any licensed quarry, or borrow pit that will be used as a source of aggregates during the construction of the TANAP Pipeline Project Lot 1.

2. METHOD

2.1 General

Before starting construction activities, FERNAS will estimate the amount of aggregate materials that will be needed.

TANAP Project, Lot 1 Construction will require approximately 2.49 million m^3 in aggregate materials. Locations and amounts where these materials will be used presented in Table 2.1.

Table 2.1. Approximate Aggregate Requirements for Lot 1 Construction

Location	Type of Material	Quantity (m^3)
Access roads	0-80 mm Sieve Material	32.940
RoW-Bedding	0-10 mm Sieve Material	227.625
RoW-Padding	0-20 mm Sieve Material	1.180.125
Backfilling	0-200 mm Material	747.000
General Facilities (Stations)	0-80 mm Sieve Material	274.345
Stock Pipe Yards	0-80 mm Sieve Material	25.371
Total		**2.487.406**

Note: *These are estimated quantities. It may be changed later according to the project requirements.*

To supply of aggregate material that will be used for the activities in LOT-1, FERNAS will comply with the principles mentioned below;

- Aggregates will only be obtained from licensed quarries,
- All excavated materials will be screened and reused as far as possible to minimise the need for aggregate material,
- Potential increase and related other impacts of the traffic load will be taken into consideration to minimise these effects related to transportation of aggregate materials,
- Erosion and sediment control measures will be implemented,

- Living habitats and Archaeological sites in the project area and its close proximity will be taken into consideration for the activities to be performed for aggregate material supplying purposes
- Measures will be taken to minimize the impact on water resources,
- Amount of wastes to be resulted from the aggregate material supplying activities will be kept minimum as far as possible

Wherever the material excavated from the pipeline trench is suitable for use as bedding and fill, FERNAS will use it rather than new quarried material for that purpose.

FERNAS will study the disposal of excess soil and rock and incorporate the priorities for reuse. Fill and padding will not be obtained by extraction from third-party facilities unless FERNAS can demonstrate to EPCM's satisfaction that it cannot practically be obtained through reuse and/or processing of excavated material.

If extraction of aggregate materials from existing or newly established quarries will be undertaken in a manner that verifiably minimizes environmental and social risks, through the mitigations identified in this plan, such as:

- Roads status and traffic load,
- Drainage conditions and erosion potential of the area,
- Flora and Fauna,
- Cultural heritage,
- Current provincial plans and policies,
- Proximity to residential areas,
- Visual Impact,
- Accessibility,
- Security,

Where no aggregate extraction operations exist that meet the needs of FERNAS and thus it is required to open new quarries during construction, FERNAS will get necessary permits and licences to open and operate the quarry. The requirements of the Turkish EIA regulation will be followed during the permitting process. EPCM will have the right to inspect and audit these quarries to be compliant with the project and regulatory requirements. FERNAS will develop site specific AMP and procedures for the quarries that

may be opened by FERNAS for this Project.

2.2 Potential Impacts of Aggregate Sourcing

Quarrying may give rise to a range of environmental impacts. In the long term, significant changes to landform and landscape are likely to occur, whilst in the shorter term significant impacts include the generation of dust and the impact of noise and vibrations on nearby communities due to excavation and blasting.

This section outlines the potential impacts to which aggregate sourcing can give rise. Potential impacts can be divided into *short-term impacts* (those which are limited to the construction period) and *long-term impacts* (those which occur as part of construction and continue on a long-term scale, even after closure of the quarry).

Short Term Impacts:

Short term impacts include;

- Noise Disturbance
- Degradation of air quality due to airborne dust from traffic, blasting and excavation,
- Temporary increases in traffic flows on the road network during transportation of aggregate materials,
- Water pollution from potential spills, from accumulated contaminants on site, and from stockpiles, waste aggregate heaps or debris tailings,
- Uncontrolled disposal of quarry excess material,
- Modification of local topography (especially aggregate stock areas).

Long Term Impacts:

Long term impacts include;

- Visual impacts and landscape treatment (visual scars through bad landscape management);
- Impacts to biodiversity (encroaching upon sensitive habitats, nature conservation or protected areas etc.)
- The loss of vegetative cover due to the construction of access roads and pathways leading to erosion;
- Pollution to rivers, streams, from run-off (sediment in run-off can create deposition, impact habitats, abrade flora and fauna, and lead to increased erosion of stream banks).

2.3 Aggregate Management Measures and Procedures

2.3.1. Key Issues

FERNAS will ensure best practice procedures for the aggregate management, while ensuring optimum use of the aggregate resource.

The key potential issues that will be addressed in terms of mitigation include the following:

- Noise and vibration
- Air quality
- Archaeological and Cultural Heritage
- Impact to Biodiversity and Sensitive Habitats
- Landscape planning to reduce Visual impacts
- Water pollution
- Waste management
- Temporary traffic control and management
- Erosion and sedimentation
- Impacts on settlements
- Decommissioning of Site

The following section provides the recommended best practice procedures needed to ensure adequate aggregate management for the TANAP Project. FERNAS will apply them with the mitigation measures outlined in the ESMP (FRN-PLN-ENV-PL1-001) and in compliance with the standards outlined in PPP (FRN-PLN-ENV-PL1-009).

FERNAS will evaluate the environmental and social impacts of operating the selected existing or new the borrow pits and quarries and identify the mitigation measures to minimize these impacts.

In case a new quarry is required, location of the quarry will be selected considering:

- Accessibility,
- Traffic control requirements and road conditions,
- Stormwater run-off and erosion potential of the site,
- Floristic and faunistic characteristics of the site. It is essential to minimize adverse impacts on the local flora and fauna,

- Cultural Heritage,
- Provincial Environmental Planning Policies,
- Existence of potential contaminated land,
- Proximity to residential areas,
- Minimizing the visual impacts
- Accessibility, Security and
- Sustainability of the source.

2.3.2. Water Pollution

Run-off has the potential to pollute surface waters and groundwater sources. Mitigation should ensure that control of run-off from the quarry yard and dewatering of the pit is regulated.

Surface water impacts:
The primary surface water concerns associated with quarrying are the preservation of riparian vegetation and habitats of nearby streams and estuaries, control of sediment-laden run-off and prevention of erosion. Therefore following measures will be taken for mitigating impacts on surface water;

- Prompt clean-up of any spills (see PPP (FRN-PLN-ENV-PL1-009)),
- Provision of secondary containment structures for aboveground tanks that store petroleum products and chemicals,
- Implementation of sediment, erosion, and storm water flow control measures such as building "soft" structures such as ponds, swales, wetlands or "hard" drainage structures, such as pipes and concrete channel;
- Schedule extraction operations so as to avoid periods of high rainfall,
- Allowing internal drainage to settle in sediment control ponds or to be filtered through straw bales, gravel-filters or filter fences prior to discharge;
- Proper orientation and maintenance of the sedimentation ponds,

Groundwater impacts are generally associated with the soils in the vicinity of the quarry, the underlying geology, the amount of rainfall, the depth of the pit, the proximity of the pit to wells in the area and the blasting practices. Groundwater mitigation measures will include;

- Operation and maintenance of equipment in a manner that prevents fuels, lubricants, coolants, hydraulic fluid, or petroleum products from being discharged

onto the ground or into surface waters,

- Weekly checks of mitigation measures to ensure that they are functioning properly,

2.3.3. Waste Management

The uncontrolled disposal of quarry waste can have a major impact on the environment. Generally, waste material storage areas should be well screened from public view and should not pose a threat to surface or underground water supplies and should not provide a nuisance to local residents, or other sensitive receivers, by way of blown dust or grit.

Moreover, collection and recycling of waste oils and lubricants and prevention measures for potential spills will be applied on-site.

FERNAS will use waste management methods as outlined in Waste Management Plan (FRN-PLN-ENV-PL1-012).

2.3.4. Air Quality

FERNAS will ensure the following mitigation measures to reduce and control the dust impact. These measures may include;

- Locate features with dust creating potential, such as stockpiles away from and downwind of residential properties and other sensitive land-uses,
- Apply appropriate wheel cleaning facilities,
- Apply vehicle speed restrictions on and around the site,
- Dampen haul roads and stockpiles,
- Use fine water sprays and sheeting of lorries,
- Prompt re-vegetation or application of sealants and dust suppressants to disturbed areas,
- Enclose dust generating fixed plant and machinery.

FERNAS will ensure that these mitigation measures are enforced through adequate monitoring and through regular supervision and reporting in line with the Pollution Prevention Plan (FRN-PLN-ENV-PL1-009).

2.3.5. Noise and Vibration

Noise and vibration from quarrying can be a major cause of disturbance to the local communities. These impacts will be reduced by taken the following mitigation measures;

These may include:

- Maintenance of an acceptable distance between the operation and noise sensitive land uses,
- Avoidance of severe gradients on haul roads,
- Use of acoustic fencing and baffle mounds,
- Fitting of silencers on equipment and the use of rubber linings on certain sections of the plant and the maintenance of equipment,
- Restrict blasting to permitted hours of operation,
- Blasting will be performed at the suitable times concerning the local characteristics
- The exact locations of piling and blasting activities will be done in agreement with EPCM prior to the commencement of the blasting or piling activities.
- FERNAS will adopt a “Best Practicable Means” policy for the minimization of the effects of noise and vibration during construction
- Fernas will monitor vibration from blasts and piling on a regular basis.

2.3.6. Erosion and Sedimentation

The main forms of erosion associated with quarrying are splash, sheet, rill, gully on-site and stream and channel off-site.

Sediment when transported through run-off to nearby watercourses can impact the water quality and act as a pollutant. High levels of sediment deposition can also lead to increased erosion of stream banks and can cause flooding.

Mitigation measures will be taken to adress these impacts; they includes some of the following:

- Sediment control structures will be provided to intercept and treat surface run-off prior to discharge,
- All permanent surface water facilities including catch basins, pipes etc. will be cleaned to be free of clogging.
- any off-site catch basins that required protection will also be cleaned;

2.3.7. Biodiversity and Sensitive Habitats

The main impact of surface mining operations on biodiversity is from disturbance to habitats, vegetation removal and land clearance. High dust levels generated in mining operations may affect both aquatic and terrestrial ecosystems, e.g. by smothering plants. Also, contamination of surface watercourses may occur from leaching. This can affect fish and other aquatic fauna and flora.

The impact of quarrying on biodiversity and habitats can be reduced by;

- Minimising the amount of land uptake required to undertake the operation, and the amount of vegetation required to be removed,
- Leaving a buffer zone between the workings and sensitive habitats and wildlife corridors;
- Phased stages in operation to minimize the extent of disturbance at any given time and to optimise the opportunity for site rehabilitation.
- Treatment and control of storm water run-off (gravel filters, straw bales, etc.) prior to discharge into a surface watercourse.

2.3.8. Archaeological and Cultural Heritage

The likely presence of sites of potential archaeological interest will be identified at the earliest possible opportunity. FERNAS will comply with the procedures set out in the Cultural Heritage Management Plan (FRN-PCD-ENV-PL1-016) during the quarrying of aggregates.

2.3.9. Temporary Traffic Control and management

FERNAS will define routes by which aggregate will be transported to the point of use, and will estimate numbers of traffic movements, speeds and times of travel to transport aggregate materials to the site.

If the aggregate has to be transported through residential areas, FERNAS will propose measures that will be used to ensure the safety of the community and minimise the nuisance impact of traffic movements (such as restricted traffic hours and speed limits). FERNAS will visually monitor aggregate transportation.

Community notification (via CLOs) will be undertaken when works are likely to cause dust or offensive noise to impact on the public and nearby residents.

FERNAS will comply with the mitigation measures outlined in Traffic Management Plan (FRN-PLN-ENV-PL1-006).

If a new quarry may be opened for this Project, FERNAS will take the increased traffic impact of operating a quarry into consideration. FERNAS will communicate with the local community on the management of the increased traffic load.

2.3.10. Visual Impacts

Best practice in terms of landscape planning is to ensure that the visual amenity of the surrounding landscape is maintained, and that the site is not visually intrusive. The mitigation measures will include;

- employing a method, phasing and direction of working which takes account of views (local, medium and distant) into the site and is chosen as the least intrusive);
- phase working and progressive restoration to minimize the amount of land being worked at any one time;
- careful design and siting of plants, location and height of stockpiles and siting of internal haul roads/conveyors;
- screening measures (planting of hedgerows, trees, shrubs etc), constructing earth bunds etc.

2.3.11. Impacts on Settlements

FERNAS will apply the Community Safety Management Plan (FRN-PLN-ENV-PL1-013) and the Traffic Management Plan, (FRN-PLN-ENV-PL1-006) during the material supply from the quarries to minimize the potential impact of settlements.

2.3.12. Decommissioning of Site

FERNAS will prepare a landscape plan in order to minimize the visual impacts of operating the quarry opened by FERNAS for this Project. Other quarries already existing will continue to be used by its owner until the termination of its operations permit. Those quarries will follow their individual reinstatement and landscape plans officially approved during their own EIA process.

Decommissioning of the quarry site, that may be opened by FERNAS for this Project, will involve the reinstatement and rehabilitation of the site through appropriate environmental planning. The term reinstatement describes the general process whereby the land surface should be returned to either its original conditions or to some form of beneficial use. Reinstatement and Landscape Plan to be prepared by FERNAS will be presented to EPCM for approval.

- The Reclamation of open pit areas and abandoned campsites
- The area will be cleaned of quarry operation equipment and all the sediment and erosion control structures will be removed from site.
- Return land to conditions of supporting prior land use, equivalent uses, or other acceptable uses.
- Elimination of significant adverse effects on adjacent water courses.
- Use of overburden for backfill and of topsoil for reclamation to the extent feasible.
- When local topography has been disturbed, it will be restored as close to the original contours as possible, preferably to grades 2:1 or less. Contouring of slopes will minimize erosion and runoff.
- Erosion-prone areas may require re-vegetation to limit future problems. Until new growth is established, mulch or hydroseeding will be used to stabilize the bare ground to control erosion.
- Re-vegetation should consist of native species of vegetation and of other species that are environmentally acceptable.
- The ultimate goal is to establish an acceptable long-term use or uses appropriate to the particular locality where the quarry is located

3. TRAINING

Personnel that routinely work in aggregate resourcing activities will receive an overview of project aggregates management requirements in addition to all other related environmental and social management plans relating to the quarries/borrow pits activities.

Course Title	**Aggregate Management**
Duration	TBD
Key Objective(s)	To make attendees aware of the measures / work practices required for aggregate management as well the requirements of the Aggregate Management Plan
Issues to be covered	Requirements of the Aggregate Management Plan Procedures to be followed for aggregate management
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All staff

4. MONITORING and REPORTING

FERNAS's environmental inspectors will monitor visually the following measures:

- sedimentation prevention measures to ensure that they are functioning properly,
- storing waste materials as per standards,
- dust prevention measures such as usage of fine water sprays, sheeting of lorries in addition to dampening haul roads and stockpiles,
- vehicle speed restrictions on and around the site.

FERNAS will carry out necessary analysis as stated in FERNAS's Pollution Prevention Plan (FRN-PLN-ENV-PL1-009) for any grievance (related to aggregate operations) raised when/if advised by FERNAS's social team.

FERNAS will submit monthly reports to the EPCM. The monthly report will include Aggregate Consumption Register, as given in the Annex 1 and the NCRs and incidents as

per the format provided by EPCM. The following issues will be also recorded and reported by FERNAS:

- Number of complaints on the dust, noise, vibration and the traffic resulting from quarry/borrow pit operations
- Recorded damages on the roads during transportation of quarry material
- Number of tours per day to and from the quarry and borrow pits
- Amount of aggregate consumption
- NCR
- Incidents

5. RESPONSIBILITIES

5.1 Project Manager

- Overall responsibility for implementation and of this plan
- To provide necessary resources to minimize environmental risks associated with aggregate supply.

5.2 Construction Manager

- Will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with the FERNAS AMP,
- Will follow-up actions associated with the implementation of this plan each in his work area.

5.3 Environmental Manager

- Will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with the FERNAS AMP,
- Will prepare, implement and monitor the AMP,
- Will attend the environmental meetings, to inform the participants about the aggregates management performance and problems of the workplace's aggregates management system,
- Will evaluate the compliance with laws, regulations, Project ESIA and CLIENT Requirements,

- Will ensure the elimination of the environmental risks related to aggregates management,
- Will ensure that appropriate permitted/licensed quarries are obtained
- Will issue non compliances when commitments are not applied.
- Will update the off-RoW Aggregate Consumption Register (Annex 1) on a monthly basis and provide it to EPCM,

5.4 Environmental Inspector(s)

- Will provide awareness trainings on aggregates management to the personnel,
- Will audit and inspect the quarries in the quarry management point of view,
- Will monitor their activities to ensure correct preparation, handling, and transportation of aggregates and disposal of waste aggregate.

FERNAS will apply to the competent institutions in order to determine the procedures to open a quarry if available quarries don't provide the conditions or a new quarry is required. FERNAS will manage the activities according to Mining Act and related regulations and environmental law and take all necessary permissions for performing.

6. RECORDS

- Off-RoW Aggregate Consumption Register (Annex 1)
- Consignment notes
- Permits & Licenses of quarries
- Protocols with aggregate supply facilities

ANNEX 1. OFF ROW AGGREGATE CONSUMPTION REGISTER

OFF ROW AGGREGATE CONSUMPTION REGISTER		
Date	**Source**	**Volume (m^3)**
	Total to date:	

TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	**SYA-PLN-ENV-GEN-012**	**REV**	**P3-0**
Document Title :	**AGGREGATE MANAGEMENT PLAN**		
Tag Nos :			
Contractor :	**SYA - Sicim-Yuksel-Akkord JV**	**REV**	

		Signature	**Date**
	C1- Reviewed & accepted as final & certified. Manufacture may proceed.		
	C2- Reviewed & accepted as marked. Revise & resubmit. Manufacture may proceed.		
	C3- Reviewed & returned. Correct & resubmit. Manufacture shall NOT proceed.		
	C4- Review not required. For information only. Manufacture may proceed		
Remarks:			

SICIM-YUKSEL-AKKORD JV	TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT – LOT 2	TANAP / WorleyParsons

AGGREGATE MANAGEMENT PLAN
SYA-PLN-ENV-GEN-012

Rev.	Status	Date (dd/mm/aa)	Document status Description	Issued by	Checked by	Approved by	TANAP Approval
P3-A	DIC	04/03/15	Discipline Internal check	ARAO	KURV	TENP	
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P3-C	IFR	09/03/15	First Issue for Review	ARAO	MUSN	TENP	
P3-D	Re IFR	24/03/15	Reissued for Review	ARAO	KURV	TENP	
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DOCUMENT REVISION HISTORY SHEET

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P3-D	Re IFR	24/03/15	Reissued for Review
P3-0	IAA	04/04/15	Issued as Approved / Comments incorporated

HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CO**NTENTS**

1- PURPOSE AND SCOPE

The purpose of this procedure is to identify the TANAP Project LOT- 2 Pipeline construction estimated requirements for aggregates.

This Document also aims to identify the potential impacts of aggregate sourcing and to recommend appropriate measures to mitigate them.
This procedure applies to all Aggregate Management Issues of the TANAP Project LOT- 2 Pipeline.

2- ROLES AND RESPONSIBILITIES

THE CONTRACTOR Project Manager has the overall responsibility for the implementation of the site activities stated in this document.

THE CONTRACTOR Environmental Manager will assist the field team where necessary and he/she will be responsible for the overall performance of the Environmental Management System (ESMS).

Environmental Coordinator (Field Environmental personnel) will assist the CONTRACTOR Spread Manager during the implementation of this procedure.

The principal on-site role of CONTRACTOR is to conduct construction activities to ensure the implementation of mitigation measures to minimize any adverse environmental impacts.

The Construction team will comply with the implementation of mitigation measures to minimize the effects mentioned above.

3- P R O C E D U R E

3.1 GENERAL

The CONTRACTOR will ensure that all borrow material will only be sourced from excavated excess material with in the ROW or (both existing and new) licensed and authorized sites or sources. CONTRACTOR is in the process of identifying suitable existing quarries in the proximity of the pipeline route. Where new quarries need to be opened, the CONTRACTOR will obtain the necessary permits and licenses and conduct any necessary ESIA's.

The extraction of the aggregates is derived from the borrow pits, debris, quarries, riverbeds. Mining aggregates from these sources may present a range of potential environmental risks.

These include:

- Impacts to surface water and groundwater from waste oils, etc;
- Noise and vibration;

- Impacts to air quality from dust;
- Visual impacts;
- Impacts to biodiversity and sensitive habitats;
- Impacts to archaeological sites and cultural heritage.

Also the samples will be taken on a regular basis to ensure that all materials according to project requirements. Samples will be tested in a licensed laboratory to test chemical composition. Any deficiencies will be reported immediately to EPCM.

3.2 LEGISLATIVE FRAMEWORK

The following legislative requirements will be complied with:

- Turkish, European Union (EU), and World Bank standards with regard to quarry establishment and operation. Where Turkish, EU, and World Bank standards differ, the stricter standard must be applied.
- The main Turkish legislative instrument relevant to the mining of aggregates is the 'Mine Law'
- Regulation on Restoration of mining sites under environmental regulation.

Otherwise third party vehicles must meet project standards.

3.3 EXISTING FACILITY

Impacts from third party installations, i.e. licensed existing privately owned and operated quarry/borrow pit sites are outside the scope of this project. However CONTRACTOR will not use any privately owned and operated quarry or borrow pit that does not have the appropriate license and permits required under the Quarries Regulation. Due diligence inspections of licensed facilities will also be undertaken to verify the environmental standard of the facility in relation to the environmental receptors and impacts.

In particular, the due diligence inspections will address:

Permit Conditions

- Whether the quarry is compliant to the permit conditions
- Whether complaints have been lodged against the quarry
- Whether complaints have been dealt with efficiently and effectively
- Whether there is record keeping system in place (records will be requested by the CONTRACTOR)

Baseline Details

- The closest:
  Residential area
  Waterway
  Agricultural land

Inhabited dwelling
Surface water bodies
Cultural heritage site
Sensitive habitat

- Groundwater depth/flow rate and direction
- Villages nearby which may be used frequently for routing aggregate from quarry/borrow pit to point of use

Contamination Issues

- Whether there is evidence of surface/groundwater contamination due to the quarry discharges
- Whether any water/air/noise monitoring is undertaken
- Whether the quarry/borrow pit is subject to regular storm-water dewatering
- Whether any stains or leaks are observed
- Whether dust is an issue at the site and if dust control measures are in place
- Whether noise is an issue
- What current waste disposal practices are in place
- Whether fuel is properly bunded and stored
- Whether there is a spill response plan and facilities on site to tackle contamination

The CONTRACTOR will ascertain whether the quarry is subject to regular inspection and audits by the permit authorities and, if so, what the audit findings were and what measures were taken to mitigate them. The CONTRACTOR is also required to determine what the post quarry plans are for the existing quarry site and gauge the willingness of the owner/operator to:

- Supply material in vehicles that meet the project standards
- Undergo HSE training and comply with the HSE requirements of the Project

Based upon this inspection CONTRACTOR will determine if the quarry/borrow pit can be used for the purpose of supplying aggregate to the project. This will involve a consideration of all of the issues outlined above as well as the distance from the source of the aggregate to the point of use, suitable transportation options (not entailing excessive disturbance to community road) and whether the site can be upgraded to meet the standards required by the project. The choice of aggregate supply for the construction of the pipeline will also be influenced by the potential suspension of fines from the aggregate and that these should be reduced to the extent possible. This process will ensure the best practical environmental option (BPEO).

3.4 SURFACE WATER AND GROUNDWATER

In case of quarry operated by Contractor Field Environmental personnel will ensure that the site team develop mitigation measures for the control of run-off from the quarry yard and dewatering of the pit. Mitigation measures to address the possibility of oil or sediment-laden water entering surface water will include:

- Storing fuel and oil in impervious bunds;

- Prompt cleanup of any spills;
- Provision of secondary containment structures for aboveground tanks that store petroleum products and chemicals;
- Implementation of sediment, erosion, and storm water flow control measures;
- Scheduling extraction operations so as to avoid periods of high rainfall;
- Allowing internal drainage to settle in settlement lagoons prior to discharge
- Proper orientation and maintenance of the sedimentation ponds.

Groundwater impacts are generally associated with the soils in the vicinity of the quarry, the underlying geology, the amount of rainfall, the depth of the pit, the proximity of the pit to wells in the area, and the blasting practices. CONTRACTOR Field Environmental personnel will ensure that the Site Construction team develop mitigation measures to address these impacts and these measures will include:

- Operation and maintenance of equipment in a manner that prevents fuels, lubricants, coolants, hydraulic fluid, or petroleum products from being discharged onto the ground or into surface waters;
- Monthly monitoring of effluent and limitation of effluent constituents for the following: pH, turbidity, total suspended solids, floating solids or visible foam;
- Maintenance of monitoring records and sampling data (if applicable);
- Regular checks of water protection facilities to ensure that they are functioning properly;
- Water features survey and sustainability study.
- Complying with erosion control and slope/quarry stabilization as required in the Erosion Control, Reinstatement and Landscaping Plan (SYA-PLN-ENV-GEN-007)
- Monitoring the groundwater level before, during after the quarry operation.

3.5 WASTE MANAGEMENT

The uncontrolled disposal of quarry waste can have a major impact on the environment. CONTRACTOR Field Environmental personnel will ensure that the Site Construction team will develop and implement the necessary measures

- Tipping areas are well screened from public view and do not pose a threat to surface or underground water supplies and do not provide a nuisance to local residents, or other sensitive receivers, by way of blown dust or grit
- Hazardous materials (i.e. chemicals and fuels) are appropriately handled and stored. Collection of and recycling of waste oils and lubricants will be implemented, and prevention measures for potential chemical spills (e.g. ammonium nitrate, if used in blasting operations) will be applied on-site according to "Regulation on Waste Management Related General Principles" numbered 25687 and dated 31.12.2004.
- Topsoil, overburden will be stored close to site and preserved for rehabilitation
- Waste Management Procedure (Doc No SYA-PLN-ENV-GEN-003).
- Waste Disposal Assessment Report

- Environmental and Social Impact Assessment Report

3.6 TEMPORARY TRAFFIC CONTROL

Quarry operations can lead to increased traffic due to the transporting of aggregate materials to and from the Project site. CONTRACTOR Field Environmental personnel will ensure that the mitigation measures outlined in the Traffic Management Procedure will complied with.

3.7 EROSION AND SEDIMENT CONTROL

Erosion and Sediment Control Plan will be prepared by CONTRACTOR and this plan will outline the mitigation measures needed to address the potential erosion and sediment deposition impacts related to quarrying.

3.8 NOISE AND VIBRATION

CONTRACTOR Field Environmental personnel will ensure that appropriate mitigation measures will be developed and implemented to minimize the impact of noise from quarrying and mining, to avoid disturbance to local communities. These mitigation measures may include, where appropriate:

- Maintenance of an acceptable distance between the operation and noise sensitive land-uses;
- Avoidance of severe gradients on haul roads;
- Use of conveyors rather than trucks;
- Use of acoustic fencing and baffle mounds;
- Fitting of silencers on equipment and the use of rubber linings on certain sections of the plant and the maintenance of equipment;
- Use of correct stemming and avoiding the use of surface detonating cord where possible to reduce noise impacts related to blasting;
- Restrict blasting to permitted hours of operation
- All the blasting activities will be conducted according to approved blasting procedure.
- Contractor will conduct baseline noise monitoring before the activity start
- Periodic noise monitoring will be conducted monthly and when complaints are made. Monitoring data will be reported to EPCM monthly. Noise monitoring reporting table is given at Appendix 1**.**

Noise standards are given below at Table 1 and Table 2.

Table–1: Noise Standards for Industrial Facilities

Noise Standards for Industrial Facilities			
Receptor	**Period**	**Noise Level**	**Reference regulatory requirement**
Noise sensitive areas - with training, culture and health areas, summer houses and camps	LAeq (dBA) Day-time 06:00 – 19:00	60	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Industrial Facilities
	LAeq (dBA) Evening-time 19:00 – 22:00	55	
	LAeq (dBA) Night-time 22:00 – 06:00	50	
Combination of commercial and noise sensitive areas - with dense residential buildings	One Hour LAeq (dBA) Daytime 07:00 - 22:00	55	IFC General EHS Guidelines - Noise Standards based on WHO Guidelines
	One Hour LAeq (dBA) Night time 22:00 - 07:00	45	
Industrial areas	LAeq (dBA) Day-time 06:00 – 19:00	70	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Industrial Facilities
	LAeq (dBA) Evening-time 19:00 – 22:00	65	
	LAeq (dBA) Night-time 22:00 – 06:00	60	

Table 2: Noise Standards for Construction Sites

Noise Standards for Construction Sites		
Activity (Construction, Demolition and Renovation)	**Noise Level**	**Reference regulatory requirement**
	LAeq (dBA) Day-time (06:00 – 19:00)	
Building	70	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Construction Sites
Road	75	
Other sources	70	

3.9 AIR QUALITY

CONTRACTOR Field Environmental personnel will ensure that mitigation measures to reduce, where appropriate, the impact of dust on air quality will be developed and implemented by the site construction teams. These measures may include:

- Location features with dust creating potential, such as stockpiles, away from and downwind of residential properties and other sensitive land-uses;
- Application of vehicle speed restrictions on and around the site;
- Application appropriate wheel cleaning facilities;
- Dampening of haul roads and stockpiles;

- Enclosing dust generating fixed plant and machinery;
- Using fine water sprays and sheeting of lorries;
- Prompt re-vegetation or application of sealants and dust suppressants to disturbed areas (including Waste and topsoil piles);
- Installing pollution control devices to all diesel/gasoline powered equipment.
- The potential for creating fly rock will be reduced by avoiding secondary blasting and using screen nets.
- Contractor will conduct baseline air quality monitoring before the activity start,
- Periodic air quality monitoring will be conducted monthly and when complaints are made. Monitoring data will be reported to EPCM monthly, air quality monitoring reporting table is given at Appendix 2.

Project Air Quality standards are given below at Table 3.

Table 3: Project Air Quality Standards

SO2 (µg/m3)	Hourly	350 (2019) (not to exceed more than 24 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	24 hr	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	Yearly and Winter Season (Oct 1 – March 31) (for wildlife and ecosystem)	20 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
NO2 (µg/m3)	Hourly	200 (2024) (not to exceed more than 18 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health

			Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	Yearly	30	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – Guidelines for Europe (for ecosystem)
NOx (µg/m3)	Yearly (for vegetation)	30 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
PM10 (µg/m3)	24 hr (For human health)	50 (2019) (not to exceed more than 35 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
	Yearly (for human health)	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
PM2.5 (µg/m3)	24 hr	25 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health

	1 year	10 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
Lead (µg/m3)	Yearly (human health) (LTL)	0.5	Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
Benzene (µg/m3)	Yearly	5 (2021)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
CO (mg/m3)	Max daily 8 hr average	10 (2017)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
Ozone (µg/m3)	Maximum daily 8 hr average	100 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines:

			Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health

LTL: Long Term Limit

STL: Short Term Limit

3.10 VISUAL IMPACTS

Best practice in terms of landscape planning is to ensure that the visual amenity of the surrounding landscape is maintained, and that the site is not visually intrusive. The most important mitigation in sitting a quarry is to find a location that respects existing topography and features of importance such as ridgelines, woodlands, wetland areas, cultural property, and watercourses. This will reduce the potential for the site to later be a scar on the landscape. Sitting of the quarry will also be supported by a restoration or reclamation plan. This will be prepared during the development phase of the quarry.

CONTRACTOR Field Environmental personnel will ensure that above mitigation measures to reduce the visual impacts will be implemented.

3.11 VISUAL INTRUSION of PLANTS and BUILDINGS

- CONTRACTOR Field Environmental personnel will ensure that mitigation measures to avoid visual intrusion of plant and temporary container buildings (if exists) will be developed and implemented. These measures will include: Employing a method, phasing and direction of working which takes account of views (local, medium and distant) into the site and is chosen as the least intrusive);
- Phase working and progressive restoration to minimize the amount of land being worked at any one time;
- Careful design and sitting of plants and buildings, location and height of stockpiles and sitting of internal haul roads/conveyors;
- Screening measures (planting of hedgerows, trees, shrubs etc), constructing earth bunds etc.

3.12 BIODIVERSITY AND SENSITIVE HABITATS

- No borrow pits/quarries can be opened in sensitive areas as defined in BAP

CONTRACTOR Field Environmental personnel will ensure that quarry operations will be not conducted in sensitive areas.

3.13 ARCHAEOLOGY

Borrow pits will not be opened at any area of known archaeological sensitivity.

The likely presence of sites of potential archaeological interest will be identified at the earliest possible opportunity.

The Project's chance-find procedures will be applied during the excavation works. CONTRACTOR will comply with the procedures set out in the Cultural Heritage Management Plan (CHMP) as best practice procedures during the quarrying of aggregates.

CONTRACTOR Field Environmental personnel will ensure that all activities comply with the procedures set out in the CHMP.

3.14 DECOMMISSIONING OF SITE

Decommissioning of a quarry site, where appropriate, would involve the reclamation and rehabilitation of the site through appropriate environmental planning. The term reclamation describes the general process whereby the land surface will be a site specific reinstatement plan will be developed for each new borrow pit opened that will address environmental, social and health and safety issues to ensure the site is left safe and environmental sound condition as per Reinstatement Specification.

A Reclamation Plan will be defined for quarrying sites from the outset if exploitation activities are undertaken, and an integrated coordination will be established with all the quarrying activities.

3.15 TRAINING

CONTRACTOR will give adequate training to its personnel to aware how to deal with unforeseen environmental incident or accident.

The CONTRACTOR Environmental Coordinator will ensure that all CONTRACTOR personnel are aware and trained in their responsibilities and use of this plan. Additionally, CONTRACTOR Environmental Coordinator will work with Field Environmental personnel to ensure that construction personnel are also trained in the use of this plan. Training records will be managed as specified in the Environmental Training Plan (Doc. No SYA-PLN-ENV-GEN-009).

Crushers/screens and this type of equipment will be used according to prepared H/S procedure.

The Field Environmental personnel with support of the CONTRACTOR Environmental Coordinator, will ensure that the employed all manpower working on behalf of CONTRACTOR are trained into the appropriate courses of action in the event of a non-compliance and incidents. Contractor should also be trained in project requirements to report environmental non-compliances and incidents.

3.16 COMMUNICATION AND COMPLAINTS

The CONTRACTOR Environmental Coordinator will formally report to CONTRACTOR project management on the number and nature of non-compliances together with any significant trends that may become apparent.
Any complaints received from personnel and third parties will be managed in accordance with the provisions specified in Community Relation Plan (Doc. No SYA-PLN-SOC-GEN-002).

3.17 MONITORING AND REPORTING

Weekly inspection will be conducted and data will be recorded to checklist by Spread Environmental Supervisor. Monitoring Reporting Tables is sent to EPCM monthly.

Off RoW aggregate consumption will be reported monthly to EPCM via the Off RoW Aggregate Consumption Register Appendix 3.

Appendix 1: Noise Monitoring Reporting Table

NOISE REGISTER
SPREAD 3

Location	Date Sample Taken	Sampled by	Parameters						
			Meteorological Conditions				LAeq (dBA)	LAeq (dBA)	LAeq (dBA)
							Limits		
			Wind direction	Wind speed	Temperature	Humidity	Building 70 (Day-time: 06:00 – 19:00)	Road 75 (Day-time: 06:00 – 19:00)	Other sources 70 (Day-time: 06:00 – 19:00)

Appendix 2: Air Quality Monitoring Reporting Table

AIR REGISTER
SPREAD 3

Location	Date Sample Taken	Sample No	Sampled by	Parameters						
				Dust (visual assessment)	PM10	PM2.5	SO2	NO2 / NOx	CO	O3
				Limits						
					20 µg/m3 (year)	10 µg/m3 (year)	20 µg/m3(year)	30 µg/m3 (year)	10 mg/m3 (daily 8 hr average)	100 µg/m3 (daily)

Appendix 3: Aggregate Consumption Register Table

OFF ROW AGGREGATE CONSUMPTION REGISTER - LOT 3		
Date	Source:	Volume (m3)
	Total to date :	

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	**TKF-PLN-ENV-PL3-011**	**Rev**	**Status**
		P4-0	**IAAC**
Document Title :	**Aggregates Management Plan**		
Tag Nos.			
Contractor:	**Tekfen Construction and Installation Co., Inc.**		
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		Signature	**Date**
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	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

TEKFEN CONSTRUCTION	TEKFEN AGGREGATES MANAGEMENT PLAN	TANAP

TEKFEN AGGREGATES MANAGEMENT PLAN

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P4-A	DIC	13.04.2015	Discipline Internal Check	ZDEM	MASL	MKOP	
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P4-A	DIC	13.04.2015	First issue
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HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1. INTRODUCTION

1.1. PURPOSE & SCOPE

The construction of the pipeline and related above ground installation, will require the management of a substantial amount of aggregate material. This Aggregates Management Plan (AMP) identifies the TANAP Pipelines Project's estimated requirements for aggregates and the potential impacts of aggregate sourcing and recommends appropriate measures to mitigate them.

TEKFEN is committed to ensuring that the mining of aggregates for the Project is undertaken in a manner that minimises environmental risks and which is open to managerial and technical scrutiny. This commitment will be realised through the identification, prior to Construction, of the location of aggregate sources, the quantities of aggregate material that will be required, and the measures that will be taken to effectively minimize the potential risks of aggregate extraction and transportation. The provisional list of available quarries and barrow pits for possible consumption during the project through official correspondences, that TANAP identified, will be used as the basis for identification.

For the purpose of this Plan, the term 'aggregate' is defined as a mass or body of rock particles, mineral grains, or any of several hard, inert materials, such as sand, gravel, slag or crushed stone, used for mixing with a cementing or bituminous material to form concrete, mortar, or plaster, or used alone as in ballast or graded fill (The American Geological Institute, 1984).

Typically, the extraction of these minerals is derived from the following sources:

- Borrow pits (sand and gravel deposits);
- Quarries;

Mining aggregates from these sources may present a range of potential environmental risks. These include:

- Impacts to surface water and groundwater;
- Noise and vibration;
- Impacts to air quality;
- Visual impacts;
- Impacts to biodiversity and sensitive habitats;
- Impacts to archaeological sites and cultural heritage.
- Temporary traffic
- Erosion and sedimentation

The remainder of this plan identifies:

- The potential impacts of aggregate sourcing and use;
- The appropriate measures and procedures for mitigating the impacts and
- Aggregate requirements and existing capacity for aggregate sourcing in the vicinity of pipeline.

1.2. RELATIONSHIP TO OTHER PLANS AND DOCUMENTS

This plan is part of the Environmental and Social Management Plan (TKF-PLN-ENV-PL3-001) and it is related with the following plans:

- E&S Training Plan (TKF-PLN-ENV-PL3-003),
- Waste Management Plan (TKF-PLN-ENV-PL3-009),
- Pollution Prevention Plan (TKF-PLN-ENV-PL3-010),
- Community Health, Safety and Security Plan (TKF-PLN-ENV-PL3-014),
- Traffic Management Plan (TKF-PLN-ENV-PL3-020), and
- Erosion Control and Reinstatement Plan (TKF-PLN-ENV-PL3-007)

1.3. ABBREVIATIONS

AMP	Aggregate Management Plan
ESIA	Environmental and Social Impact Assessment
PPP	Pollution Prevention Plan
RoW	Right of Way (along pipeline route)
TMP	Traffic Management Plan
WMP	Waste Management Plan
EPCM	WorleyParsons Proje Yönetimi ve Mühendislik Limited Sirketi

1.4. REFERENCES

- Pollution Prevention Plan (PPP) (App-5.10)
- Waste Management Plan (WMP) (App-5.11)
- Traffic (Access) Management Plan (TAMP) (App-5.7)
- Erosion and Reinstatement Plan (ERP) (App-5.9)
- Legislative Framework (Chapter 4 of ESIA)
- Record of Commitments (Appendix 4.7 of ESIA)

1.5. DEFINITIONS

Aggregate	Defined as a mass or body of rock particles, mineral grains, or any of several hard, inert materials, such as sand, gravel, slag or crushed stone.
Aggregate Source	Any licensed quarry, riverbed (excluding active riverbeds), or borrow pit that will be used as a source of aggregates during the construction of the TANAP Pipeline Project Lot 3.
Company	TANAP DOĞALGAZ ILETIM A.Ş

2. METHOD

2.1. GENERAL REQUIREMENTS

Before starting construction activities, TEKFEN will estimate the amount of aggregate materials that will be needed. TEKFEN will implement the following commitments as a part of AMP:

- Aggregates will only be sourced from licensed sources
- All excavated materials will be screened and reused to the extent deemed feasible by the TEKFEN to minimise the need for new aggregates

Wherever the material excavated from the pipeline trench is suitable for use as bedding and fill around the pipeline, TEKFEN will use it rather than sourcing quarried material for that purpose.

TEKFEN will study the disposal of excess soil and rock and incorporate the priorities for reuse. Fill and padding will not be obtained by extraction from third-party facilities unless TEKFEN can demonstrate to EPCM's satisfaction that it cannot practically be obtained through reuse and/or processing of excavated material.

TEKFEN will ensure that the extraction of aggregate from existing or newly established quarries will be undertaken in a manner that verifiably minimises environmental and social risks, through the mitigations identified in this Plan.

TANAP Project, Lot 3 Construction will require approximately 3.75 million m^3 in aggregate materials. Locations and amounts where these materials will be used presented in Table 2.1.

Table 2.1- Approximate Aggregate Requirements For Lot 3 Construction

Location	Type of Material	Quantity (m3)
Access Roads	0-80 mm Sieve Material	
ROW - Bedding	0-10 mm Sieve Material	355027
ROW - Padding	0-20 mm Sieve Material	3331668
General Facilities	0-38 mm Sieve Material	4000
Stock Pipe Yards	0-70 and 0-20 mm Sieve Material	36000
Crossings	0-8 and 0-16 mm Sieve Material	22500
	Total:	3749195

Note: *These are estimated quantities. It may be changed later according to the project requirements.*

The aggregate and concrete required for construction works of TANAP Pipeline and above ground installations, will be supplied from permitted/licensed quarries, crushing-screening facilities and batch plants in the surrounding.

Where no aggregate extraction operations exist that meet the needs of TEKFEN and thus it is required to open new quarries during construction, TEKFEN will get necessary permits and licences to open and operate the quarry. The requirements of the Turkish EIA regulation will be followed during the permitting process. EPCM will have the right to inspect and audit these quarries to be compliant with the project and regulatory requirements. TEKFEN will develop site-specific AMP and procedures for the quarries that may be opened by TEKFEN for this Project.

2.2. POTENTIAL IMPACTS OF AGGREGATE SOURCING

2.2.1. Background

Quarrying may give rise to a range of environmental impacts. In the long term, significant changes to landform and landscape are likely to occur, whilst in the shorter term significant impacts include the generation of dust and the impact of noise and vibrations on nearby communities due to excavation and blasting.

This section outlines the potential impacts to which aggregate sourcing can give rise. Potential impacts can be divided into short-term impacts (those which are limited to the construction period) and long-term impacts (those which occur as part of construction and continue on a long-term scale, even after closure of the quarry).

2.2.2. Short Term Impacts

The potential short-term impacts of aggregate sourcing are anticipated mainly during the construction of the TANAP P/L Project Lot 3 Construction.

Short-term potential impacts include the following:

- Noise disturbance;
- Degradation of air quality due to airborne dust from road traffic, blasting, and excavation;
- Temporary increases in traffic flows on the road network during transportation of aggregate materials – this may lead to potential delays and congestion on the network;
- Water pollution from potential spills, from accumulated contaminants on site, and from stockpiles, waste aggregate heaps or debris tailings;
- Uncontrolled disposal of quarry excess material;
- Modification of local topography (especially aggregate stock areas).

2.2.3. Term Impacts

The potential long-terms impacts of aggregate sourcing during the construction and operation of the TANAP P/L Project Lot 3 Construction include:

- Visual impacts and landscape treatment (visual scars through bad landscape management);
- Impacts to biodiversity (encroaching upon sensitive habitats, nature conservation or protected areas etc);
- The loss of vegetative cover due to the construction of access roads and pathways leading to erosion;
- Pollution to rivers, streams, from run-off (sediment in run-off can create deposition, impact habitats, abrade flora and fauna, and lead to increased erosion of stream banks).

2.3. AGGREGATE MANAGEMENT MEASURES AND PROCEDURES

2.3.1. Key Issues

Quarry working and reinstatement, by its very nature, is site specific and there are no international standards applicable. However, there are a number of best practice procedures that will ensure good management while also ensuring optimum use of the aggregate resource.

The key potential issues that will be addressed in terms of mitigation include the following:

- Noise disturbances;
- Air quality;
- Archaeology;
- Impacts to biodiversity and environmentally sensitive areas;
- Landscape planning to reduce visual impacts;
- Water;
- Waste management;
- Temporary traffic control and management;
- Erosion and sediment control;

The following section provides the recommended best practice procedures needed to ensure adequate aggregate management for the TANAP Project. TEKFEN will apply them with the

mitigation measures outlined in the ESMP (TKF-PLN-ENV-PL3-001) and in compliance with the standards outlined in PPP (TKF-PLN-ENV-PL3-010).

2.3.2. Noise Disturbances

Noise from quarrying can be a major cause of disturbance to the local communities. However, impacts of noise will be reduced at the outset through appropriate mitigation measures.

These may include:

- Maintenance of an acceptable distance between the operation and noise sensitive land-uses;
- Avoidance of severe gradients on haul roads;
- Use of acoustic fencing and baffle mounds;
- Fitting of silencers on equipment and the use of rubber linings on certain sections of the plant and the maintenance of equipment;
- Restrict blasting to permitted hours of operation.

2.3.3. Impacts to Air Quality

As with noise, dust emissions can be reduced and properly controlled by careful planning and quarry management.

Mitigation measures to reduce impacts to the air quality may include:

- Locate features with dust creating potential, such as stockpiles, away from and downwind of residential properties and other sensitive land-uses;
- Apply vehicle speed restrictions on and around the site;
- Apply appropriate wheel cleaning facilities;
- Dampen haul roads and stockpiles;
- Use fine water sprays and sheeting of lorries;
- Prompt re-vegetation or application of sealants and dust suppressants to disturbed areas (including waste and topsoil piles);
- Enclose dust generating fixed plant and machinery;

The potential for creating fly rock may also be reduced by avoiding secondary blasting and using screen nets.

TEKFEN will ensure that these mitigation measures are enforced through adequate monitoring and through regular supervision and reporting in line with the Pollution Prevention Plan (TKF-PLN-ENV-PL3-010).

2.3.4. Archaeology

The likely presence of sites of potential archaeological interest should be identified at the earliest possible opportunity. TEKFEN will comply with the procedures set out in Cultural Heritage Management Plan (TKF-PLN-ENV-PL3-018) during the quarrying of aggregates.

2.3.5. Impacts to Biodiversity and Sensitive Habitats

The main impact of surface mining operations on biodiversity is from disturbance to habitats, vegetation removal and land clearance. High dust levels generated in mining operations may affect

both aquatic and terrestrial ecosystems, e.g. by smothering plants. Also, contamination of surface watercourses may occur from leaching. This can affect fish and other aquatic fauna and flora.

The impact of quarrying on biodiversity can be reduced by:

- Minimising the amount of land uptake required to undertake the operation, and the amount of vegetation required to be removed;
- Leaving a buffer zone between the workings and sensitive habitats and wildlife corridors;
- Phased stages in operation to minimize the extent of disturbance at any given time and to optimise the opportunity for site rehabilitation;
- Treatment and control of storm water run-off (gravel filters, straw bales etc.) prior to discharge into any surface watercourse.

2.3.6. Visual impacts

Best practice in terms of landscape planning is to ensure that the visual amenity of the surrounding landscape is maintained, and that the site is not visually intrusive.

In terms of visual intrusions, there are a number of measures that can reduce the visual impact of quarry operations. These include:

- employing a method, phasing and direction of working which takes account of views (local, medium and distant) into the site and is chosen as the least intrusive);
- phase working and progressive restoration to minimize the amount of land being worked at any one time;
- careful design and siting of plants, location and height of stockpiles and siting of internal haul roads/conveyors;
- screening measures (planting of hedgerows, trees, shrubs etc), constructing earth bunds etc.

2.3.7. Water pollution

Run-off has the potential to pollute surface waters and groundwater sources. Mitigation should ensure that control of run-off from the quarry yard and dewatering of the pit is regulated.

<u>Surface Water Impacts:</u>

The primary surface water concerns associated with quarrying are the preservation of riparian vegetation and habitats of nearby streams and estuaries, control of sediment-laden run-off, and prevention of erosion.

To address these issues, mitigation measures should include:

- Prompt clean-up of any spills (refer to Pollution Prevention Plan (TKF-PLN-ENV-PL3-010));
- Provision of secondary containment structures for aboveground tanks that store petroleum products and chemicals;
- Implementation of sediment, erosion, and storm water flow control measures such as building "soft" structures such as ponds, swales, wetlands or "hard" drainage structures, such as pipes and concrete channel;
- Schedule extraction operations so as to avoid periods of high rainfall;
- Allowing internal drainage to settle in sediment control ponds or to be filtered through straw bales, gravel-filters or filter fences prior to discharge;
- Proper orientation and maintenance of the sedimentation ponds.

Groundwater Impacts:

Groundwater impacts are generally associated with the soils in the vicinity of the quarry, the underlying geology, the amount of rainfall, the depth of the pit, the proximity of the pit to wells in the area, and the blasting practices.

Mitigation measures to address these impacts can include:

- Operation and maintenance of equipment in a manner that prevents fuels, lubricants, coolants, hydraulic fluid, or petroleum products from being discharged onto the ground or into surface waters;
- Weekly checks of mitigation measures to ensure that they are functioning properly;

2.3.8. Waste Management

The uncontrolled disposal of quarry waste can have a major impact on the environment. Generally, waste material storage areas should be well screened from public view and should not pose a threat to surface or underground water supplies and should not provide a nuisance to local residents, or other sensitive receivers, by way of blown dust or grit.

Moreover, collection of and recycling of waste oils and lubricants, and prevention measures for potential spills will be applied on-site.

TEKFEN will use waste management methods as outlined in Waste Management Plan (TKF-PLN-ENV-PL3-009).

2.3.9. Temporary Traffic Control and Management

TEKFEN will define routes by which aggregate will be transported to the point of use, and will estimate numbers of traffic movements, speeds and times of travel to transport aggregate materials to the site.

If the aggregate has to be transported through residential areas, TEKFEN will propose measures that will be used to ensure the safety of the community and minimise the nuisance impact of traffic movements (such as restricted traffic hours and speed limits). TEKFEN will visually monitor aggregate transportation.

Community notification will be undertaken when works are likely to cause dust or offensive noise to impact on the public and nearby residents.

TEKFEN will comply with the mitigation measures outlined in Traffic Management Plan (TKF-PLN-ENV-PL3-020).

If a new quarry may be opened for this Project, TEKFEN will take the increased traffic impact of operating a quarry into consideration. TEKFEN will communicate with the local community on the management of the increased traffic load.

2.3.10. Erosion and Sediment Control

Quarry operations can lead to erosion if not properly mitigated. The main forms of erosion associated with quarrying are splash, sheet, rill, gully on-site, and stream and channel off-site.

Another issue related to quarrying is the production of sediment. Sediment, when transported through run-off, to nearby watercourses, can impact the water quality and act as a pollutant. High levels of sediment deposition can also lead to increased erosion of stream banks and can cause flooding.

Mitigation measures to address these impacts may include:

- sediment control structures (e.g. detention and retention basins) should be provided to intercept and treat surface run-off prior to discharge;
- all permanent surface water facilities including catch basins, pipes etc will be cleaned to be free of clogging;
- any off-site catch basins that required protection will also be cleaned;

2.3.11. Decommissioning of site

TEKFEN will prepare a landscape plan in order to minimize the visual impacts of operating the quarry opened by TEKFEN for this Project. Other quarries already existing will continue to be used by its owner until the termination of its operations permit. Those quarries will follow their individual reinstatement and landscape plans officially approved during their own EIA process.

Decommissioning of the quarry site, that may be opened by TEKFEN for this Project, will involve the reinstatement and rehabilitation of the site through appropriate environmental planning. The term reinstatement describes the general process whereby the land surface should be returned to either its original conditions or to some form of beneficial use. Reinstatement and Landscape Plan to be prepared by TEKFEN will be presented to EPCM for approval.

The reinstatement plans will reflect the following points:

- Reclamation of open pit areas and abandoned campsites.
- The area will be cleaned of quarry operation equipment and all the sediment and erosion control structures will be removed from site.
- Return land to conditions of supporting prior land use, equivalent uses, or other acceptable uses.
- Elimination of significant adverse effects on adjacent water courses.
- Use of overburden for backfill and of topsoil for reclamation to the extent feasible.
- When local topography has been disturbed, it will be restored as close to the original contours as possible, preferably to grades 2:1 or less. Contouring of slopes will minimize erosion and runoff.
- Erosion-prone areas may require re-vegetation to limit future problems. Until new growth is established, mulch or hydroseeding will be used to stabilize the bare ground to control erosion.
- Re-vegetation should consist of native species of vegetation and of other species that are environmentally acceptable.
- The ultimate goal is to establish an acceptable long-term use or uses appropriate to the particular locality where the quarry is located.

3. TRAINING

Personnel that routinely work in aggregate resourcing activities will receive an overview of project aggregates management requirements in addition to all other related environmental and social management plans relating to the quarries/borrow pits activities.

Course Title	Aggregate Management
Duration	**TBD**
Key Objective(s)	**To make attendees aware of the measures / work practices required for aggregate management as well the requirements of the Aggregate Management Plan**
Issues to be covered	**Requirements of the Aggregate Management Plan** **Procedures to be followed for aggregate management**
Tools / Method of Delivery	**Presentation(s)** **Group discussions**
Target Audience	**All staff**

4. MONITORING

TEKFEN's environmental inspectors will be monitoring visually the following measures:

- sedimentation prevention measures to ensure that they are functioning properly
- storing waste materials as per standards
- dust prevention measures such as usage of fine water sprays, sheeting of lorries in addition to dampening haul roads and stockpiles
- vehicle speed restrictions on and around the site

TEKFEN will carry out necessary analysis as stated in TEKFEN's Pollution Prevention Plan (TKF-PLN-ENV-PL3-010) for any grievance (related to aggregate operations) raised when/if advised by TEKFEN's social team.

5. REPORTING

TEKFEN will submit Monthly reports to the EPCM. The monthly report will include Aggregate Consumption Register, as given in the Annex 1 and the NCRs and incidents as per the format provided by EPCM. The following issues will be also recorded and reported by TEKFEN:

- Number of complaints on the dust, noise, vibration and the traffic resulting from quarry/borrow pit operations
- Recorded damages on the roads during transportation of quarry material
- Number of tours per day to and from the quarry and borrow pits
- Amount of aggregate consumption
- NCR
- Incidents

6. RESPONSIBILITIES

Project Manager

- To ensure the implementation of this procedure

- To provide necessary resources to minimize environmental risks associated with aggregate supply.

Project HS&ES Manager

- To ensure the implementation of this procedure.

Environmental Manager

- To prepare, implement, and monitor the Aggregate Management Plan,
- To ensure that appropriate permitted/licensed quarries are selected;
- To attend the environmental meetings, to inform the participants about the aggregates management performance and problems of the workplace's aggregates management system,
- To ensure the elimination of the environmental risks related to aggregates management,
- To update the off-RoW Aggregate Consumption Register (Annex 1) on a monthly basis and provide it to EPCM,
- To issue non compliances when commitments are not applied.
- To report incidents with environmental consequences

Environmental Inspector(s):

- To provide awareness trainings on aggregates management to the personnel;
- To audit and inspect the quarries in the quarry management point of view;
- To monitor their activities to ensure correct preparation, handling, transportation of aggregates and disposal of waste aggregate.

Construction Manager

- To follow-up actions associated with the implementation of this Plan each in his work area.

Supervisors and Foremen

- To ensure that they are performing proper transportation and handling of aggregates.

7. RECORDS

- Off-RoW Aggregate Consumption Register (Annex 1)
- Consignment notes (sevk fişleri),
- Permits & Licenses of quarries
- Protocols with aggregate supply facilities

ANNEX 1. OFF ROW AGGREGATE CONSUMPTION REGISTER

OFF ROW AGGREGATE CONSUMPTION REGISTER

Date	**Source:**	**Volume (m3)**
	Total to date :	

ANNEX 2: LIST OF QUARRIES ALONG THE LOT 3 PIPELINE CORRIDOR (AS PROVIDED)

Name of the company/name of the owner	Province	District	Village	Licence Group
Tarık Ekiz	Ankara	Kazan	Alpagut	1 (a) Group Mine Licence
Ankara Kum Madencilik	Ankara	Akyurt	Karayatak	1 (a) Group Mine Licence
Ali Taşdelen (Molla Madencilik)	Ankara	Kırkırca		1 (a) Group Mine Licence
Üçyılmazlar Inş.	Ankara	Çubuk	Yakuphasan	1 (a) Group Mine Licence
Özyörük Maden A.Ş.	Ankara	Sincan	Malıköy	1 (a) Group Mine Licence
Yusuf Demir	Ankara	Çubuk	Kapaklı	1 (a) Group Mine Licence
Beypazarı Belediye Başkanlığı	Ankara	Beypazarı	Dibecik	1 (a) Group Mine Licence
Özyörük Maden A.Ş.	Ankara	Sincan	Malıköy	1 (a) Group Mine Licence
CG Grup Enerji	Ankara	Bala	Kesikköprü	1 (a) Group Mine Licence
Güngör Mak. Maden ve Kum Ocağı	Ankara	Kalecik	Alibeyli	1 (a) Group Mine Licence
Polimpeks	Ankara	Polatlı	Sazılar	1 (a) Group Mine Licence
Mehmet Yüksel Mad. Kum Ocağı	Ankara	Polatlı	Kıranharmanı	1 (a) Group Mine Licence
Riverrhan Belediyesi	Ankara	Nallıhan	Davutoğlan	1 (a) Group Mine Licence
Hüseyin Ankara	Ankara	Kızılcahamam	Mahkemeağacın	1 (a) Group Mine Licence
Erişsan Beton ve Kum A.Ş.	Ankara	Polatlı	Türkobası	1 (a) Group Mine Licence
BIRTAŞ KUM TIC. VE SAN. LTD. ŞTI.	Ankara	Kazan	Imrendi	1 (a) Group Mine Licence
BIRTAŞ KUM TIC. VE SAN. LTD. ŞTI.	Ankara	Kazan	imrendi	1 (a) Group Mine Licence
BIRTAŞ KUM TIC. VE SAN. LTD. ŞTI.	Ankara	Kazan	imrendi	1 (a) Group Mine Licence
ÖZ KARDELEN HAFR. NAK. MAD. INŞ. ELEME TES. SAN. VE TIC. LTD. ŞTI.	Ankara	Elmadağ	Kayadibi Mah	1 (a) Group Mine Licence
MERTER Hafr. Inş. Taah. Nak. Tic. Ltd. Şti.	Ankara	Polatlı	Sazılar	1 (a) Group Mine Licence
SÜLEYMAN ARIKAYA	Eskişehir	Sivrihisar	Istiklal Bağı	1 (a) Group Mine Licence
ERKAN ZAYIF	Eskişehir	Mahmudiye	Merkez	1 (a) Group Mine Licence
YETIM KUM	Eskişehir	Tepebaşı	Muhacır Akçayır	1 (a) Group Mine Licence
MEHMET SEVINÇ	Eskişehir	Tepebaşı	Beyazaltın	1 (a) Group Mine Licence
GÜVENSOY MADENCILIK	Eskişehir	Sivrihisar	Sadıkbağı	1 (a) Group Mine Licence
UMA MADENCILIK	Eskişehir	Mahmudiye	Hamidiye	1 (a) Group Mine Licence
BILGINOĞULLARI MADEN.	Eskişehir	Odunpazarı	Karapazar	
KOÇKAYA INŞ.TAAH.	Eskişehir	Odunpazarı	Yörükkaracaören	
ALEMDAR MADEN.	Eskişehir	Mahmudiye	Merkez	
ÇILEM MADEN.	Eskişehir	Odunpazarı	Knalıpınar	
EREK INŞAAT	Eskişehir	Seyitgazi	Salihler	
AGRESAN MADEN.	Eskişehir	Odunpazarı	Yörükkaracaören	
SIMGE MADEN.	Eskişehir	Inönü	Merkez	
MEHMET HANIFI YILDIRIM	Eskişehir	Odunpazarı	Gümele	
ATICI MICIR HARFIYAT	Eskişehir	Tepebaşı	Kozkayı	
ÇIMSA A.Ş	Eskişehir	Odunpazarı	Süpren	
KÜPELILER A Ş	Eskişehir	Tepebaşı	Muttalip	
SINO GLOBAL MADEN.	Eskişehir	Beylikova	Doğray	
INTAŞ A.Ş	Eskişehir	Tepebaşı	Cumhuriyet	

Name of the company/name of the owner	Province	District	Village	Licence Group
BILGINOĞULLARI A.Ş	Eskişehir	Tepebaşı	Çukurhisar	
ESTAŞ MADEN.	Eskişehir	Odunpazarı	Kireçköy	
BATI MADENCILIK	Eskişehir	Odunpazarı	Kireçköy	
Emmioğlu Mermer Ltd. Şti.	Giresun	Çamoluk	Pınarlar	II(b).Grup Maden
Ahmet UYAN	Kırıkkale	Bahsılı	Hodar	1 (a) Group Mine Licence
AR KAR Madencilik Nak Ins. Tic.Ltd.Sti	Kırıkkale	Yahsihan	Kılıçlar	1 (a) Group Mine Licence
DSI 5. District	Kırıkkale	Keskin	Ceritmüminli	1 (a) Group Mine Licence
DSI 5. District	Kırıkkale	Keskin	Ceritmüminli	1 (a) Group Mine Licence
DSI 5. District	Kırıkkale	Keskin	Ceritmüminli	1 (a) Group Mine Licence
DSI 5. District	Kırıkkale	Sulakyurt	Hamzalı	1 (a) Group Mine Licence
DSI 5. District	Kırıkkale	Sulakyurt	Hamzalı	1 (a) Group Mine Licence
DSI 5. District	Kırıkkale	Sulakyurt	Hamzalı	1 (a) Group Mine Licence
DSI 5. District	Kırıkkale	Merkez	Ulaş	1 (a) Group Mine Licence
DSI 5. District	Kırıkkale	Merkez	Pazarcık	1 (a) Group Mine Licence
DSI 12. District	Kırıkkale	Delice	Yenivaoan	1 (a) Group Mine Licence
T.C. Devlet Demiryolları Isletmesi Genel Md.	Kırıkkale	Kırıkkale	Yukarı Mahmutlar	1 (a) Group Mine Licence
T C. Devlet Demiryolları isletmesi Genel Md	Kırıkkale	Kırıkkale	Yukarı Mahmutlar	1 (a) Group Mine Licence
Doğan Kum Mıcır Imi. San. ve Tic.Ltd.Sti.	Kırıkkale	Balısevh	Sorsavus	1 (a) Group Mine Licence
Güvensov Madencilik Kum Inşaat Gıda veSağ. Hiz. Ltd.Şti.	Kırıkkale	Delice	Cerikli	1 (a) Group Mine Licence
Halil AVAN	Kırıkkale	Karakeçili	Akkoşan	1 (a) Group Mine Licence
Haşan TASDEMIR	Kırıkkale	Delice	Bacjcılar	1 (a) Group Mine Licence
IŞIKLAR Beton Beton Elemanları A S.	Kırıkkale	Balısevh	Akçakavak	1 (a) Group Mine Licence
BILGE Ins. Nak. San. Tic. Ltd.Şti	Kırıkkale	Yahsihan	Kılıçlar	1 (a) Group Mine Licence
SUNTAŞ inşaat San. ve Tic.Ltd'şti.	Kırıkkale	Delice	Evlivalı	1 (a) Group Mine Licence
TalID ÇIĞDEM	Kırıkkale	Yahsihan	Hacıballı	1 (a) Group Mine Licence
Mazhar AKYUZ	Kırıkkale	Balısevh	Işıklar	1 (a) Group Mine Licence
Remsan Nakliyat Emlak Ins. Oto.Tic.Ltd.Şti	Kırıkkale	Balışeyh		1 (a) Group Mine Licence
Yaşar ÖZEN	Kırıkkale	Delice	Büyükyağlı	1 (a) Group Mine Licence
SINAN SAMUR	Kırıkkale	Yahşihan	Keçili	II. Group Mine License
KALE MADEN END.HAM.SAN.TIC.A.Ş.	Kırıkkale	Sulakyurt		II. Group Mine License
HALIL KAFTELEN	Kırıkkale	Balışeyh	Akçakavak	II. Group Mine License
ÖZ-ÖZTAŞ LTD.ŞTI.	Kırıkkale	Balışeyh	Kılevl	II. Group Mine License
OSMAN NAFIZ SAMUR KOZA YOL MADEN	Kırıkkale	Yahşihan	Keçili	II. Group Mine License
KÖMÜR IŞLETMELERI	Kırıkkale	Delice	Yeniyapan	II. Group Mine License
KIZILIRMAK INŞAAT	Kırıkkale	Keskin	Ceıitkale	II. Group Mine License
YAPITAŞ TICARET LTD.ŞTI.	Kırıkkale	Keskin	Çamurabatmaz	II. Group Mine License
FERIDUN HISAR	Kırıkkale	Yahşihan	Eskihisar	II. Group Mine License
TALIP ÇIĞDEM	Kırıkkale	Yahşihan	Hacıballı	II. Group Mine License
KARGIN ALÇI MADENCILIK	Kırıkkale	Keskin	Halitli	II. Group Mine License
ÇIĞDEM KUM TIC.VE SAN.LTD.ŞTI	Kırıkkale	Yahşihan	Hacıballı	II. Group Mine License
ABDULLAH ERIŞ	Kırıkkale	Yahşihan	Hacıballı	II. Group Mine License
YÜCEL BÜYÜKKAYACI	Kırıkkale	Yahşihan		II. Group Mine License

Name of the company/name of the owner	Province	District	Village	Licence Group
DEKAL MADENCILIK SAN.TIC.LTD.ŞTI	Kırıkkale	Keskin	Hacıyusuflu	II. Group Mine License
ÖZYURDAKULLAR NAK.INŞ.MAD.SAN.TURZ.	Kırıkkale	Yahşihan		II. Group Mine License
MIKROKAL KALSIT SAN.TIC.	Kırıkkale	Keskin	Hacıyusuflu	II. Group Mine License
BAHADIR INŞ.TIC.LTD.ŞTI	Kırıkkale	Yahşihan	Keçili	II. Group Mine License
TÜDAŞ MADEN TAR. ÜRÜN.S AN.TIC. LTD.ŞTI	Kırıkkale	Balışeyh	Hüseyinbeyobası	II. Group Mine License
MIKROKAL KALSIT SAN TIC.	Kırıkkale	Çelebi	Hacıyusuflu	II. Group Mine License
MAP-TEKNIK MERMER OCAĞI	Kırıkkale	Çelebi	Koramazan	II. Group Mine License
HAMIT KÜÇÜK	Kırıkkale	Yahşihan	Keçili	II. Group Mine License
SELHAS MADENCILIKTIC. LTD.ŞTI	Kırıkkale	Delice	Baraklı	II. Group Mine License
ABIDIN KINACI	Kırıkkale	Merkez	Kazmaca	II. Group Mine License
MIKROKAL KALSIT SAN.TIC. LTD.ŞTI.	Kırıkkale	Çelebi	Hacıyusuflu	II. Group Mine License
KNAUF INŞ.VE YAPI ELAMANLARI SAN.TIÇ	Kırıkkale	Delice	Herekli	II. Group Mine License
IŞIKLAR BETON VE BETON ELAMANLARI	Kırıkkale	Yahşihan	Hacıballı	II. Group Mine License
SILISSAN A.Ş	Kırıkkale	Yahşihan		II. Group Mine License
MATKIM MAD.TEKS.KIM.MAK.	Kırıkkale	Keskin	Kurşunkaya	II. Group Mine License
KARGIN ALÇI MADEN	Kırıkkale	Keskin	Turhanlı	II. Group Mine License
SINAN SAMUR	Kırıkkale	Yahşihan	Keçili	II. Group Mine License
LEVENT BILECEN	Kırıkkale	Yahşihan	Kılıçlar	II. Group Mine License
DESTEK MAD. MÜH.SAN.TIC.	Kırıkkale	Çelebi		II. Group Mine License
YENI ANADOLU MIN.MAD.SAN.TIC.	Kırıkkale	Balışeyh	Beyobası	II. Group Mine License
NIHAK MADENCILIK INŞ.SAN. LTD.ŞTI.	Kırıkkale	Keskin	Müsellim	II. Group Mine License
BAHADIR INŞ.TIC.LTD.ŞTI	Kırıkkale	Yahşihan	Keçili	II. Group Mine License
BAHADIR INŞ.TIC.LTD.ŞTI	Kırıkkale	Yahşihan	Keçili	II. Group Mine License
GÜRKAN DEMIRCAN	Kırıkkale	Keskin	Gülkonak	II. Group Mine License
ANKARA INŞ.TIC.SAN. LTD.ŞTI	Kırıkkale	Delice	Büyükyağlı	II. Group Mine License
MÜMTAZ SADIK	Kırıkkale	Keskin	Müsellim	II. Group Mine License
ERYAPI SAN.VE TICARET LTD.ŞTI.	Kırıkkale	Merkez Ilçe	Karaçalı	II. Group Mine License
KIZILIRMAK INŞ.TIC.VE SAN.LTD.ŞTI.	Kırıkkale	Keskin	Ceritkale	II. Group Mine License
MEVLÜT DINÇ ERCAN	Kırıkkale	Delice	Halitli	II. Group Mine License
DEVLET SU IŞLERI 56. ŞUBE MÜDÜRLÜĞÜ	Kırıkkale	Yahşihan		II. Group Mine License
DEVLET SU IŞLERI 56. ŞUBE MÜDÜRLÜĞÜ	Kırıkkale	Keskin	Ceritmüminli	II. Group Mine License
Samet ÇALI	Kırıkkale	Delice	Halitli	II. Group Mine License
Celal Sinan SAMUR	Kırıkkale	Delice	Biiyükyağlı	II. Group Mine License
Yılmaz AYHAN	Kırıkkale	Yahşihan	Kılıçlar Kasabası	II. Group Mine License
ERYAPI San. Ve Tic.Ltd.Şti.	Kırıkkale	Merkez	Karaçalı	II. Group Mine License
SIMKUR Madencilik San. Ve Tic.Ltd.Şti.	Kırıkkale	Merkez	Ahili	II. Group Mine License
ERDINÇ Inş. Taahhüt Mobilya Inş. Ltd.Şti.	Kırıkkale	Merkez	Karaçalı	II. Group Mine License
Eryapı San. ve Tic. A.Ş.	Kırıkkale	Merkez	Karaçalı	II. Group Mine License
Eryapı San. ve Tic. A.Ş.	Kırıkkale	Yahşihan	Mahmutlar	II. Group Mine License
Directorate of Highways 4.District	Kırıkkale	Delice	Büyükyalı	II. Group Mine License
Sebahattin Yıldız	Kırıkkale	YAHŞIHAN	Mahmutlar Şarklısı	IV. Grup

Name of the company/name of the owner	Province	District	Village	Licence Group
KALMERTAŞ Madencilik Nak. Taah. San. ve Tic. Ltd. Şti.	Kırıkkale	ÇELEBI	Tatık	II (a) Grup Maden
Abdullah ERIŞ	Kırıkkale	YAHŞIHAN	Hacıballı	
ENKONSIS Enerji Mad. Müh. San. ve Tic. Ltd. Şti.	Kırıkkale	KIRIKKALE	Hacılar	IV. Grup
Devlet Su Işleri 5. Bölge Müdürlüğü	Kırıkkale	Merkez	DELICE	II (a) Grup Maden
Devlet Su Işleri 5. Bölge Müdürlüğü	Kırıkkale	BALIŞEYH	Akçakavak	
KNAUF Inş. ve Yapı Elemanları Tic. A.Ş.	Kırıkkale	KIRIKKALE	Çelebi	II. Group Mine License
ACEM Akar Inş. Nak. Ltd.Şti.	Kırıkkale	YAHŞIHAN	Hacıballı	
KOLIN Inş. Hazır Beton	Kırıkkale	BALIŞEYH	Işıklar	
Ali ÇANAK	Sivas	Divriği	Çobandurağı	1 (a) Group Mine Licence
Ibarih HAMULU	Sivas	Divriği	Kale Malı.	1 (a) Group Mine Licence
Ibrahim Hamulu	Sivas	Divriği	Aşağıhamam	1 (a) Group Mine Licence
Gemerek Belediyesi	Sivas	Gemerek	Burhan	1 (a) Group Mine Licence
Şahiner Nakliyat	Sivas	Gemerek	Horuk Mah.	1 (a) Group Mine Licence
Ay-Kara Inş.	Sivas	Gemerek	Horuk Mah.	1 (a) Group Mine Licence
Gölova Belediye Başkanlığı	Sivas	Gölova	Bozat	1 (a) Group Mine Licence
Em-lr Madencilik Sand-Gravel Ltd.Şti.	Sivas	Hafik	Gökdin	1 (a) Group Mine Licence
Şükrü Özdemir	Sivas	Koyulhisar	Yukarıkale	1 (a) Group Mine Licence
Azyük Oto.Ltd.Şti	Sivas	Koyulhisar	Gökdere	1 (a) Group Mine Licence
Şahin Tuncer	Sivas	Koyulhisar	Yukarıkale	1 (a) Group Mine Licence
Has Beton Ltd.Şti.	Sivas	Koyulhisar	Kılıçpınar-Akçaağıl	1 (a) Group Mine Licence
Karaca Inş.	Sivas	Koyulhisar	Kılıçpmar	1 (a) Group Mine Licence
Kent Parke Inş.	Sivas	Koyulhisar	Boyalı	1 (a) Group Mine Licence
Karacan Inş.	Sivas	Koyulhisar	Sugözü	1 (a) Group Mine Licence
Koyullıisar Belediye Başkanlığı	Sivas	Koyulhisar	Yukarıkale	1 (a) Group Mine Licence
Çelenler Inş.	Sivas	Koyulhisar	Kılıçpınar	1 (a) Group Mine Licence
Eki-Taş Haf.Inş.Ltd.Şti.	Sivas	Merkez	Çaygören	1 (a) Group Mine Licence
Nevzat Asan	Sivas	Merkez	Incesuçifliği	1 (a) Group Mine Licence
Sivas Arapoğlu InşLtd.Şti.	Sivas	Merkez	Serpincik	1 (a) Group Mine Licence
Durol Inş.	Sivas	Merkez	Hayırbey	1 (a) Group Mine Licence
Sivasyol Ticaret Ltd.Şti.	Sivas	Merkez	Kumyurt	1 (a) Group Mine Licence
Remzi YILMAZ	Sivas	Şarkışla	Bozkurt	1 (a) Group Mine Licence
Mekan Inş.	Sivas	Şarkışla	Ortatopaç	1 (a) Group Mine Licence
Mekan Inş.	Sivas	Şarkışla	îğecek	1 (a) Group Mine Licence
Üstay inşaat	Sivas	Yıldızeli	Aşağıyıldızlı	1 (a) Group Mine Licence
Hamdi ILKTAŞ	Sivas	Zara	Ekinli	1 (a) Group Mine Licence
A.rs Inş. Tic. San.	Sivas	Zara	Aşağı Ekilili	1 (a) Group Mine Licence
Ars Inş. Tic. San.	Sivas	Zara	Ekinlli	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Merkez	Çongar	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Zara	Ekinli	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Bozkurt	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Imranlı	Güven	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Suşehri	Aşağısan ca	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Ortatopaç	1 (a) Group Mine Licence

Name of the company/name of the owner	Province	District	Village	Licence Group
DSI 19. District	Sivas	Yıldızeli	Gökkaya	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Giiltekin Mah	1 (a) Group Mine Licence
DSI 19. District	Sivas	Gemerek	Burhan	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Gölova	Çukuryıırf	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Gölova	Çukuryurl.	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Akıncılar	Ortaköy	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Akıncılar	Ortalcöy	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Gemerek	Çepni	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Gemerek	Çepni	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Kızılcakışla	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Çayboyu	1 (a) Group Mine Licence
DSI 19. District	Sivas	Zara	Merkez	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Küllük	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Karaburun	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Güneyevler	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Doğan şar	Aslantaş	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Akıncılar	Gollüce	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Gemerek	Merkez	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Gaziköy(Bozkurt)	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Gaziköy(Bozkurt)	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Gaziköy(Bozk	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Yıldızeli	Şeyhhalil	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Gümüşdere	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Koyulhisar	Sugözü	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Koyulhisar	Yukarıkale	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Yıldızeli	Kayahpmar.	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Merkez	Saklı	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Zara	Bey pınarı	1 (a) Group Mine Licence
DSI 19. District	Sivas	Gölova	Günalan	1 (a) Group Mine Licence
DSI 19. District	Sivas	Gölova	Güııalan	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Merkez	Saklı	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Koyulhisar	Ortaseki	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Baltalar	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Gemerek	Sızır	1 (a) Group Mine Licence
Sivas Belediyesi	Sivas	Merkez	Serpincik	1 (a) Group Mine Licence
DSI 19. District	Sivas	Gemerek	Burhan	1 (a) Group Mine Licence
DSI 19. District	Sivas	Divriği	Aşağıhaınam	1 (a) Group Mine Licence
DSI 19. District	Sivas	Koyulhisar	Dilekli	1 (a) Group Mine Licence
Suşehri Belediyesi	Sivas	Koyulhisar	Kılı çpınar	1 (a) Group Mine Licence
DSI 19. District	Sivas	Koyulhisar	Yalnıztepe	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Koyulhisar	Bahçe Köyü	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Koyulhisar	Aşağıkale	1 (a) Group Mine Licence
DSI 19. District	Sivas	Şarkışla	Cemel Beldesi	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Çobandurağj	1 (a) Group Mine Licence

Name of the company/name of the owner	Province	District	Village	Licence Group
DSI 19.Böi.Md.	Sivas	Şarkışla	Cemel Beldesi	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Imranlı	Yenidoğaıı	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Kangal	Alacahan	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Cemel Beldesi	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Derimi i	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Yıidızefi	Emirler	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Döllük	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Yıldızeli	Nevruz	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Zara	Canova	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Hafik	Dışkapı	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Merkez	Bingöl	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Merkez	Karavün	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Hafik	Düzyayla	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Merkez	Alahacı	1 (a) Group Mine Licence
Yıldızeli Municipality	Sivas	Yıldızeli	Direki-Sarıkaya	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Kayaburun	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Kayaburu	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Karasar	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarıkışla	Cemel	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Kazancık	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Küçüktopaç	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Doğanşar	Ortaköy	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Yıldızeli	Kapıköy	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Merkez	Tavra	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Höbek	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Merkez	Köklüce	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Tuzla	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Hafik	Tavşanlı	1 (a) Group Mine Licence
Yeniçubuk Belediye Başkanlığı	Sivas	Gemerek	Yeniçubuk	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Hafik	Durulmuş	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Hafik	Durulmuş	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Hafik	Çimenyeniee	1 (a) Group Mine Licence
DSI 19.Böl.Md.	Sivas	Hafik	Çimenyenice	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Beldibi	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Beldibi	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Arıkbaşı	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Beldibi	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Yukarı	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Arıkbaşı ve Çavören	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Kayapmar	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Merkez	Iıceağa	1 (a) Group Mine Licence
Hafik Belediyesi	Sivas	Hafik	Merkez	1 (a) Group Mine Licence
DSI 19. District	Sivas	Hafik	Göydin	1 (a) Group Mine Licence
DSI 19. District	Sivas	Hafik	Emre	1 (a) Group Mine Licence

Name of the company/name of the owner	Province	District	Village	Licence Group
DSI 19. District	Sivas	Zara	Ahmethacı	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Hafik	Dışkapı	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Beldibi	1 (a) Group Mine Licence
DSI 19. District	Sivas	Zara	Derbent	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Beldibi	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Imranlı	Türkeşlik	1 (a) Group Mine Licence
DSI 19. District	Sivas	Zara	Demiryurt	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldtzeli	Yanalak	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldızeli	Yanalak	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldızeli	Yanalak	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldızeli	Yanalak	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldızeli	Yanal ak	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Damlacık	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Damlacık	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Damlacık	1 (a) Group Mine Licence
DSI 19. District	Sivas	Y j.idızeli	Emirler	1 (a) Group Mine Licence
DSI 19. District	Sivas	Y ıldızeli.	Kayalıpmar	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Hafik	Celalli	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Hafik	Süleymaniye	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Hafik	Celalli	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Hafik	Kızılören	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Y aramış	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Yaramış	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Koyulhisar	I-iacıilyas	1 (a) Group Mine Licence
Koyulhisar Belediyesi	Sivas	Koyulhisar	Yııkankale	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Ak çakışla	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Hafik	Bakımlı	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Üçtepe	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Üçtepe	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Tfcccik	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Merkez	Bingöl	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldızeli	Topuiyurdu	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldızeli	Topulyurdu	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldızeli	Topulyurdu	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldızeli	Topulyurdu	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldızeli	Topulyurdu	1 (a) Group Mine Licence
DSI 19. District	Sivas	Yıldızeli	Seren	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Akçamescit	1 (a) Group Mine Licence
DSI 19. District	Sivas	Merkez	Akçamescit	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Zara	Avşar	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Kangal	Yellice	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Merkez	Bingöl	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Güneş	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Güneş	1 (a) Group Mine Licence

Name of the company/name of the owner	Province	District	Village	Licence Group
Directorate of Highways 16.District	Sivas	Divriği	Güneş	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Selimoğlu	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Y ıkkzeli	Emirler	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Yıldızeli	Emirler	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Şarkışla	Iğecik	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Kangal	Deîiktaş	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Kangal	Deliktaş	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Divriği	Kayaburur.	1 (a) Group Mine Licence
DSI 19. District	Sivas	Divriği	Uluyazı	1 (a) Group Mine Licence
Directorate of Highways 16.District	Sivas	Kangal	Deliktaş	1 (a) Group Mine Licence
Yusuf Kılıç Inş.Konk.Mad. TarÜrNak.Tah.Tic.veSan.Ltd. Şti.	Yozgat	BOĞAZLIYAN	Yazıçepni	II. Group Mine License
Yibitaş Yozgat Işçi Birliği Inş.Malz.Tic.ve Sarı.A.Ş.	Yozgat	ŞEFAATLI	Deliler	II. Group Mine License
Mustafa ALTAN	Yozgat	SORGUN	Belencumafakılı Köyü	II. Group Mine License
Sortaş Madencilik Inşaat Taahhüt Nakliye Turizm Pet. Sanayi ve Ticaret Ltd.Şti.	Yozgat	SORGUN	Belencumafakılı	II. Group Mine License
Akdora Inş.Taah. Mad. Nak.San. Ve Tic. Ltd.Şti.	Yozgat	Merkez	Muslubelen Mev.	II. Group Mine License
Özkarataşlar Tar.Ür.Mad. Tic.ve San.Ltd Şti	Yozgat	Yozgat	Riverçepni	II. Group Mine License
Şenerler Gıda inş. Hay.Nak.San. Ve Tic. A.Ş.	Yozgat	AKDAĞMADENi	Muktesip	II. Group Mine License
Akdora Inş. Taah. Mad. Nak. San. Ve Tic. Ltd.Şti.	Yozgat	Merkez	Cihanpaşa	II. Group Mine License
Ön-Gün inş. Taah. Tic. A.Ş.	Yozgat	Sorgun	Tatlısı Mah. Mev. Bahadın Kasabası	II. Group Mine License
Directorate of Highways 6.District	Yozgat	Boğazlıyan	Özler	II. Group Mine License
Directorate of Highways 6.District	Yozgat	Sorgun	Sorguntatlısı	II. Group Mine License
Directorate of Highways 6.District	Yozgat	Sarıkaya	Kayapınar	II. Group Mine License
Directorate of Highways 6.District	Yozgat	Çekerek	Başalan	II. Group Mine License
DSI 12. District	Yozgat	Yerköy	Belkavak	II. Group Mine License
Ön-Gün Inş.Taah. Ve Tic. A.Ş.	Yozgat	Akdağmadeni	Yeniyapan	II. Group Mine License
OMA Inş. Taah. Mad. Tar. Gıd. Hayv. Taş. San. Ve Tic. Ltd. Şti.	Yozgat	Sarıkaya	Yaylagül	II. Group Mine License
Örı-Gün Inş.Taah. Ve Tic. A.Ş.	Yozgat	AKDAĞMADENI	Abdurrahmanlı	II. Group Mine License
Osman IŞBILEN	Yozgat	SORGUN	Aşağısarıkaya	II. Group Mine License
Üçyıldırım Haz.Bet. Ve Beton Ekip.Inş.San. Ve Tic. Ltd.Şti.	Yozgat	Sorgun	Yaylalık	II. Group Mine License
Sortaş Mad.Inş.Taah.Nak. Turzm Pet. Ür. San. Ve Tic. LTd. Şti.	Yozgat	Sorgun	Kayakışla	II. Group Mine License
Büyükgöz Tar. Hay. Ür. Yem Un Mad. San. Ve Tic. Ltd. Sti.	Yozgat	Sorgun	Yalalık	II. Group Mine License
Iskender YILDIRIM	Yozgat	Yerköy	Cakcak	II. Group Mine License
AKDORA Inş.Taah. Mad. Nak.San. ve Tic.Ltd. Şti.	Yozgat	Merkez	Cehirlik Mev	II. Group Mine License
TCM inş. Taah. Mad. Nak. Harf. Pet. Gıda Tar. ve Hayv. Ür. San. Tic. Ltd. Şti.	Yozgat	Sorgun	Babalı	II. Group Mine License
SORTAŞ Mad. Inş. Taah. Nak. Turz. Pet. Ür. San. ve Tic. Ltd. Şti.	Yozgat	Sorgun	Kapaklı	II. Group Mine License
Öngün inş. Taah. ve Tic. Elek. Ürt. A.Ş. Andezit	Yozgat	AKDAĞMADENI	Gökdere	II. Group Mine License
Karayolları Gen. Müd. 6. Bölge Müdürlüğü	Yozgat	YERKÖY	Aşağıelmahacılı	II. Group Mine License
AS-TAŞ Mad. Nak. inş. Taah. Ve Pet. Ür. San. ve Tic. Ltd. Şti.	Yozgat	Sorgun	Kapaklı	II. Group Mine License
Özkar Inş. San. ve Tic. A.Ş. Özce Inş. San. ve Tic. Ltd. Şti. Iş Ortaklığı	Yozgat	AKDAĞMADENI	Bulgurlu	II. Group Mine License

Name of the company/name of the owner	Province	District	Village	Licence Group
DSI 12. District	Yozgat	Yerköy	Belkavak	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Belkavak	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Belkavak	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Belkavak	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Belkavak	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Belkavak	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Belkavak	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Belkavak	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Belkavak	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Belkavak	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Şefaatli	Paşaköy Beldesi	1 (a) Group Mine Licence
Directorate of Highways 6.District	Yozgat	Yerköy	Yeniyapan	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy		1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Yukarı Ihsangazili	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Merkez	Musabeyli Boğ. Meh.	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Merkez	Musabeyli Boğ. Meh.	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Merkez	Musabeyli	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Merkez	Akyamaç	1 (a) Group Mine Licence
Directorate of Highways 6.District	Yozgat	Sorgun	Mahmatlı	1 (a) Group Mine Licence
Directorate of Highways 6.District	Yozgat	Sorgun	Caferli	1 (a) Group Mine Licence
Directorate of Highways 6.District	Yozgat	Sorgun	Osmaniye	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Yerköy	Sekili - Yukarıihsangazili	1 (a) Group Mine Licence
Çandır Belediye Başkanlığı	Yozgat	Çandır	Iğdeli	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Saraykent	Kesikköprü	1 (a) Group Mine Licence
D.D.Y. Işletmesi Gen.Müd.	Yozgat	Yerköy	Arifeoğlu	1 (a) Group Mine Licence
D.D.Y. Işletmesi Gen.Müd.	Yozgat	Yerköy	Arifeoğlu	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Kadışehri	Debent	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Saraykent	Debent	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Saraykent	Debent	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Saraykent	Debent	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Saraykent	Debent	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Saraykent	Debent	1 (a) Group Mine Licence
DSI 7. District	Yozgat	Aydıncık	Bazlambaç	1 (a) Group Mine Licence
DSI 7. District	Yozgat	Aydıncık	Bazlambaç	1 (a) Group Mine Licence
DSI 7. District	Yozgat	Aydıncık	Bazlambaç	1 (a) Group Mine Licence
DSI 7. District	Yozgat	Çekerek	Çürük	1 (a) Group Mine Licence
DSI 7. District	Yozgat	Çekerek	Çürük	1 (a) Group Mine Licence
DSI 7. District	Yozgat	Çekerek	Çürük	1 (a) Group Mine Licence
DSI 7. District	Yozgat	Çekerek	Çürük	1 (a) Group Mine Licence
DSI 7. District	Yozgat	Çekerek	Çürük	1 (a) Group Mine Licence
TCDD işletmesi Gen. Müd.	Yozgat	Yerköy	Aslanhacılı	1 (a) Group Mine Licence
DSI 7. District	Yozgat	Çekerek	Çürük	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Sıorgun	Doğanlı Çilekli	1 (a) Group Mine Licence
DSI 12. District	Yozgat	Sıorgun	Doğanlı Çilekli	1 (a) Group Mine Licence

Name of the company/name of the owner	Province	District	Village	Licence Group
TCDD işletmesi Gen. Müd.	Yozgat	Yerköy	Sekili Tekir-2	1 (a) Group Mine Licence
Koç Emek Inş. Tic. ve San. Ltd. Şti.	Yozgat	Yerköy	Sekili Beldesi	1 (a) Group Mine Licence
OttomanTaş.Teks.Inş.Gıd. Mad.Tic. San.Ltd.Şti.	Yozgat	Saraykent	Kesikköprü	1 (a) Group Mine Licence
Bekir ŞENSOY	Yozgat	Şefaatli	Koyardı	1 (a) Group Mine Licence
Sıddık KAVCI	Yozgat	Çekerek	Bazlambaç	1 (a) Group Mine Licence
Zeysan Inş. Taah. Inş. Malz. Nak. Mad. Mak. Iml.Ith. ve Ihr. San. ve Tic. Ltd. Şti.	Yozgat	Yerköy	Cakcak	1 (a) Group Mine Licence
Öz Birlik Inş.Mad.Hayv.San. ve Tic.Ltd.Şti.	Yozgat	Aydıncık	Kazankaya	1 (a) Group Mine Licence
Pehlivanoğlu Pet. Tar.Ür.Nak.Inş. Mad.San.ve Tic.Ltd.Şti.	Yozgat	Akdağmaden	Uzakçay	1 (a) Group Mine Licence
Abdullah YAĞIZ	Yozgat	Yenifakılı	Karamusa	1 (a) Group Mine Licence
Emrebaş Inş. Taah. San. Tic. Ltd. Şti.	Yozgat	Yerköy	Arifeoğlu	1 (a) Group Mine Licence

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TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Document No.	**PLK-PLN-ENV-PL4-003**	Rev	Status
		P4-2	**Re-IAA**
Document Title	**CONSTRUCTION IMPACT MANAGEMENT PLAN**		
Tag No's			
Contractor	**PUNJ LLOYD – LİMAK - KALYON JV**		
Contractor Document No.	PLK-PLN-ENV-PL4-003	Contractor Rev.	**P4-2**

Tick Box	Descriptions	Signature & Date
☐	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
☐	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
Comment Reponse Sheet

Document Title	Construction Impact Management Plan	Originator	PLL JV
Document Number	PLK-PLN-ENV-PL4-003	Rev	P4-1

Except for the following identified comments, all other comments on this document have been resolved or incorporated.

* O - Open, C - Closed

No.	Section/ Page	Comment	By	Response	By	Date	O/C *	Remarks
1	4.9	The border between Turkey and Greece is constituted by the Evros River that discharges to the Evros Delta, which is an environmental protected area of international importance (included in the Natura 2000 network and including Ramsar sites). Since trenchless method will be performed to cross border river, limited disturbance is expected on river ecology and riverbank. Before the construction activity, the area will be studied in terms of wetlands (e.g. rice fields), ecological sensitivities, groundwater conditions, river base study (quantity and quality), farming activities etc. According to findings, specific method statment by considering all mentioned subjects will be generated and it is upon to approval of Client /EPCM before construction activities to start.	TANAP	Revised	YOGD	02.06.2016	C	
21	7	Remove section as replaced with the above	TANAP	Revised	YOGD	02.06.2016	C	
22								
23								
24								
25								
26								
27								
28								
62								
63								

Additional Notes (if any)

Distribution	

Punj Lloyd / Limak / kalyon	**TANAP** **TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT** **48" ONSHORE PIPELINE CONSTRUCTION LOT 4**	TANAP / WorleyParsons resources & energy

CONSTRUCTION IMPACT MANAGEMENT PLAN

Rev.	Status	Date	Status Description	Issued by	Checked by	Approved by
P4-A	DIC	30/3/2016	Discipline Internal Check	YOGD	ASOV	DHAG
P4-B	IDC	31/3/2016	Inter-Discipline Check	YOGD	BHAG	DHAG
P4-C	IFR	1/4/2016	Issued for Review	YOGD	SDUT	KKSA
P4-0	IAA	12/5/2016	Issued as Approved	YOGD	KALF	MALB
P4-1	Re-IAA	10/6/2016	Re-Issued as Approved	YOGD	KALF	MALB
P4-2	Re-IAA	11/7/2016	Re-Issued as Approved	YOGD	KALF	MALB

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P4-A	DIC	30/3/2016	Discipline Internal Check
P4-B	IDC	31/3/2016	Inter-Discipline Check
P4-C	IFR	01/4/2016	Issued for Review
P4-0	IAA	12/5/2016	Issued as Approved
P4-1	IAA	10/6/2016	Re-Issued as Approved
P4-2	IAA	11/7/2016	Re-Issued as Approved

HOLDS

No	Section	Description	Input from	Planned Date

Table of Contents

1 INTRODUCTION

1.1 Background

The Trans Anatolian Natural Gas Pipeline will be built to transport natural gas emanating from the South Caucasus Pipeline Company Pipeline in Georgia to the Trans-Adriatic Pipeline in Greece. In addition to the mainline termination, dedicated off-takes will be provided to BOTAŞ at strategic points in the Republic of Turkey. Contract of Lot 4 of this project is awarded to PUNJ LLOYD – LİMAK Joint Venture and consists mainly of a 48" Onshore Pipeline Construction and also other Above Ground Installations.

1.2 Scope

Scope of this management plan follows the conditions given below;

- Ecological surveys and translocation of flora and fauna,
- Habitat and species protection,
- Minimising habitat disturbance,
- Terrestrial and freshwater flora and fauna,
- Terrestrial and freshwater habitats and ecosystems,
- Special and Ecologically Sensitive/Priority Areas (ESA),
- Biorestoration and reinstatement,
- Seeding,
- Training personnel,
- Erosion and drainage control,

Since this plan is a living document, it will be updated in the following circumstances;

- changing in local regulatory requirements,
- obtained new information on the current status of the project area,
- changing to be implemented as a result of the Project engineering studies progress, discovering new species, complaints from local community.

The Construction Impacts of the project on air, noise and vibration, and water supply and wastewater and related mitigation measures to minimize or eliminate these impacts are given in the CONTRACTOR's other management plans, which are in conjunction with this Construction Impact Management Plan, such as Waste Management Plan (PLK-PLN-ENV-PL4-006), Erosion, Reinstatement nd Landscaping Plan (PLK-PLN-ENV-PL4-002), Pollution Prevention Plan (PLK-PLN-ENV-PL4-005).

1.3 Purpose

The Construction Impacts Management Plan sets out the specific actions that must be implemented to minimise the disruption and negative impacts for all settlements affected by construction and subsequent operation of the Project as per APPENDİX 5.1 of ESIA. This includes actions to minimise disruption to infrastructure and natural resources as well as measures to avoid damage to household and community assets such as land, houses, roads, irrigation networks etc. Where damage does occur this plan outlines the actions that should be taken to assist settlements in the compensation process. This plan is a living plan and

will be updated as per the changes in the project and when required by Client/EPCM.

The Objective of the Construction Impacts Management Plan is to management of impacts on environment and social components during construction phase of the projectE&S mitigation measures will eliminate construction impacts if possible or minimise the residual impacts of the project to acceptable levels during land preparation and construction phase of the project.

The Objective of the Construction Impacts Management Plan is to management of impacts on environment and social components during construction phase of the project.E&S mitigation measures will eliminate construction impacts if possible or minimise the residual impacts of the project to acceptable levels during land preparation and construction phase of the project.The objective of this plan will be the ecological management of the project components in all areas affected by construction activities. This plan consists of mitigation measures to eliminate the possible impacts of the project or to reduce the impacts to acceptable levels. In this context, this plan;

- Is based on general baseline data, Project ESIA and BAP,
- Provides an early identification of potential sensitive areas and area of influence,
- Mentions about pre-assessment of ecological structure and natural components (flora, fauna, wildlife and habitats)
- Aims lowering the wildlife impacts – (by considering the reproductive period)
- Includes erosion and reinstatement issues

1.4 **Definitions**

CLIENT	TANAP DOĞALGAZ İLETİM A.Ş.
PROJECT	Trans Anatolian Natural Gas Pipeline Project (TANAP)
EPCM	WorleyParsons Proje Yönetimi ve Mühendislik Limited Şirketi
CONTRACTOR	PUNJ LLOYD – LİMAK Joint Venture
CONTRACT	48” Onshore Pipeline Construction Contract for Trans-Anatolian Natural Gas Pipeline Lot 4
AREA OF INFLUENCE	The project AoI includes the areas likely to be affected by the
BIOLOGICAL DIVERSITY	The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.
BIORESTORATION	Reinstatement of the biotic or living, component of the environment, achieved through habitat recreation.
ECOLOGICALLY SENSITIVES AREAS	The areas that have a national or international conservation status, habitats of high conservation values and river crossings.
ECOSYSTEM	Systems that consists of living and non-living parts in nature interacting to form a stable system. Dynamic complex of plant, animal and microorganism communities and their non-living environment interacting as a functional unit.
ESMS OF TANAP and EPCM	Environmental and Social Management System of TANAP and EPCM
FAUNA	All the animal species of a region or geological period.
FLORA	All the plant species that make up the vegetation of a given area from a particular

	geological time.
HABITAT	Terrestrial, freshwater or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment.
VEGETATION	Disregarding the regions in the classification of the plants, the plant cover of a region.
WETLANDS	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, rice fields and similar areas.

1.5 **Abbreviations**

TANAP	Trans Anatolian Gas Pipeline Project
EPCM	Engineering, Procurement and Construction Management
ROW	Right of Way
H&S	Health and Safety
E&S	Environment and Social
QA/QC	Quality Assurance / Quality Control
AOI	Area of Influence
BAP	Biodiversity Action Plan
CLIENT	TANAP Doğalgaz İletim A.Ş.
CONTRACTOR	Punj Lloyd-Limak JV responsible for the procurement, construction, installation, pre-commissioning, testing and commissioning assistance of the Lot 4 section of TANAP Project
CR	Critically Endangered
ESIA	Environmental and Social Impact Assessment
EUNIS	The European Nature Information System
IBA	Important Birds Area
KBA	Key Biodiversity Area
KP	Kilometrical Point
PROJECT	Procurement, construction, installation, pre-commissioning, testing and commissioning assistance Lot 4 section of TANAP Project
RoW	Right Of Way
SCC	Species of Conservation Concern
SEPA	Special Environmental Protection Area
WDA	Wildlife Development Area

1.6 References

	Document Number	Document Title
1.	TNP-REP-GEN-002	The Project English ESIA Report
2.	TNP-REP-ENV-GEN-001	The Project Turkish ESIA Report
3.	CIN-REP-ENV-GEN-017	Biodiversity Action Plan
4.	TNP-PLN-ENV-GEN-001 P3-0	TANAP Environmental and Social Management Plan
5.	PLK-PLN-ENV-PL4-001	CONTRACTOR Environmental and Social Management Plan
6.	PLK-PLN-ENV-PL4-010	CONTRACTOR Environmental and Social Monitoring Plan
7.	PLK-PLN-ENV-SOC-PL4-003	CONTRACTOR Employment and Training Plan
8.	PLK-PLN-SOC-PL4-002	CONTRACTOR Community Relations Management Plan
9.	PLK-PLN-ENV-PL4-005	CONTRACTOR Pollution Prevention Plan
10.	PLK-PLN-ENB-PL4-06	CONTRATOR Waste Management Plan
11.	PLK-PLN-ENV-PL4-009	CONTRACTOR Cultural Heritage Management Plan
12.	PLK-PLN-ENV-PL4-008	CONTRACTOR Aggregates Management Plan
13.	PLK-PLN-SOC-PL4-004	CONTRACTOR Traffic Management Plan
14.	PLK-PLN-ENV-PL4-002	CONTRACTOR Erosion, Reinstatement and Landscaping Plan
15.	WRP-PLN-ENV-GEN 002	EPCM Environmental and Social Management System

2 RESPONSIBILITIES

CONTRACTOR and Subcontractors will be responsible for the implementation all of the issues and mitigation measures outlined in this CIMP and ESIA. CONTRACTOR and all sub-contractors will comply with all relevant project standards, legal requirements, permit and license conditions and secure all applicable permits and licenses.

2.1 Project Manager

Has overall responsibility for Construction Impact Management requirements and mitigation measures of the Project to be complied with.

2.2 Construction Manager

- Will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with the CONTRACTOR CIMP,
- Will ensure that CIMP will be complied with during project pre construction survey, during construction activities and post construction activities.

2.3 Environmental Manager

- Will be responsible for the overall management of all of the activities related with environmental,

- Will monitor the biologist/ecologist for his/her performance in the implementation of CIMP, ESIA and BAP,
- Will monitor construction activities and their compliance with environmental plans, procedures and instructions, • Will update the Plan in conjunction with EPCM.
- Will be responsible for preparing environmental procedures, method statements and work instructions as required and implementing amendments to the system identified by audits,
- Will provide monthly report to EPCM,
- Supervise Environmental Inspectors and Biologist/Ecologist, soil experts, archeologist
- Determining appropriate corrective action for non-compliance,

2.4 Enviromental Inspector(s)

- Will inspect and ensure maintenance, and repair of drainage and erosion control devices,
- Will ensure that all remedial action identified by inspections are closed out,
- Will conduct all environmental monitoring on the project ensuring that all records are fully completed correctly,
- To ensure inspection, maintenance and repair of reinstatement works with special care at watercourses, steep slopes and ESAs
- Will ensure that the Environmental Manager is fully informed on any environmental issues,
- Will implement the environmental management system on site and provide as necessary toolbox talks on impact mitigation method,
- To ensure inspection, maintenance and repair of reinstatement works with special care at watercourses, steep slopes and ESIA;
- Will give training to all CONTRACTOR personnel regarding with environmental issues. The whole personnel of the Subcontractor will also be responsible about this training subject.

2.5 Biologist / Ecologist

- Will be responsible for ecological monitoring during pre-construction and construction period,
- Will be responsible for seed and bulb collection,
- Will be responsible for ecological training of all workers,
- Will monitor that the construction activities are in compliance with the BAP
- Will conduct BAP training for all employees

2.6 Soil Expert

- Will define the depth of top soil to be stripped,
- Will be responsible for monitoring of topsoil stripping and storage
- Will give trainings regarding with soil management
- Inspection, and ensuring maintenance, and repair of drainage and erosion control devices
- To ensure RoW reinstatement aftercare and maintenance

- Will define ground definitions
- Will generate specific method statements for wetlands in regards of construction activities and impacts by complying with project requirements

2.7 **Social Manager**

- Will consult with local experts, specialist organisations and government authorities in order to ensure the Reinstatement works are appropriate to the local, worksite-specific conditions
- Will have responsibility for the identification and management of all social issues, will ensure liaison with land owners to facilitate maintenance of stock-proof fencing to restrict access to seeded and planted areas
- Will be responsible of administering all activities pertaining to the implementation of social plans,
- Will evaluate the compliance with laws, regulations,
- Will ensure that all requirements of management plans and related social incidents are reported regularly to the Project Manager,
- Will search the causes of the social incidents that cause; injuries, delays or stoppage in the work and disputes among Project and communities,
- Will govern the social induction process for all project staff of the CONTRACTOR and ensure that they are fully aware and briefed on the requirements of management plans,
- Will monitor the social records,
- Will monitor all grievances and ensure that all grievances are resolved and closed,
- Will establish a social team to implement social requirements on site,
- Will inform the relevant departments about the grievances received, in order to take required actions,
- Will report the status of grievances to EPCM through regular reports and OSID system,
- Will review the grievances to avoid recurrence of the concern or issues,
- Will ensure the functioning of the complaint mechanism,
- Will create all necessary reporting to EPCM

2.8 **Community Liaison Officer (CLO)**

- Will provide on-going communication with affected settlements,
- Will organize cooperation activities with local communities,
- Will report in written form all the grievances to Social Manager, which are received or observed verbally,
- Will fill out the Grievance Register Form (see Appendix-2 and Appendix-3),
- Will investigate and propose appropriate methodology for resolving the grievance,
- Will follow the results of complaint, inform the complainant about the final action and report to Social Manager on weekly, monthly and annual basis,

- Will attend to worker Grievances,
- Will ensure that all records of Social Induction meetings are kept.

3 GENERAL INFORMATION ABOUT THE SPECIES AND SENSITIVE AREAS

3.1 General

The species that could be highly affected from the project activities were identified in ESIA Report and BAP.

These threatened species are referred to as SCC. According to IFC 2012 (PS6), IUCN Red List (2013) and local expert opinion, who conducted the baseline surveys of ESIA, the species considered as threatened are endemic, restricted-range, CR and EN species.

CONTRACTOR's biologist/ecologist will carry out ecological surveys to identify the existing ecological conditions at the site, prior to the starting of land clearance activities. The ecological surveys will be carried in advance or just before construction depending on the level of sensitivity levels as identified in BAP; such as critical habitats, freshwater critical habitats and seasonal constraints. Ecological surveys will identify the important environmental issues that need to take an action. CONTRACTOR's biologist/ecologist will conduct ecological surveys.

3.2 Pre-Construction

3.2.1 Pre-Construction Preparation

Prior to the starting of land clearance activities, CONTRACTOR's biologist/ecologist, environmental inspector, archaeologist and soil expert will carry out preconstruction surveys to identify the existing ecological, environmentally sensitive and important archaeologist and soil conditions at the site such as areas where rice is farmed. Due to the farming techniques used for rice farming (flooded fields); appropriate technical solutions will have will be defined and reported to reduce disruptions and impacts to a minimum. They can be carried in advance before construction depending on the level of sensitivity as identified in BAP: such as critical habitats, freshwater critical habitats, seasonal constraints (see also Annex 2-BAP KP Table and Ecological Actions). Ecological surveys will identify the important environmental issues that need action. CONTRACTOR's biologist/ecologist will conduct ecological surveys by referencing BAP. CONTRACTOR will perform additional studies in areas where beekeeping is performed and to assess the economical relevance of this activity and also will identify animal transhumance paths in areas where pastoralism is particularly relevant for communities' livelihood.

Before Construction starts CONTRACTOR will;

- Identify environmentally sensitive and important ecological, archaeological and soil/water resources and dynamics that may be affected by construction work in the RoW, access roads to be opened or at the facility sites,
- Confirm the presence of flora or fauna species that may require translocation and any protection status (e.g. endemics, endangered species etc.),
- Confirm or identify seasonal constraints on work activities,
- Facilitate the reinstatement of a similar plant community to that existing prior to construction,
- Revise the site specific commitments or propose additional mitigation measures when necessary

Before construction starts CONTRACTOR will also;

- mark all sensitive areas to be cleared, and the areas to be used as storage areas,
- mark the limits of all areas to be cleared to ensure that clearance does not take place outside designated areas. Clearance of areas outside of the project footprint,
- will mark and flag any sensitive plant species situated immediately adjacent to or on the edge of the RoW before vegetation clearing and tree felling, topsoil strip and other earthmoving activities, mark and flag any sensitive plant species situated immediately adjacent to or on the edge of the RoW before vegetation clearing and tree felling, topsoil strip and other earthmoving activities so that plant cover and other habitat elements (such as rocks) are not disturbed outside of approved work areas by clearing and grading.
- place signs with environmental protection information in areas immediately adjacent to the RoW where sensitive flora and fauna has been identified during the Ecological Survey,
- mark existing sensitive receptors that need to be avoided during construction (e.g. cultural heritage sites, or specific trees that are to be retained) by appropriate signs (such as flags, labels etc.),
- indicate high wildlife use areas with signage along main access roads where potential exists for vehicle/wildlife collision,
- provide appropriate fencing where necessary to prevent access by grazing animals and vehicles. Fences will be fitted with signs in Turkish and English indicating the purpose, i.e. the enclosure is a TANAP bio-restoration project area and fencing is required for protection,
- supplement boundary fencing by internal area fencing to give double protection to particular areas if required,
- train personnel involved in clearing and grading activities in order to protect sensitive plant species,
- Road crossing surveys,
- Crossings between Project components and existing irrigation network,
- Specific studies on waste management facilities and landfills,
- Rice farming areas identification
- Access Roads Assessment Reports, Access Road Registers, Traffic Management Plan including mitigations and requirements to upgrade the existing roads and reinstatement of the temporary roads and Community Safety Management Plan will be prepared and submitted for approval,
- CONTRACTOR will prepare a code of conduct containing rules that workers are to follow both during working hours and in camp sites; During the pre-construction phase, CONTRACTOR will prepare a site specific Social Baseline Report,
- Waste management Plan including site specific waste management mitigations and requirements will be prepared and submitted for approval,
- The hydrotesting plan including environmental and social requirments will be prepared in order to identify the possible sources for the supply for water during hydrotest. The plan will identify the sources of water supply considering the required permits to be taken for use and discharge of the hydrotest water, minimum impact on the neighbouring communities using the same water sources. The plan will also include the details of the chemical and biocide application if required.
- Site Specific Erosion, Reinstatement and Landscaping Plans will be prepared and submitted for approval,

- River Crossing Work Method Statements including specific mitigations and requirements will be prepared and submitted for approval.

The CONTRACTOR will identify all affected areas where rice is farmed. Due to the farming techniques used for rice farming (flooded fields); appropriate technical solutions will be defined and reported to reduce disruptions and impacts to a minimum. Once rice fields interfering with construction activities are identified, approved solutions to reduce impacts will have to be agreed with owners, users and local cooperatives such as transplant of trees or enhancement activities on other productions. Rice farming is mainly performed in the eastern provinces, in the districts of Gonen, Manyas, Biga, Gelibolu, Kesan, Hayrabolu, Malkara and Babaeski; therefore, studies will focus on these areas CONTRACTOR will prepare and submit preconstruction survey report to CLIENT/EPCM for review. Contractor is solely responsible to satisfy the landowners and their complaints and compensate if in case.

3.3 Protected and Conservation Areas

Along the Project, there are 2 protected and conservation areas (see Table 3.1) are determined according to ESIA Report (Section 7.3.2.2 of Chapter 7 – section 7.3.2.2.1 Methodology)

Table 3.2.2 Protected and Conservation Areas

KP	Protected and Conservation Area		National and International Statute	Location
1614+900-1617+000 **1625+900-1628+600**	Manyas Lake		National Park Ramsar Area Natural Sit Area, IBA, KBA	Balikesir
1733+400-1736+300 **1742+700-1745+200**	Saros Gulf		SEPA, IBA, KBA	Çanakkale

3.4 Habitats with High Conservation Importance

Along the Project habitats with high conservation importance are available (see Table 3.2) are determined according to ESIA Report (Section 7.3.2.2 of Chapter 7 – section 7.3.2.2.1 Methodology)

Table 3.2.3 Habitats with High Conservation Importance

KP	SENSITIVE and CONSERVATION HABİTATS		Location
	EUNIS Code (*)	EUNIS Name	
1350+600 1378+200 1390+300 1393+400-1393+500	E2.5	Meadows of the Steppe Zone	Eskişehir

1408+000 1422+600	E2.5	Meadows of the Steppe Zone	Bilecik
1730+300	E2.5	Meadows of the Steppe Zone	Çanakkale
1371+500-1371+600 1372+600 1373+000	G3.5	*Pinus nigra woodland*	Eskişehir
1404+600-1405+700 1419+300 1426+700-1426+900 1427+700-1427+900 1428+400-1428+700	G3.5	*Pinus nigra woodland*	Bilecik
1429+100-1430+500 1430+700-1430+800 1431+300 1432+100-1432+600	G3.5	*Pinus nigra woodland*	Kütahya
1475+100-1475+200 1475+500-1475+600 1476+100-1476+200 1495+500-1495+600 1518+500-1521+100 1530+200-1530+400 1530+900-1531+200 1532+300-1532+600 1532+900-1534+100 1534+300-1535+800 1537+600-1537+800 1538+100-1538+300 1538+600-1539+200 1539+500-1539+700 1540+100 1540+400 1540+600-1541+700 1541+900-1543+200	G3.5	*Pinus nigra woodland*	Bursa

3.5 **Terrestrial Fauna**

As it is mentioned in the ESIA Report (Part 7.3.2.3 of Chapter 7), and also in BAP (Section 2.1.1), 86 SCC are present or potentially present along the pipeline route considering terrestrial vegetation. In addition to this data some of species may duplicate among LOT-4 provinces.

Table 3.2.4 Terrestrial flora divided by groups LOT 4

Group	Scientific name	RDBT	Endemism	Potential/Observed
2	*Astragalus densifolius subsp. ayashensis*	VU	R	Observed
2	*Onosma briquetii*	VU	R	Observed
2	*Salvia tchihatcheffii*	VU	R	Observed
2	*Thymus leucostomus*	VU	R	Observed
4	*Ferulago silaifolia*	EN	R	Potential
5	*Cephalaria aytachii*	CR	R	Observed
5	*Gypsophila osmangaziensis*	CR	R	Observed
6	*Alyssum dudleyi*	CR	R	Observed
6	*Dianthus goekayi*	CR	R	Observed
6	*Verbascum sp. nov.*	CR	R	Observed

3.6 **Terrestrial Fauna**

Mammalia

As it is mentioned in ESIA Report (Part 7.3.2.5 of Chapter 7), and also in BAP (Section 2.1.2.2), there is not any SCC identified along the pipeline route of the Project for the following provinces.

- in Balıkesir: None

- in Bilecik: None

- in Bursa: None

- in Çanakkale: Not observed during field studies

- in Edirne: Not observed during field studies

- in Eskişehir: None (acc. to destktop study)

- in Kütahya: None

Table 3.2.5.1 Mammals in LOT 4

Order	Family	Species	Common Name	IUCN Red List category	Reason for inclusion in SCC list	Listed as SCC (Yes/No)	Potential/Observed
RODENTIA	GLIRIDAE	*Myomimus roachi*	Roach's Mouse-tailed Dormouse	VU	Restricted-range species to the Mediterranean region (Local expert	Y	Potential

					judgement and IUCN, 2013)		
RODENTIA	SCIURIDAE	*Spermophilus citellus*	European Ground Squirrel	VU	Restricted range species in the provinces of Çanakkale, Edirne, Tekirdağ, Kırklareli (Local expert judgment)	Y	Potential

Birds

As it is mentioned in ESIA Report (Part 7.3.2.6 of Chapter 7), and also in BAP (Section 2.1.2.2), the following SCC were present or potentially present along the pipeline route of the project. These species may present or potentially present between KPs of LOT-4 section of the project:

- in Balıkesir: 1 specie
- in Bilecik: None
- in Bursa: 1 specie
- in Çanakkale: None
- in Edirne: 1 specie
- in Eskişehir: None
- in Kütahya: None

Table 3.2.5.2 Birds in LOT 4

Order	Family	Species	Common name	IUCN Red List category	RDB	Reason for inclusion / exclusion in SCC list	Listed as SCC (Yes/No)	Potential / Observed
FALCONIFORMES	ACCIPITRIDAE	*Aquila clanga*	Greater Spotted Eagle	VU	B.1.2 (CR)	Limited range in the European side of Turkey, closed to Edirne as breeding	Y	Observed

CICONIIFORMES	ARDEIDAE	*Botaurus stellaris*	Great Bittern	LC	A.2 (EN)	This species generally has a wide range, but it is reduced in Turkey to the west side in the study area. Nevertheless its habitat preference is related to reed beds with high restrictive breeding habitat requirements and this habitat is not present along the Project route (local expert opinion)	N	Potential
ANSERIFORMES	ANATIDAE	*Branta ruficollis*	Red-breasted Goose	EN	B.1.2 (CR)	Species considered threatened according to both international and national evaluations	Y	Potential
FALCONIFORMES	FALCONIDAE	*Falco cherrug*	Saker Falcon	EN	A.1.2 (CR)	Species considered threatened according to both international and national evaluations	Y	Potential
FALCONIFORMES	ACCIPITRIDAE	*Neophron percnopterus*	Egyptian Vulture	EN	A.3 (VU)	Species considered threatened according to both international and national evaluations	Y	Observed
GRUIFORMES	OTIDIDAE	*Otis tarda*	Great Bustard	VU	A.2 (EN)	Present as breeding and non-breeding in Turkey, generally it is little agile	Y	Potential

ANSERIFORMES	ANATIDAE	*Oxyura leucocephala*	White-headed Duck	EN	A.2 (EN)	Species considered threatened according to both international and national evaluations. This species could be observed in Manyas and Mogan Lake, which are far away from the project route (local expert opinion)	N	Potential
PASSERIFORMES	SITTIDAE	*Sitta krueperi*	Krueper's Nuthatch	NT	A.1.2 (EN)	This species has wide distribution range therefore it is not regarded as SCC (local expert opinion)	N	Potential
PICIFORMES	PICIDAE	*Dendrocopos leucotos*	White-backed Woodpecker	LC	A.1.2 (CR)	Scattered distributed in Turkey as resident in forests which represents a limited extension in the study area This species use mixed woodlands on northern and southern parts of Turkey, there is no preferred habitat for breeding by this species along the Project route (local expert opinion	N	Potential

Reptiles

As it is mentioned in ESIA Report (Part 7.3.2.7 of Chapter 7), and also in BAP (Section 2.1.2.2), there is not any SCC identified along the pipeline route of the project for the following provinces.

- in Balıkesir: None (acc. to literature studies)

- in Bilecik: None (acc. to literature studies)

- in Bursa: None (acc. to literature studies)

- in Çanakkale: None (acc. to literature studies)

- in Edirne: None (acc. to literature studies)

- in Eskişehir: None (acc. to literature studies)

- in Kütahya: None (acc. to literature studies)

Amphibians

As it is mentioned in ESIA Report (Part 7.3.2.8 of Chapter 7), and also in BAP (Section 2.1.2.2), there is not any SCC identified along the pipeline route of the Project for the following provinces.

- in Balıkesir: None (acc. to literature studies)

- in Bilecik: None (acc. to literature studies)

- in Bursa: None (acc. to literature studies)

- in Çanakkale: None (acc. to literature studies)

- in Edirne: None (acc. to literature studies)

- in Eskişehir: None (acc. to literature studies)

- in Kütahya: None (acc. to literature studies)

Invertebrates

As it is mentioned in ESIA Report (Part 7.3.2.9 of Chapter 7), and also in BAP (Section 2.1.2.2), there is not any SCC identified along the pipeline route of the Project for the following provinces.

- in Balıkesir: Not observed during field studies

- in Bilecik: Not any target species acc. to literature analysis

- in Bursa: Not any target species acc. to literature analysis

- in Çanakkale: None observed during field studies

- in Edirne: None observed during field studies

- in Eskişehir: None acc. to literature analysis

- in Kütahya: None acc. to literature analysis

3.7 **Freshwater and Aquatic Vegetation**

As it is mentioned in ESIA Report (Part 7.3.2.4 of Chapter 7), and also in BAP (Section 2.1.2.2), there is not any SCC identified along the pipeline route of the Project for the following provinces.

- in Balıkesir: None acc. to literature analysis

- in Bilecik: None acc. to literature analysis

- in Bursa: None acc. to literature analysis

- in Çanakkale: None acc. to literature analysis

- in Edirne: None acc. to literature analysis

- in Eskişehir: None acc. to literature analysis

- in Kütahya: None acc. to literature analysis

3.8 Marking out Sensitive Receptors for Avoidance

CONTRACTOR will identify sensitive and conservation areas with reference to BAP and ESIA;

During ecological surveys, sensitive flora areas and mature trees will be demarcated by CONTRACTOR in agreement and collaboration with the local forestry department for avoidance as agreed with EPCM. This will be done by using appropriate signboards/strips in the normal working width of the pipeline RoW is 36 meters.

- CONTRACTOR will at a minimum comply with working widths as specified in the BAP to reduce ecological impacts.
- CONTRACTOR will plan facilities and work areas to minimise the area to be cleared to that strictly necessary for the safe construction and operation of the Project.
- CONTRACTOR will consider the extent to which the working width/area and the width of any necessary access roads can be reduced without compromising safety.
- To facilitate the physical avoidance of sensitive areas, CONTRACTOR will clearly delineate the RoW, access roads and facility boundaries in accordance with the precise route alignment and site plans.
- Notices and signs will be erected and maintained by CONTRACTOR to indicate the location of sensitive areas within the approved footprint (e.g. watercourses, ecologically sensitive and protected areas).
- Workers will be made aware of the location of sensitive habitat and species in the vicinity of work camps or the RoW and facility construction sites. Workers will not be accessing any areas outside of the RoW regardless if they are sensitive or not.
- Entire RoW boundaries will be delineated. Agricultural, pasture land and meadows will be delineated via stakes/pegs. Forested and scrub areas will be delineated via flagging.
- Any required additional access routes or additional project areas will be done via the Permitting.

3.9 Seeds and Bulbs Collection

The collection of seeds and bulbs will be carried out between the dates specified in BAP (CIN-REP-ENV-GEN-017):

The preferred method for seed collection for herbs is collecting the ripe seeds by hand from existing herbs.

Seeds Collection;

- CONTRACTOR's Biologist / ecologist will collect the seeds and bulbs in cloth bags and will take the camp site, defined storage area in the camp daily. A method statement will be prepared prior to the start of the clear and grade activities, for the collection, storage and transportation of seeds and bulbs.

The collected seeds will be placed in 10 x 25 cm canvas bags and stored in a ventilated, cool place.

- The collected seeds then will be sent to Ministry of Agriculture's seed gene banks in Ankara and vegetative propagules will be used in order to start an ex situ cultivation for the reintroduction of

populations in suitable habitats within the species range. Seed transportation and providing the records will be responsibility of CONTRACTOR's biologist/ ecologist.

Bulbs Collection;

- SCC bulb collection will be done manually prior to top soil stripping as the heavy machinery will damage the bulbs and the bulbs will lose their ability to germinate.
- The ideal time for bulbs to be collected is August, as they would have stored the necessary nutrients for the germination in the spring. There is no defined period for bulb collection or any defined bulbous SCC. Expert opinion of field biologist/ecologist will be used for determining suitability of state of bulbs in any encountering on the RoW .
- The body will be cut off from the bulb and the bulbs will be stored in the shade. These will not be stored in bags as they will rot. The preferred replantation time is autumn for bulbs. The trees will be felled along the pipeline RoW direction after agreement and collaboration of local forestry department and after obtaining permits, while shrubs and grass species will be removed by scraping.

The time and KPs of the species of which seeds and bulbs collected are given in the BAP (CIN-REP-ENV-GEN-017).

Records of seed and bulb collection will be made available for EPCM / TANAP review.

4 AVOIDANCE AND MITIGATION

Mitigation measures will be taken to minimize and avoid of potential effects that can occur during construction on wildlife, terrestrial species, aquatic environment, topsoil and crossings, will be announced.

4.1 Management of Impacts on Soil and Landscape

The following management plans include the mitigation measures for the management of the impacts on soil;

- Pollution Prevention Plan (PLK-PLN-ENV-PL4-005)
- Erosion, Reinstatement and Landscaping Plan (PLK-PLN-ENV-PL4-002)
- Waste Management Plan (PLK-PLN-ENV-PL4-006).

The following table summarizes the mitigation actions for the management of the impacts on soil during land preparation and construction phase:

Table 4.1.: Summary of Management of Impacts on soil and erosion capability during Construction

Potential ımpacts	Loss of soil structure, quality, and capability, Slope instability, soil erosion, changes in soil chemistry, changes to local natural drainage patterns, Loss of unique soil and terrain units or that potentially support rare plants or plants of ethno-botanical importance, Soil contamination due to spills, Soil contamination due to the generation and / or mishandling of waste, Indirect sedimentation into surface water bodies and watercourses due to erosion,

	Changes in local flora due to changes in soil capability
Performance Objectives	Maintain soil structure, quality and capability Maintain slope stability Prevent soil erosion Maintain natural drainage patterns Preserve unique soil and terrain units or units that potentially support rare plants or plants of ethno-botanical importance Prevent soil contamination by spills Prevent soil contamination due to generation and / or mishandling of waste. (as per Waste Management Plan) Preserve the local flora
Standard Mitigation Measures	Disturb soils only within the designated right of way (ROW) working strip and additional work areas, and new access roads Minimize the development of new access roads Reduce construction work areas where practical for site conditions, particularly in areas which are unique or which support rare habitats/species. Strip and salvage topsoil during construction in accordance with typical drawings Minimise double handling of top soil Incorporate organic material into topsoil which is deficient of organic matter at the time of stripping, clearing and stockpiling to limit wind erosion and compaction and to improve water-holding capacity Prevent vehicle travel on the pipeline ROW as much as practical during reclamation and operation to allow vegetation to establish See Pollution Prevent Management Plan and Emergency Response Plan to prevent soil contamination by spills See Waste Management Plan to prevent soil contamination by waste production. Wastes to be handled as a minimum to Turkish legislation project standards Plan construction to limit the time required from topsoil stripping until reinstatement Use measures to prevent mixing of topsoil with subsoil (including use of geotextile where required e.g. at restricted spaces) Erosion, Reinstatement and Landscaping Plan will include the details of the mitigation measures against impacts on soils with agricultural potential Apply temporary erosion control methods (e.g. slope breakers) and establish proper drainage channels. Conduct grading, contouring and the maintenance of slope lengths and slope gradient to reduce water and wind erosion during construction Regulate surface water drainage to prevent erosion and sedimentation during construction by using and maintaining erosion and sediment control structures Monitor any trench dewatering efforts to ensure that soil erosion is not occurring at the pump outlet. Mitigate by installing energy dissipation works at pump outlet. Maintain surface water drainage patterns using appropriately designed, installed and maintained drainage structures (e.g., culverts, ditches) Minimize soil handling activities during high wind conditions to limit soil loss from wind erosion. If soil handling must occur during high wind conditions limit the time between stripping and replacement and consider slightly compacted stockpiles to prevent wind erosion Recontour the trench and graded areas to match natural contours, and replace topsoil evenly over disturbed areas

	In areas where subsoil has been excessively compacted, de-compact the soil mechanically (e.g., "rip" the subsoil) prior to recontouring Apply bio-restoration procedures to establish the original vegetative cover Revegetate disturbed areas and/or use and maintain surface treatments (e.g., erosion and sediment control structures) to limit water and wind erosion of soil Re-use of excess soil and materials along the ROW/minimize material/aggregate resourcing from quarries/borrow pits (e.g. by using padding machines) Apply special soil handling procedures under frozen conditions Once the construction works are completed the stripped topsoil should be spread back homogeneous over the area and revegetated. For the draining of the groundwater and surface water closed and open drainage systems will be applied at the areas with drainage problems in order to prevent and/or minimize the risk of erosion. After then, erosion control measures such as the examples given below will be taken; • Diversion Channels, • Slope Breakers, • Jute Matting, • Hydro-seeding, • Gabion wall applications, • Podium terrace applications Erosion, Reinstatement and Landscaping Plan will include the details of the mitigation measures against impacts on soils with erosion potential Fuels, greases and chemicals will be stored in tightly sealed containers that are clearly labelled; There will containment bunds or spill trays for the storage of the hazardous material All the fuel, grease and chemical storages will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir All vehicles, equipment and installations will be checked for any fuel and grease leakage before use and will be regularly monitored for leaks Maintenance procedures in line with available manufacturing requirements will be in place for all machinery and equipment Maintenance activities (including fuelling and re-fuelling) will be at designated areas selected to be away from environmentally sensitive areas (i.e. water courses, high groundwater table and such) Adequate amount of appropriate absorbents be in place in "designated maintenance area" in order to handle with minor leakages maintenance or fuelling activities

	Taps and valves will be checked regularly for signs of wearing; and be securely closed and locked when they are not in use All the equipment and storage areas will be secured properly with safety fences; and gateways will be locked in order to prevent pollution which may arise from violent acts and theft Site personnel will be trained related to dissemination response and use of dissemination response equipment and also carry absorbents in their vehicles The good housekeeping at camps, construction areas and at locations where construction related activities take place will be in in place Pollution Prevention Plan will be produced including the mitigation measures against soil pollution.
Specific Mitigation measures	Implement the requirements of the bio-restoration typicals (i.e. BCH-DID-PPL-PLG-092 Typical River Crossing Reinstatement - Type I Bio-Restoration BCH-DID-PPL-PLG-093 Typical River Crossing Reinstatement - Type II Riprap)
Performance Indicators	Construction monitoring reports indicate appropriate soil handling was conducted Records of excessive slope instability or soil erosion Records of flooding or altered drainage patterns by the ROW or access roads Records of soil contamination remaining after construction Amount of removed or replaced soil Record of deviations from the delineated ROW and additional work areas
Further Planning and Monitoring	Monitor specific soil handling and mitigation during construction in unique or sensitive areas Regularly inspect the stability of slopes and any soil and terrain units that are considered to be unique Inspect and maintain erosion and sediment control structures during and after construction; remove structures that are no longer required Implement a post-construction monitoring programme to assess soil structure and quality that can affect its capability for revegetation by locally native species Assess the revegetation and stability of slopes and any soil and terrain units that are considered to be unique Implement further mitigation and corrective actions as required

Topsoil

- CONTRACTOR biologist/ecologist will determine the depth of topsoil that will be stripped before construction in accordance with stated in BAP. If there is no topsoil stripping depth constraints and topsoil depth is 30cm or more, topsoil will be stripped to 30cm. If it is less than 30cm, it will be stripped to full depth unless there is a constraint in BAP. If required, extra land will be planned for stockpile laydown areas if the ROW in not sufficient for subsoil - topsoil stockpiles
- Topsoil will be carefully stripped and stored separate during the construction period,
- Topsoil storage will be in compliance with the ESIA Report, BAP
- Topsoil will be stored in construction corridor where slope is max 5%,

- Topsoil will be stored in a stockpile not more than 2.5 m high with side slopes <45°, drained with open ditches and 1 m high in critical habitats according to BAP,
- In areas of very limited working space, topsoil stockpiles of up to 3 m high and <45° slope may be permitted with EPCM's approval.
- Topsoil will be stored where it will not be compacted or contaminated by vehicles and will be stored in a manner that will minimize its loss and/or degradation,
- Topsoil will not be mixed with subsoil and will be stored on the opposite side of the RoW to subsoil; other than in restricted areas where mixing will be prevented by physical means, e.g. geotextile sheeting.
- The surface of the stockpile will be lightly compacted, as necessary, to restrict rainfall penetration, maintain aerobic conditions, and will be protected from flooding by placing berms around the outside,
- Topsoil will never be used as padding material or other purposes except returning back to original locations for reinstatement,
- Erosion control measures will be installed as necessary to prevent loss of topsoil from the storage area and surface water contamination (e.g. temporary seeding, silt fence),
- Topsoil and subsoil piles will be free draining and gaps will be left in linear topsoil piles with drainage ditches implemented at the toe of the stockpiles,
- Soil handling under wet conditions is to be avoided other than in areas having obviously sandy soils. If soil has to be excavated in wet or frozen conditions, the soil will be stockpiled and compacted when the spoil has dried out in order to preserve the soil structure,
- Topsoil cannot be stockpiled over subsoil on RoW or any other extra lands and camp sites or vice versa.

4.2 **Management of Impacts on Water Courses**

The following management plans include mitigation measures for the management of the impacts on watercourses:

- Pollution Prevention Plan
- Waste Management Plan

There will be 684 watercourse crossings as mentioned in Appendix 1.2 B3 of ESIA. 15 of them are major river crossings and list of them are given in Appendix-G for Lot 4. Site specific working method statements will be developed for each medium (5- 30m width) and major (>30m width) water crossing. A general working method statement will be prepared for minor watercourse (less than 5m width) crossings.

These method statements will include procedures for protecting watercourses against pollution, reduction of watercourse quality, minimising sedimentation, preventing negative ecological consequences, minimising impacts on bank side vegetation, and in ESIA Appendix 5.1 stated other potential impacts and ensuring reinstatement of watercourses to their pre-construction state. Water Crossing method statements will be prepared and submitted to EPCM/ Client for approval prior to commentcement of activities.

Watercourse crossings will affect the spawning period of fish. The spawning period is between April and June. Construction planning will be done by complying with this period to minimize the impacts.

CONTRACTOR will minimize negative impacts by taking the following measures along watercourse crossings,

and measures stated in BAP and in ESIA Appendix 5.1;

- Construction activities at watercourse crossings will occur over a limited period of time and with the minimum equipment required for safe and efficient working,
- Vegetation clearance along river/stream banks will be minimised and mature trees will be left in place wherever possible,
- Watercourse crossings will be done as per the application drawings,
- Ambient downstream flow rates will be maintained,
- Raised sediment loadings in the river will be minimised. Where there are downstream fisheries farmed or otherwise used by local communities, particular attention to sediment control will be required and an increased level of inspection and monitoring will be implemented,
- Appropriate diversion measures will be installed to ensure fish can pass up and downstream at all times,
- All construction material and structures will be removed from all watercourses once construction has been completed,
- River channels, river beds and banks will be restored to their original state and enhancement measures will be undertaken wherever appropriate,
- River banks and adjacent upland areas will be stabilised immediately after final grading,
- The right of way will be inspected on a regular basis during and after construction and any erosion control measures will be repaired and/or restored as needed,

If the crossing during spawning period is necessary which is upon to approval of Client / EPCM, the following process will be applied by the Contractor;

- Related surveys and assessments will be made to determine the current situation,
- In this assessment, habitat of the crossing points and any deviations from the TANAP BAP will be assessed and evaluated by the Contractor and supporting evidence will be provided to TANAP /EPCM via the deviation requires process' for approval prior to commencement of any activities,
- This assessment will be prepared and evaluation results will be submitted to CLIENT/EPCM for approval.

  After approval of CLIENT /EPCM, the following mitigation measures will be taken by the Contractor;
- No activities should be carried out in the spawning periods (April-June).
- Control sediment release into the river bed should be used appropriate sediment and erosion control techniques (e.g., silt fences) during construction
- Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
- Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.
- Avoid impacts and removal to gravel areas at the crossing.

- Strictly prohibit fishing by project personnel at watercourses
- Implement the special crossing techniques as given in typical drawings for water crossing (Typical Drawings i.e. BCH-DXG-PPL-PLG-001, BCH-DXG-PPL-PLG-012, BCH-DXG-PPL-PLG-014, BCH-DXG-PPL-PLG-015, BCH-DXG-PPL-PLG-019, BCH-DXG-PPL-PLG-020, BCH-DXG-PPL-PLG-'005, BCH-DXG-PPL-PLG-'001, BCH-DXG-PPL-PLG-'002, 'BCH-DXG-PPL-PLG-004, BCH-DID-PPL-PLG-092, BCH-DID-PPL-PLG-093,

The following table summarizes the mitigation actions for the management of the impacts on water courses during land preparation and construction phase:

Table 4.2 Summary of Management of Impacts on Water Courses during Construction

Potential impacts	Changes in turbidity
	Changes in sediment loading
	Introduction of contaminants through mobilization of sediments
	Introduction of contaminants due to storm water runoff
	Introduction of contaminants due to direct discharge
	Introduction of contaminants due to fuel/oil leaks from equipment
	Introduction of contaminants due to spills while refuelling/oiling equipment
	Altered hydrological regime
	Increased bank erosion
	Increased water consumption
	Changes in flow amount
	Loss or destruction of aquatic habitat during crossing construction
	Disruption of important biological processes (e.g., spawning)
	Direct disturbances to aquatic species, particularly to special status species, due to operations
	Increase fish egg mortality due to smothering (sediment loading)
	Decreased productivity (e.g., aquatic macro invertebrates) due to sediment loading and substrate infilling
	Construction of facilities and roads associated with the pipeline
	Increased fishing pressure due to increased access and workforce
Performance Objectives	Minimization of erosion and sediment loading – sediment and erosion control
	Minimization of uncontrolled runoff – sediment and erosion control
	Prevent water contamination using best practices
	Minimization of disturbance to watercourse bed and banks
	Restoration of aquatic and riparian habitat at watercourse crossing locations
	Minimization of site disturbance by using existing disturbed/cleared sites
	Minimization of water use for project related activities
	Minimization of water crossings
	Minimization of area disturbances
	Minimization of access opportunities for anglers per local community consultation
	Discharge of wastewater to surface water resources after treatment in compliance with the applicable regulatory requirements (Ref. ESIA Report Chapter 4 and Chapter 8.1.9 Chapter 11 and Appendix 4.7)

Standard Mitigation Measures	Avoid vehicle crossings across the watercourse to the extent practicable
	Limit construction activities to periods of low flow to the extent practicable, when sediments are minimal
	Design and install buried pipeline and road crossings in accordance with applicable best practices
	Use either trenchless or isolation methods as required by ESIA and engineering specifications
	Ensure all equipment working in or near watercourses is clean and free of fluid leaks
	Use appropriate sediment and erosion control techniques (e.g., silt fences) during construction
	Restore and stabilize channel banks immediately after backfilling to prevent bank erosion
	Use clean, native materials during bed and bank restoration works
	Use only existing roads, designated access roads and previously disturbed/cleared sites for Project facilities
	Use common corridors for both pipelines and roads in order to minimize area disturbances
	Monitor watercourse turbidity during construction and take corrective actions where required
	Prevent turbid water from re-entering the watercourse using natural or mechanized filtration processes
	Plan hydrostatic testing so that the opportunities for water re-use are maximized
	Separate domestic wastewater from hazardous, oily water discharges
	Avoid construction of facilities in a manner that avoids natural channel features
	Minimize gravel entering streams during road maintenances
	Install and maintain appropriate erosion control measures such as silt fences around all riparian disturbance areas and watercourse crossings
	Implement a re-growth of riparian vegetation program
	Record all volumes of water withdrawal from natural resources for project related activities for demonstration of no exceedance of the allowance
	Obtain applicable water abstraction permits
	Install temporary vehicle crossings/bridges
	Restrict fuelling/refilling, chemical handling activities in close vicinity of the watercourses
	Plan construction to consider seasonal sensitivities
	Strictly prohibit fishing by project personnel at watercourses
	Implement special construction mitigations to protect sensitive species
	Apply Waste Management Plan and Pollution Prevention Plan
	Measures to minimise scour and reduce sediment load will be implemented at locations where hydrotest water is discharged to watercourses and discharge velocities have the potential to create erosion (e.g. controlled rate of discharge and use of energy dissipaters, displacement of geotextile mats or other physical erosion prevention measures). However, at locations where hydrotest water discharge causes erosion, eroded areas will be reinstated

	With regard to the water demand for the hydrotesting it should be evaluated the possibility of water re-use where practicable
	Water conservation initiatives will also be undertaken with the aim to limit the water consumption during the construction activities, like the water use for mitigation of dust suspension (e.g. by means of specific staff training to a rational use of water, commensurate with the actual needs)
	The construction traffic will cross watercourses possibly via a culvert, which will be sized so as not to restrict the flow in the watercourse and allow fish and other aquatic organisms to pass through
	Construction of the surface water crossings will seek to ensure minimal impacts from interrupting river flow by identifying downstream users and determining their river water supply needs and by using measures such as channel diversions to ensure minimal interruption to flow.
	Visual monitoring of turbidity will be undertaken at river crossings while works are being undertaken at that river
	Implement measures against sedimentation
Specific Mitigation Measures	Trenchless design for, Koca Cayı -Manyas (fish species *Cobitis puncticulata* which is a species critical endangered according to IUCN living only here in the world) will be considered Implement the special crossing techniques as given in typical drawings for water crossing (Typical Drawings i.e. BCH-DXG-PPL-PLG-001, BCH-DXG- PPL-PLG-012, BCH-DXG-PPL-PLG-014, BCH-DXG-PPL-PLG-015, BCH- DXG-PPL-PLG-019, BCH-DXG-PPL-PLG-020, BCH-DXG-PPL-PLG-'005, BCH-DXG-PPL-PLG-'001, BCH-DXG-PPL-PLG-'002, 'BCH-DXG-PPL-PLG- 004, BCH-DID-PPL-PLG-092, BCH-DID-PPL-PLG-093,
Performance Indicators	Results of monitoring program for changes to water quality or quantity
	Results of monitoring program for fisheries and aquatic resources loss
	Recorded sediment loading due to project related activities
	Amount of water consumption records during hydrostatic testing
	Results of education program in increasing awareness and minimizing negative effects
	Records of public access and use of watercourse crossing locations
Monitoring and further Work	Implement monitoring program to assess the water quality (including sediment quality, turbidity, benthos, and fish)
	Conduct regular inspection of watercourse bed and banks to assess, and, correct, restoration efforts

4.3 **Management of Impacts on Groundawater**

The following management plans include mitigation measures for the management of the impacts on groundwater:

- Pollution Prevention Plan
- Waste Management Plan

The following table summarizes the mitigation actions for the management of the impacts on groundwater during land preparation and construction phase:

Table 4.3: Summary of Management of Impacts on Groundwater Resources during Construction

Potential impacts	Loss of groundwater quantity due to groundwater withdrawal Groundwater contamination due to spills or releases Groundwater contamination due to the generation and /or mishandling of waste
Performance Objectives	Minimize the withdrawal of groundwater Prevent groundwater contamination by spills or leakages Prevent groundwater contamination by the generation and / or mishandling of waste Prevent groundwater contamination by the utilization of sub-standard well drilling practices
Standard Mitigation Measures	Water conservation initiatives will be undertaken with the aim to limit the potable water consumption (e.g. by means of specific staff training to a rational use of water resource). Water quality and sustainability will be monitored periodically to confirm that the supply meets the needs of the project and does not impact adversely on other known users. Develop Spill Response Procedures for strategies to prevent spills or releases Develop Waste Management Plan for strategies to prevent the generation and / or mishandling of waste Use best practices for well drilling, well completion, and well abandonment Plan hydrostatic testing so that the opportunities for water re-use are maximized: First priority is to use surface water for hydrotesting, if this is not possible groundwater resources can be used with permission and ensuring no impact on public use and environmental sensitivities Obtain all required permits to use groundwater resources Maintain natural drainage patterns during construction Record all project related groundwater withdrawal Implement well drilling best practice training programme for all project well drillers
Specific Mitigation Measures	With regard to the areas in which high impacts have been individuated, as the excavation and excavation could modify groundwater flow patterns, an understanding of hydrogeology settings and groundwater flows in the aquifer with shallow groundwater to be crossed should be addressed. In alleviating drainage problems, proper considerations should be taken of the placement of drainage systems and where the cuts and fills have the least detrimental effects. With regard to the groundwater resources useful for the potable water supply, an accurate hydrogeological study should be carried out for the assessment of the most effective means for meeting the water demand, in terms of potential yield of the aquifer and the deployable output of the source as constrained by, e.g.: water quality, water treatment system capacity, limitations of pumping plan. The hydrogeological study will address the choices to undertake for a sustainable water use to avoiding over exploitation with detrimental

	consequences by the removal of water from long term storage in the aquifer or decrease in natural discharge from the aquifer (e.g. depletion/cut off of the discharge from springs, and taking into account the potential interference with any existing groundwater supply wells, e.g. for irrigation or potable use
Management Actions & Strategies	Develop Spill Response Procedures for strategies to prevent spills or releases Develop Waste Management Plan for strategies to prevent the generation and / or mishandling of waste Use best practices for well drilling, well completion, and well abandonment Plan hydrostatic testing so that the opportunities for water re-use are maximized: First priority is to use surface water for hydrotesting, if this is not possible groundwater resources can be used with permission and ensuring no impact on public use and environmental sensitivities Obtain all required permits to use groundwater resources Maintain natural drainage patterns during construction Record all project related groundwater withdrawal Implement well drilling best practice training programme for all project well drillers
Performance Indicators	Results of groundwater monitoring programmes for groundwater quality decrease Results of groundwater monitoring programme for groundwater quantity Water volume used during hydrotesting
Monitoring and further Work	Implement Monitoring programme to record groundwater withdrawal during construction and to monitor groundwater quantity and quality following construction

4.4 Management of Impacts on Flora and Fauna

Project has defined seasonal sensitivities for the construction activities to be performed at ecologically sensitive areas. CONTRACTOR will strictly follow the defined seasonal constraints defined in BAP and Appendix 5.1 of ESIA. The defined seasonal sensitivities are given in the following table:

Table 4.4 Seasonal Constraints

Construction windows													
		J	*F*	*M*	*A*	*M*	*J*	*J*	*A*	*S*	*O*	*N*	*D*
Mammals SCC													
Myomimus roachi	Roach's Mouse-tailed Dormouse												
Spermophilus citellus	European Ground Squirrel												
Birds SCC													
Aquila clanga	Greater Spotted Eagle												
Branta ruficollis	Red-breasted Goose												
Falco cherrug	Saker Falcon												

Neophron percnopterus	Egyptian Vulture													
Otis tarda	Great Bustard													
Reptiles SCC														
Amphibian SCC														
Invertebrates SCC														
Pimelia testudo	-													
Pygopleurus kareli	-													
Osmoderma lassallei	-													
Hilara truva	-													
Muzimes n. sp.														
Dioctria n. sp. 1														
Fish SCCs														
Anguilla anguilla	European eel													
Oxynoemacheilus	-													
Cobitis fahireae	Aegean spined loach													
Cobitis puncticulata	-													
Macroinvertebrate SCC														
Flora SCCs														
Ferulago silaifolia	-													
Onosma briquetii	-													
Alyssum dudleyi	-													
Alyssum niveum	-													
Cephalaria aytachii	-													
Dianthus goekayi	-													
Gypsophila	-													
Scabiosa hololeuca	-													
Astragalus densifolius	-													
Erodium sibthorpianum	-													
Salvia tchihatcheffii	-													
Thymus leucostomus	-													
Corydalis wendelboi	-													
Verbascum sp. nov.	-													

NOTE: The construction windows here reported represent the suggested critical periods (orange cells) for the identified Species of Conservation Concern (SCCs). These periods will to be confirmed through the preconstructions surveys, to be confirmed as the seasonal constraints. It has to be highlighted that site-specific conditions (e.g. light, humidity) may conduct to time variations. Wildlife and Terrastrial Species

- Pipes which are stored at site must be kept capped to prevent animals' entry into them,
- Topsoil storage and pipe strings will be designed to allow the passage of wild animals,
- The Project staff will not be permitted to hunt and gather wild plants,

- Breeding period of animals will be considered during construction planning (blasting will not be allowed between 15 March and 16 June (migration and breeding season of migrant birds),
- In order to minimize the noise impact, vehicle maintenance will be regular and vehicles will not be used unnecessarily. While working near sensitive areas, noise barriers utilization is required,
- If there is a wildlife area near the access roads, subject area will be marked to eliminate the possibility of an accident,
- If there is a wildlife crossing in project ROW, bumps and speed limit signs will be placed before the crossing,
- Dust suppression will be done by watering during the construction activities.
- To prevent falling of wild and domestic fauna on open trenches, working time will be kept as short as possible in these areas,
- Biologist / Ecologist and Environmental Inspectors will inspect the trench daily for trapped fauna

Aquatic Environment

- CONTRACTOR will preserve aquatic habitats, minimise diversions, maintain uninterrupted water flow and preserve the landscape in river crossing areas.
- Construction works will be conducted during the time when flow is low, if possible and will be conducted in a limited timeframe. Where possible,
- CONTRACTOR will construct small river crossings when streams are dry; and where this is not possible,
- CONTRACTOR will maintain downstream water flow while the crossing is constructed. If techniques using dams and pumps are used to maintain the water flow,
- CONTRACTOR will install meshes upstream and downstream of the works area to prevent the pump from harming fish, larva (fry) and other aquatic organisms.
- CONTRACTOR will monitor the turbidity during the construction activities as described in CONTRACTOR's Pollution Prevention Plan.
- Wetlands and rivers feeding ecologically sensitive areas won't be used as the vehicles and construction equipment are being washed, are parked or standby. The 30 m buffer zone at water crossings will be considered at every construction activity.
- CONTRACTOR will minimize riparian vegetation removals. If removal is necessary, it is recommended to use proper clearing techniques and protect retained vegetation. Riparian vegetation will only be cleared once the river crossing is ready for construction.

Prevention of build-up of alien invasive species

Alien species can have several negative effects on the natural flora, fauna and ecosystems components through mechanisms like competition, predation and parasitism and in some case have negative effects on local economic activities (agriculture, fishing, forestry, tourism) and ecosystem services.

Once stripped, topsoil stacks could become colonised by semi-ruderal species. If left untreated, these species

could build up in the seedbank and limit the success of biorestoration. CONTRACTOR will;

- Prevent the build-up of alien invasive species on topsoil stacks, monitor stockpiles and or reinstated RoW to identify alien species,
- Should invasive weeds prove to be a problem in sensitive areas and sites where rare plants are located or show signs of invading adjacent areas, CONTRACTOR will use appropriate control methods to suppress their growth and expansion. Treatment may include hand-pulling, spot-treatment or weedwiping with herbicide.
- Herbicides will be considered as a secondary option, and even then not in the vicinity of relocated rare plants, and only in accordance with the following Word Bank Pest Management criteria: *They must have negligible adverse human health effects; *They must be shown to be effective against the target species; *They must have minimal effect on non-target species and the natural environment.

The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural enemies; and their use must take into account the need to prevent the development of resistance in pests.

Tree Felling

The removal of natural vegetation is related to the site preparation phase prior to construction, and it is expected to be complete along the work strip in the RoW and in the areas of construction of the AGIs.

Typically trees are felled along the pipeline RoW direction, while shrubs and grass species are removed by scraping. Prior to the felling of any trees, the trees which are to be removed and which are to be protected will be agreed by CONTRACTOR and local authorities. CONTRACTOR and the local forestry department will suitably mark the trees accordingly and will ensure that no damage is caused throughout duration of the Work.

- Removal and storing of timber and roots after felling will be conducted according to the requirements of local authorities,
- It will be one tree replaced for one tree cut.
- CONTRACTOR will get required agreements from Local Authorities before cutting trees, which are under protection,
- Cut the tree will be kept registers as in indicated in the register in Appendix, records will be kept for EPCM / TANAP to review. The number and type of vegetation removal will be provided monthly to EPCM as a KPI.

Besides, site specific “Method Statement for Reforestration” for the KPs of which pre construction surves completed will be prepared and submitted for approval in compliance and as per project requirements.

4.5 Management of Impacts on Cultural and Historical Resources

Cultural Heritage Managemetn Plan will be prepared and submitted by the Contractor for approval. This plan will give information about the sites which have cultural and archeological importance and mitigation measures to eliminate and/or minimize the impact on these areas.

The following table summarizes the requirements for management of impacts on the cultural and historical elements during construction.

Table 4.5.: Summary of Management of impacts on Historical / Cultural Resources

Potential Impacts	Unintentional disturbance of known sites with historical or cultural value Unintentional disturbance of previously undiscovered sites with historical or cultural value No disturbance of known sites with historical or cultural value due to project
Performance objectives	Minimise disturbance of previously undiscovered sites with historical or cultural value due to project activities No increase of public access to sites of historical or cultural value due to project related development Map all previously recorded sites of historical or cultural value prior to construction so that approximate locations are known to project contractors and personnel Ensure that qualified specialist (e.g., archaeologist) are onsite during construction in the vicinity of any previously recorded historically or culturally important sites
Standard Mitigation Measures	Archaeological supervision shall be provided in accordance with Cultural Heritage Management Plan. Educate project workforce on the recognition of sites with historical or cultural value Apply Chance Find Procedures in case archaeological findings/bones are encountered; Cease work upon the unintentional chance discovery find of any sites with historical or cultural value and work will not commence again without direction from a qualified specialist Use only designated or approved access roads to project ROW or other construction facilities
Specific Mitigation measures	Refer to Section 8.3 and 8.6 of ESIA and Cultural Heritage Management Plan (App 5.8 of ESIA)
Performance Indicators	Records of disturbances to sites of historical or cultural value during project construction Records of public access to sites of historical or cultural value due to project
Monitoring and further Work	Implement monitoring of construction activities by a qualified specialist during project construction in locations of historically or culturally important sites

4.6 **Management of Impacts on Air Quality**

The impact on the air qualiy during land preparation and construction pahse will be mainly the dust resulting from construction activities and the gasous emissions from the construction machinary.

The following management plans will adress the mitigation measures to eliminate or minimize the impacts on the air quality:

- Traffic Management Plan
- Pollution Prevention Plan

The following tables summairzes the requirements of the management of impacts on air quality.

Table 4.6: Summary of Management of impacts on Air Quality

Potential impacts	Generation and dispersion of dust by earthmoving, material handling and construction vehicle movements Generation and dispersion of gaseous and particulate emissions from machinery, plant and equipment during construction
Performance Objectives	Minimize dust arising from construction activities Minimize vehicle and equipment emissions arising from construction activities Maintain compliance with Workplace Health and Safety Requirements
Standard Mitigation Measures	Implement dust control and dust suppression techniques Maintain roads on a regular basis to prevent excessive dust generation Use low emission vehicles wherever possible Use vehicles that were checked legally for their exhaust emissions. Restrict third party vehicle access to project related activities Implement regular maintenance programmes for vehicles and equipment Restrict excessive idling of vehicles or equipment Enforce speed limits along access roads and ROW
Performance Indicators	Records of magnitude of dust releases Receipt of dust complaints Results of air quality monitoring programmes for effects to air quality resulting from project related activities
Monitoring and further Work	Implement air quality monitoring programmes to assess the air quality during the Project development Investigate any dust or air quality complaints that arise from construction activities

4.7 Management of Impacts on Noise and Vibration

The sources of the noise and vibration will be the construction machinery and specific construction activities as blasting.

The following management plans will adress the mitigation measures to eliminate or minimize the impacts of noise and vibration:

- Traffic Management Plan
- Pollution Prevention Plan

The following tables summairzes the requirements of the management of impacts of noise and vibration.

Table 4.7: Summary of Management of Noise and Vibration Impacts

Potential impacts	Disturbances to local wildlife due to the construction operations, particularly during seasons of sensitivity Hearing damage to human receptors Noise disturbance to non-project related human receptors
Performance Objectives	Prevent disturbances to wildlife Prevent hearing damage to personnel working on-site or other human receptors
Standard Mitigation	Maintain equipment on a regular basis

Measures	Use quieter methods and equipment when possible Replace or repair parts generating excessive noise Restrict excessive idling of project related equipment and vehicles Maintain project access roads to reduce noise associated with vibration and vehicle noise Deploy temporary noise barriers near sensitive areas Do not locate project related noise emitting infrastructure near areas inhabited by human receptors Conduct project construction during daylight hours and not during normal sleeping hours
Management Actions & Strategies	Maintain equipment on a regular basis Use quieter methods and equipment when possible Replace or repair parts generating excessive noise Restrict excessive idling of project related equipment and vehicles. Maintain project access roads to reduce noise associated with vibration and vehicle noise Consider deploying temporary noise barriers near sensitive areas Do not locate project related noise emitting infrastructure near areas inhabited by human receptors Conduct project construction during daylight hours to the extent practicable and not during normal sleeping hours
Performance Indicators	Records of compliance of construction noise with the accepted limits Records of magnitude of noise emissions Records of noise complaints Reports of disturbances to structures/buildings because of vibration Investigate any noise complaints that arise due to Construction Pre-construction integrity monitoring for structures/buildings which are in close vicinity of the project activities
Monitor and further work	Cooperate and contribute, as requested by the TANAP, to the Implementation of wildlife monitoring programmes for noise disturbance throughout the construction phase. Conduct periodic acoustic testing of active work areas to ensure noise levels are maintained within acceptable limits

4.8 Management of Impacts on Hydrostatic Testing

The pipeline will be hydrostatically pressure tested to ensure that there are no leaks. All hydrotest abstractions and discharges will be identified in advance of testing and will be licensed in accordance with the appropriate permitting requirements. In the very unlikely event that leaks occur, an appropriate clean up response will be put into place.

Hydrostatic testing will be planned so that the opportunities for water re-use are maximized. First priority is to use surface water for hydro testing, İf this is not possible (i.e. quality of the surface water doesn't meet the requirements as a result of analysis results in the absence of a surface water), groundwater resources can be used with permission and ensuring no impact on public use and environmental sensitivities The pipeline and storage tanks will be hydrostatically pressure tested to ensure that there are no leaks.

All hydrotest abstractions and discharges will be identified in advance of testing (timing to be advised by EPCM) and will be licensed in accordance with the appropriate permitting requirements. Specific method statements must be generated for hydrotesting activities in detail and these details will be given in Hydrotest Plan to be prepared by the CONTRACTOR and Hydrotest Plan can be executed upon approval of Client

/EPCM. Hydrotest Plan will have information on abstraction amount, flow rate, discharge rate, water quality ad quantity, river's year base min., mean and max flow rates, downstream and upsytream conditions and etc. This report must be comprehensive.

Details concerning hydrostatic testing are given in CONTRACTOR Pollution Prevention Plan (PLK-PLN-ENV-PL4-005). Environmental impacts associated with the abstraction and discharge of test water will be minimized by adoption of the mitigation measures indicated on the subject plan. The details on monitoring (Baseline abstraction/discharge sampling, discharhe waste requirements etc.) will be given in Contractor Environmental and Social Monitoring Plan (PLK-PLN-ENV-PL4-010).

4.9 Management of Impacts on Special Areas

During the pre-construction phase the Contractor will identify all affected areas where rice is farmed. Once rice fields interfering with construction activities are identified, agreed solutions to reduce impacts will be agreed with owners and users.

The articles of Regulation on Conservation of Wetlands will be complied during the activities to be held in borders of Balıkesir Province, Gönen stream, Manyas Bird Lake Buffer Zone, in lake protection band of Çanakkale Province, Biga District Kocabaş Stream, in Wetland Area of Edirne Province, Meriç River and other wetlands and positive opinions of other relevant authorities will be received within legislations. Furthermore, according to Aquatic Products Law numbered 1380, permits required for protection of wetlands and water areas that are or may be located on pipeline route will be obtained

The border between Turkey and Greece is constituted by the Evros River that discharges to the Evros Delta, which is an environmental protected area of international importance (included in the Natura 2000 network and including Ramsar sites).

Since trenchless method will be performed to cross border river, limited disturbance is expected on river ecology and riverbank.

Before the construction activity, the area will be studied in terms of wetlands (e.g. rice fields), ecological sensitivities, groundwater conditions, river base study (quantity and quality), farming activities etc.

According to findings, specific method statment by considering all mentioned subjects will be generated and it is upon to approval of Client /EPCM before construction activities to start.

5 REINSTATEMENT AND BIORESTORATION

Reinstatement will comply with Erosion, Reinstatement and Landscaping Plan (PLK-PLN-ENV-PL4-002). Seeding of the RoW is crucial for successful bio restoration. It is expected that revegetation from the in situ topsoil seed bank, along with augmented seed stock, will allow most areas to recover without additional intervention. Where recovery is not observed, supplemental seeding, planting, and soil replacement will be undertaken. Seeding onto the RoW and work areas will only occur where it is required for erosion control or where it is part of mitigation for the restoration of sensitive habitats. The sensitive areas will be re-seeded as per the BAP.

Biorestoration is the restoration of flora and fauna and the establishment of vegetation cover (post Seeding) to meet the following long term target (taking account of EPCM/TANAP restrictions on planting adjacent to pipelines and the need for vehicular access for pipeline security and maintenance activities) on non-agricultural, temporary areas.

In scope of biorestoration, live specimens of the rare plants (where possible) will be either removed from the

ROW and be translocated to nearby botanical conservation centres for propagation and ultimate reintroduction into their original habitat (ex situ conservation), or will be replanted (in situ). Seeds will also be collected and stored under controlled conditions.

On completion of construction works the seeds will be sown in areas most suitable to their growth and reproduction.

Besides, site specific "Method Statement for Reforestration" for the KPs of which pre construction surves completed will be prepared and submitted for approval in compliance and as per project requirements.

6 MANAGEMENT OF SOCIAL IMPACTS

The main social impacts of the construction activities shall be due to increase of traffic, and increase of risks due to traffic increase as well as possible disputes about land acquisition. Therefore, increase in community relations in another social impacts of the activities. Besides these, positive impacts could also be expected via local employment and local purchase of the goods.

The following management plans will address the mitigation measures to eliminate or minimize the social impacts:

- Community Safety Management Plan(PLK-PLN-SOC-PL4-005)
- Community Relations Management Plan (PLK-PLN-SOC-PL4-002)
- Traffic Management Plan (PLK-PLN-SOC-PL4-004)
- Employment and Training Plan (PLK-PLN-SOC-PL4-003).
- Procurement and Supply Chain Management Plan (PLK-PLN-SOC-PL4-006)

The following table summarizes the requirements for the management of social impacts:

Table 6 Summary of Management of Social Components

Potential impacts	Disturbance on surrounding communities
	Public complaints
	Increased traffic load
	Damages to third party properties; roads & infrastructure
	Increased community expectations
	Community safety risks
	Loss of livelihood
	Interaction of workers with the public
	Labour working conditions
Performance Objectives	Minimize temporary adverse impacts on local communities
	Minimize negative interactions between the workers and the public
	Avoid damages to third party properties, roads and infrastructure.
	Minimize the traffic load generated by the project
	Implement a grievance mechanism and community relations management system
	Training of workers on public relations
	Development of traffic management plans
	Ensure labour welfare at the camps and construction sites
	Public consultation and informative meetings

Standard Mitigation Measures	Compensation measures & methodology
	Maximize local employment
	Maximize local procurement
	Requirements of **Traffic Management Plan** will be followed
	Requirements of **Community Relations Management Plan** will be followed
	Access to utility distribution networks for Project needs will be agreed with affected land owners or land users.
	CONTRACTOR and subcontractors will be required to comply with the Turkish legal requirements and Project commitments.
	The recruitment process will be monitored by third party organizations or institutions to ensure that it is done according to the Turkish legal requirements and Management Plans.
	The requirements in **Employment and Training Plan** and **Procurement and Supply Chain Management Plan** and **Community Safety Plan** will be followed.
	Contractor and subcontractors will have to comply with the Project commitments for their procurement activities.
	Any damage given to irrigation channels will be repaired promptly in accordance with the channel users and relevant authorities.
	Any damage to utility distribution networks will be repaired promptly in accordance with the network owner or operator.
	Campsites will be provided with health facilities equipped to deal with emergency procedures and routine medical operations, so as to avoid pressure on existing healthcare facilities to the extent possible;
	Assessment of all schooling facilities in the AoI will be performed to ensure that Project activities do not limit access to the structures and that disturbance to school activities is avoided; if limitations occurred and disturbance is unavoidable, the Contractors will prepare a site specific risk assessment and will agree with local authorities on alternative solutions;
	Special attention will be paid in the Traffic Management Plan to identify areas where there is a higher presence of children (i.e. schools, school bus stops) to ensure that all necessary mitigation measures are implemented to reduce the risk of road accidents;
	Records of complaints from local communities
	Records of local labour use and procurement
	Records of traffic accident

Performance Indicators	Records of consultation and liaison activities with local communities and authorities
	Records of occupational health cases
Monitoring and further Work	Records of reported grievances from public and workers and the responses

7 LEGISLATION FRAMEWORK

All activities to be conducted during and before construction activities will comply with the Project English ESIA Report (TNP-REP-ENV-GEN-002), Project Turkish ESIA Report (TNP-REP-ENV-GEN-001), ESMPand national and international regulations and requirements

8 TRAINING

Training on environmental issues will be given by Environmental Inspector(s) and environmental team (social team members, archaeologist, soil expert and ecologist) to all personnel to perform activities, whereas training about BAP will be given by Biologist / Ecologist.

The subjects of the trainings to be given are given below;

- General definitions such as flora-fauna, BAP, endemic species, conservation and protection areas.
- Potential project impacts, mitigation measures and applications of these methods,
- Flora and fauna species on RoW,
- Wildlife that can be encountered on row,
- Dead / injured fauna reporting,
- Working within the project Arcafootprint,
- Hunting ban,
- Speed limits in ROW,
- Avoid damage to the wood,
- Impacts on river crossings and mitigation methods.
- Topsoil management,
- Seeds and bulbs collection,
- When will seeds and bulbs to be collected, optimal and require period for collection
- How will they be collected,
- How will they be kept, stored,
- Archaeological aspects,
- Social aspects

Frequency and other details of these trainings will be in compliance with the Environmental and Social Training Plan (PLK-PLN-ENV-011).

Training register form is given in Appendix A of this CIMP.

9 MONITORING

CONTRACTOR's

Biologist / ecologist;

- Will ensure the compliance with BAP and this management plan requirements,
- Will ensure the implementation of mitigation measures,
- Will ensure the implementation of corrective actions,
- Will ensure required marking of sensitive areas,
- Will ensure sedimentation control methods on river crossings,
- Will ensure topsoil stripping and storage applications,
- Will ensure success of translocation of plants,
- Will monitor the success of the Biorestoration,

Environmental ınspector;

- Will conduct daily environmental inspections,
- Will inspect the subcontractors for their environmental point of view,

Soil expert;

- Will monitor topsoil stripping and storage activities,
- Will monitor maintenance, and repair of drainage and erosion control devices
- Will ensure RoW reinstatement aftercare and maintenance

Archaeologist;

- Archaeological monitoring and reporting will be done by archaeologist during all ground disturbance works,
- Archaeologist will liaison with EPCM archaeologist throughout the all ground disturbance works of the project,

There won't be any social monitoring.

Monitoring activities will be conducted in compliance with Pollution Prevention Plan (PLK-PLN-ENV-PL4-005) and Environmental and Social Monitoring Plan (PLK-PLN-ENV-PL4-010). Frequency of the monitoring activities are presented in Environmental and Social Monitoring Plan (PLK-PLN-ENV-PL4-010). TANAP / EPCM or their dedicated third party inspector has a right to monitor & audit.

10 REPORTING

CONTRACTOR's Environmental Manager will submit monthly reports to EPCM with details of the ecological protection and bio-restoration measures that have been implemented and the monitoring inspections that have been carried out, as per the format provided by EPCM given in Appendix-A, B, C, D, E, F and G. Monitoring of these activities will be in compliance with Contractor Environmental and Social Monitoring Plan (PLK-PLN-ENV-PL4-010)

Appendix A - Training Register

APPENDIX A TRAINING REGISTER

TRAINING REGISTER – LOT-4
Reporting Period

Date	Subject	Duration(min)	Location	Attendees (who)	Number of Attendees	Total Manhours

APPENDIX A TRAINING REGISTER

TRAINING REGISTER – LOT-4
Reporting Period

Date	Subject	Duration(min)	Location	Attendees (who)	Number of Attendees	Total Manhours

Appendix B - Fauna Register

APPENDIX B FAUNA REGİSTER

FAUNA REGISTER
SPREAD 7

	Relocated	Injured	Dead
Total this month:			
Total to date:			

Date	Species (Scientific name)	Count	Location of Fauna	Relocated count	Injured count	Death count	Relocation Area	Comments

FAUNA REGISTER
SPREAD 8

	Relocated	Injured	Dead
Total this month:			
Total to date:			

Date	Species (Scientific name)	Count	Location of Fauna	Relocated count	Injured count	Death count	Relocation Area	Comments

APPENDIX B FAUNA REGİSTER

FAUNA REGISTER
SPREAD 7

	Relocated	Injured	Dead
Total this month:			
Total to date:			

Date	Species (Scientific name)	Count	Location of Fauna	Relocated count	Injured count	Death count	Relocation Area	Comments

FAUNA REGISTER
SPREAD 8

	Relocated	Injured	Dead
Total this month:			
Total to date:			

Date	Species (Scientific name)	Count	Location of Fauna	Relocated count	Injured count	Death count	Relocation Area	Comments

Appendix C - Sensitive Area Register

APPENDIX C SENSITIVE AREA REGİSTER

SENSITIVE AREA REGISTER
LOT- 4

KP Start	KP End	ID	Was the no-construction time frame enforced? (if required)	Which seeds where collected?	Date seeds where collected	Amount of seeds collected	Seeds storage location	Date seeds where planted on RoW	Location where seeds were replanted	Which plants/bulbs were collected	Date plants/bulbs were collected	How many plants/bulbs were collected	Plants/bulbs storage location	Date plants/bulbs replanted on ROW during restoration	How many plants/bulbs replanted on Row during restoration	Locations where plants/bulbs were replanted	Date Herbaceous planted where on RoW	Storage location of herbaceous plants collected	Date when herbaceous plants were laid on RoW during restoration	Date topsoil was strigged	Date topsoil was reinstated	Date when rock were collected (30Cm or larger)	Rock storage location	Date rocks were relocated on Row	Inavisive flora species control	Terracin during reinstatement to pevent erosion
1362+917	1363+753	CH58																								
1366+493	1366+692	CH59																								
1372+340	1372+683	CH60																								
1430+920	1432+305	CH61																								

1477+452	1477+833	CH62																							
1491+767	1496+340	CH63																							
1736+000	1738+300	CH64																							
1741+100	1741+500	CH65																							
1788+300	1788+500	CH66																							
1800+600	1805+000	CH67																							

FRESHWATER CRITICAL HABITATS													
KP Start	**KP End**	**ID**	**Was the no-construction time frame enforced? (if required)**	**Started date of crossing (when bakns are being topsoiled/graded)**	**End of crossing (when re,instalment completed)**	**Control of sediment release**	**Minimize erosion, sedimentation and impact to riparian vegetation**	**Avoid impact and removal of gravel**	**Date erosion and sediment controls in place**	**Restoration of channel bottom**	**Restoration of riparian area (contours and vegetation)**	**Water protection zone marked / flagged? (30 cm buffer zone on either side of crossing)**	**Water sample taken upsyream / downstream? Prior / during/post construction**
1323+270	1323+300	FCH 18											
1396+221	1396+237	FCH 19											
1461+293	1461+349	FCH 20											
1553+697	1553+730	FCH 21											
1565+865	1565+885	FCH 22											
1590+290	1590+362	FCH 23											
1605+400	1605+425	FCH 24											
1613+360	1613+419	FCH 25											
1651+548	1651+598	FCH 26											
1689+784	1689+838	FCH 27											

APPENDIX C SENSITIVE AREA REGİSTER

SENSITIVE AREA REGISTER
LOT- 4

KP Start	KP End	ID	Was the no-construction time frame enforced? (if required)	Which seeds where collected?	Date seeds where collected	Amount of seeds collected	Seeds storage location	Date seeds where planted on RoW	Location where seeds were replanted	Which plants/bulbs were collected	Date plants/bulbs were collected	How many plants/bulbs were collected	Plants/bulbs storage location	Date plants/bulbs replanted on ROW during restoration	How many plants/bushs replanted on Row during restoration	Locations where plants/bulbs were replanted	Date Herbaceous planted where on RoW	Storage location of herbaceous plants collected	Date when herbaceous plants were laid on RoW during restoration	Date topsoil was stripped	Date topsoil was reinstated	Date when rock were collected (30Cm or larger)	Rock storage location	Date rocks were relocated on Row	Inavisive flora species control	Terracin during reinstatement to pevent erosion
1362+917	1363+753	CH58																								
1366+493	1366+692	CH59																								
1372+340	1372+683	CH60																								
1430+920	1432+305	CH61																								

1477+452	1477+833	CH62																							
1491+767	1496+340	CH63																							
1736+000	1738+300	CH64																							
1741+100	1741+500	CH65																							
1788+300	1788+500	CH66																							
1800+600	1805+000	CH67																							

FRESHWATER CRITICAL HABITATS													
KP Start	**KP End**	**ID**	**Was the no-construction time frame enforced? (if required)**	**Started date of crossing (when bakns are being topsoiled/graded)**	**End of crossing (when re,instalment completed)**	**Control of sediment release**	**Minimize erosion, sedimentation and impact to riparian vegetation**	**Avoid impact and removal of gravel**	**Date erosion and sediment controls in place**	**Restoration of channel bottom**	**Restoration of riparian (contours and vegetation)**	**Water protection zone marked / flagged? (30 cm buffer zone on either side of crossing)**	**Water sample taken upsyream / downstream? Prior / during/post construction**
1323+270	1323+300	FCH 18											
1396+221	1396+237	FCH 19											
1461+293	1461+349	FCH 20											
1553+697	1553+730	FCH 21											
1565+865	1565+885	FCH 22											
1590+290	1590+362	FCH 23											
1605+400	1605+425	FCH 24											
1613+360	1613+419	FCH 25											
1651+548	1651+598	FCH 26											
1689+784	1689+838	FCH 27											

Appendix D - Watercourse Crossing Register

APPENDIX D WATERCOURSE CROSSİNG REGISTER

WATERCOURSE CROSSİNG REGISTER
SPREAD 7

KP	Location	Crossing Start Date	Crossing Finish Date	Reinstatement Start Date	Reinstatement Finish Date	Remarks	Method of Watercourse Crossing

WATERCOURSE CROSSİNG REGISTER
SPREAD 8

KP	Location	Crossing Start Date	Crossing Finish Date	Reinstatement Start Date	Reinstatement Finish Date	Remarks	Method of Watercourse Crossing

APPENDIX D WATERCOURSE CROSSİNG REGISTER

WATERCOURSE CROSSİNG REGISTER
SPREAD 7

KP	Location	Crossing Start Date	Crossing Finish Date	Reinstatement Start Date	Reinstatement Finish Date	Remarks	Method of Watercourse Crossing

WATERCOURSE CROSSİNG REGISTER
SPREAD 8

KP	Location	Crossing Start Date	Crossing Finish Date	Reinstatement Start Date	Reinstatement Finish Date	Remarks	Method of Watercourse Crossing

Appendix E - Reinstatement Register

APPENDIX E REINSTATEMENT REGISTER

REINSTATEMENT REGISTER
SPREAD 7

KP Start	KP End	Original Counters restored?	Date topsoil spread	Date Seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

REINSTATEMENT REGISTER
SPREAD 8

KP Start	KP End	Original Counters restored?	Date topsoil spread	Date Seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

APPENDIX E REINSTATEMENT REGISTER

REINSTATEMENT REGISTER
SPREAD 7

KP Start	KP End	Original Counters restored?	Date topsoil spread	Date Seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

REINSTATEMENT REGISTER
SPREAD 8

KP Start	KP End	Original Counters restored?	Date topsoil spread	Date Seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

Appendix F - Tree_Shrub Cut & Relocated Register

APPENDIX F TREE/SHRUB CUT & RELOCATED REGISTER

TREE/SHRUB CUT & RELOCATED REGISTER		
SPREAD 7		
KP	**Number of Trees Cut**	**Types of Trees Cut**

TREE/SHRUB CUT & RELOCATED REGISTER		
SPREAD 8		
KP	**Number of Trees Cut**	**Types of Trees Cut**

APPENDIX F TREE/SHRUB CUT & RELOCATED REGISTER

TREE/SHRUB CUT & RELOCATED REGISTER		
SPREAD 7		
KP	**Number of Trees Cut**	**Types of Trees Cut**

TREE/SHRUB CUT & RELOCATED REGISTER		
SPREAD 8		
KP	**Number of Trees Cut**	**Types of Trees Cut**

Appendix G - Major River Crossing Register

APPENDIX G MAJOR RIVER CROSSINGS

MAJOR RIVER CROSSINGS
LOT- 4

Crossing Class	Crossing ID		LOCATIONS				
	Code type + class	No. (three digit)	KM Chainage KP (km)	Easting (m)	Northing (m)	Object Identification Name	Crossing Method
Major	Rvx1	0012	1364+854	534888,52	4393585,62	PORSUK River	Open cut
Major	Rvx2	0035	1442+003	465685,57	4401971,29	Sarıkız Creek	Open cut
Major	Rvx2	0036	1461+280	448642,66	4401466,03	Orhaneli Creek	Open cut
Major	Rvx1	0013	1553,717	374863,71	4424047,88	EMET River	Open cut
Major	Rvx2	0037	1590+345	600802,08	4430967,28	HANİFİDERE River	Open cut
Major	Rvx2	0038	1613+404	580735,85	4437653,65	KARAÇAY River	Open cut
Major	Rvx1	0014	1651,574	555511,34	4457765,05	GÖNEN River	Open cut
Major	Rvx3	0199	1669+407	540168,24	4462340,64	Creek	Open cut
Major	Rvx3	0200	1671,182	538397,55	4462460,53	Creek	Open cut
Major	Rvx2	0041	1674+169	535417,35	4462662,90	Creek	Open cut

Major	Rvx2	0042	1687+622	523822,83	4464768,75	KOCABAŞ River	Open cut
Major	Rvx5	0096	1689+830	522095,01	4466011,07	DSI Ditch	Open cut
Major	Rvx2	0043	1738+346	491161,76	4499778,21	KOCADERE River	Open cut
Major	Rvx2	0044	1763+651	475616,57	4515356,05	Söğütlük Creek	Open cut
Major	Rvx2	0045	1776+229	465546,37	4522490,42	Cevizlik Deresi Creek	Open cut

APPENDIX G MAJOR RIVER CROSSINGS

MAJOR RIVER CROSSINGS
LOT- 4

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WorleyParsons
resources & energy

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	SYA-PLN-ENV-GEN-008	REV	STATUS
		P4-0	IAAC
Document Title :	CONSTRUCTION IMPACTS MANAGEMENT PLAN		
Tag Nos.			
Contractor :	SYA - Sicim-Yuksel-Akkord JV		
Contractor Document No.		REV	

		Signature	Date
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Work may proceed.		
	C2- Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Work may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Work shall NOT proceed.		
	C4- Review not required. Resubmit for information only rev P4-0 - IFI. Work may proceed.		

Remarks:

Prepared by: On behalf of: SICIM-YUKSEL-AKKORD JV	TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT LOT 2	TANAP WorleyParsons resources & energy

CONSTRUCTION IMPACTS MANAGEMENT PLAN

Rev.	Status	Date (dd/mm/yy)	Document status Description	Issued by	Checked by	Approved by	TANAP Approval
P4-A	DIC	23/02/15	Discipline Internal Check	HEKO	KURV	TENP	
P4-B	IDC	26/02/15	Inter Discipline Check	HEKO	KURV	TENP	
P4-C	IFR	16/03/15	Issued for Review	ENVY	ARAO	TENP	
P4-D	Re-IFR	06/04/15	Re-Issued for Review	ARAO	KURV	TENP	
P4-E	Re-IFR	12/05/15	Re-Issued for Review	ARAO	KURV	TENP	
P4-0	IAAC	28/05/15	Issued as Approved for Construction	ARAO	KURV	TENP	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	23/02/15	Discipline Internal Check
P4-B	IDC	26/02/15	Inter Discipline Check
P4-C	IFR	16/03/15	Issued for Review
P4-D	Re-IFR	06/04/15	Re-Issued for Review
P4-E	Re-IFR	12/05/15	Re-Issued for Review
P4-0	IAAC	28/05/15	Issued as Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

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APPENDICES

LIST OF FIGURES

LIST OF ABBREVIATIONS

BAP	Biodiversity Action Plan
CIMP	Construction Impact Management Plan
CLO	Community Liaison Officers
CO	Carbon mono-oxide
CR	Critically Endangered
e.g.	exempli gratia
EN	Endangered
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management System
EUNIS	European Nature Information System
i.e	idd est.
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
KP	Kilometre of Point
NO_x	Nitrogen oxides
O	Observation
R	Regional Endemic
ROW	Route of Way
SCC	Species of Conservation Concern
SO_2	Sulphur dioxide
SYA	Sicim – Yüksel - Akkord JV
TANAP	Trans Anatolia Natural Gas Pipeline Project

LIST OF DEFINITIONS

EPCM	Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi

1. PURPOSE AND SCOPE

This Construction Impact Management Plan (CIMP) is prepared to address the management and mitigation of potential impacts during the construction of the LOT-2 of TANAP Project to aquatic and terrestrial flora and fauna. This document is a living document and will be updated as per the changes in the project.

The scope of this CIMP embraces general baseline data, commitments and mitigation measures based on Environmental and Social Impact Assessment (ESIA) Report and Biodiversity Action Plan about the terrestrial and aquatic flora and fauna studies.

This Construction Impact Management Plan will cover the following studies:

- General baseline data,
- Commitments and mitigation measures for project impacts.

2. LEGISLATION FRAMEWORK

All activities in the management and monitoring plans will comply with the Environmental and Social Management System (ESMS) of TANAP Project that aligns with:

- TANAP's environmental and social management policies;
- National law and regulatory requirements;
- International law and regulatory requirements.

3. ROLES AND RESPONSIBILITIES

SYA will be responsible for the preparation and implementation of the environmental and social impact assessment based management plans, which will be project specific. These plans shall be practical, detailed procedures for use in the field.

SYA will be responsible implementation of and adherence to all the requirements and mitigation measures outlined in this Construction Impact Management Plan (CIMP).

SYA will also be responsible for the performance of all sub-contractors with respect to the project specific plans and shall comply with all relevant project standards, legal requirements, permit and licence conditions and secure all applicable permits and licences.

SYA will appoint an Environmental Social Monitoring Company and on-site inspectors having appropriate experience and qualifications that are subject to the approval of TANAP.

SYA's biologists will be responsible for ecological monitoring during pre-construction and construction period, seed and bulb collection, fauna monitoring and training of all workers, supervisors, construction and project management about Biodiversity Action Plan (CIN-REP-ENV-GEN-017).

Environmental Inspectors of SYA will be responsible for monitoring the biologists for their performance in the implementation of this CIMP and Biodiversity Action Plan (CIN-REP-ENV-GEN-017).

Environmental Coordinators will be responsible for implementation and maintenance of the training program and appointment of the biologists, who will perform the training.

The environmental manager will be responsible for the development and oversight of the ecological monitoring.

4. GENERAL BASELINE DATA

After the baseline surveys and determination of species inventory, the species that could be highly affected from the project activities was identified in ESIA Report and Biodiversity Action Plan (CIN-REP-ENV-GEN-017). These threatened species are more commonly referred to as species of conservation concern (SCC). The species considered as threatened are endemic, restricted-range, critically endangered (CR) and endangered (EN) species according to IFC 2012 (PS6), IUCN Red List (2013) and local expert opinion, who conducted the baseline surveys of ESIA. Among the determined SCC along the pipeline route, species that are in scope of the "LOT-2 (KP 375 - 825)" are identified in this management plan. These species, habitats with high conservation importance and protected and conservation areas are given under the sub-headings.

4.1. Habitats with High Conservation Importance

Along the LOT-2 section of the project, 5 habitats with high conservation importance are determined according to ESIA Report. The habitat classification is made according to EUNIS Habitat Types in ESIA Report. The critical habitats are given in Section 7.3.2.2 of ESIA Report (see Appendix-1).

4.2. Protected and Conservation Areas

Among the 17 protected and conservation areas along the pipeline route, 8 areas are determined along the LOT-2 section of the project in Chapter 7.3.2.2 of ESIA Report. These areas are given in Section 7.3.2.2 of ESIA Report.

4.3. Terrestrial Flora

According to the data collected from baseline surveys, which were carried out for ESIA Report, 87 SCC are present or potentially present along the pipeline route considering terrestrial vegetation. Among these species, 26 species were identified in LOT-2 section of the project. These species are given in Section 7.3.2.2 of the ESIA Report.

4.4. Riparian Flora

No riparian flora SCC was identified along the pipeline route according to ESIA Report.

4.5. Terrestrial Fauna

4.5.1. Mammalia

According to the data collected from baseline surveys, which were carried out for ESIA Report, 5 SCC are present or potentially present along the pipeline route considering mammal species. Among these species, 2 species were identified between KPs of LOT-2 section of the project (See Section 7.3.2.5 of ESIA Report).

4.5.2. Birds

According to the data collected from baseline surveys, which were carried out for ESIA Report, 11 SCC are present or potentially present along the pipeline route considering bird

species. Among these species, 2 species were identified between KPs of LOT-2 section of the project (See Chapter 7.3.2.6 of ESIA Report).

4.5.3. Reptiles

According to the data collected from baseline surveys, which were carried out for ESIA Report, 3 SCC are present or potentially present along the pipeline route considering reptile species. However, no reptilian SCC were identified between KPs of LOT-2 section of the project (See Section 7.3.2.7 of ESIA Report).

4.5.4. Amphibians

According to the data collected from baseline surveys, which were carried out for ESIA Report, 1 SCC are present or potentially present along the pipeline route considering amphibian species. However, amphibian SCC was identified between KPs of LOT-2 section of the project (See Section 7.3.2.8 of ESIA Report).

4.5.5. Invertebrates

According to the data collected from baseline surveys, which were carried out for ESIA Report, 34 SCC are present or potentially present along the pipeline route considering bird species. Among these species, 10 species were identified between KPs of LOT-2 section of the project (See Section 7.3.2.9 of ESIA Report).

4.6. Freshwater Aquatic Fauna

According to Chapter 7.3.2.2 of ESIA Report, 13 freshwater fish SCC are present or potentially present along the pipeline route. Among these species, 13 species were identified between KPs of LOT-2 section of the project (See Chapter 7.3.2.10 of ESIA Report). Besides, 1 aquatic invertebrates SCC could be found along the LOT-2 (See Section 7.3.2.11 of ESIA Report).

5. COMMITMENTS AND MITIGATION MEASURES FOR PROJECT IMPACTS

This section presents the commitments and mitigation measures which are given in Section 8.2 of ESIA Report to mitigate possible impacts that the Project is envisioned to generate on terrestrial habitats, ecosystems, terrestrial flora and fauna and freshwater aquatic life species during the construction phase within the LOT-2 section of the TANAP Project.

The impact assessment is based on data collected on the terrestrial habitats, ecosystems, terrestrial flora and fauna species and freshwater aquatic life species presented between section 7.3.2.1 and 7.3.2.11 of the ESIA report as well as the description of the impact factors presented in Section 3.6, 3.7 and 3.8. As a result of the analyses, sensitivity of the components are defined considering the SCC and measures to be taken according to groups are given under the headings of related groups and general commitments and mitigation measures for habitats, ecosystems and flora and fauna are given below:

- Pre-construction surveys should be carried out by experts to verify existence of SCC along the LOT-2 section of TANAP,
- March Chart (SYA-CHR-PRC-PL2-001) will be complied,
- Use of the existing corridors/ roads to maximum extend,
- Plan construction to complete in shorter periods at sensitive areas,
- Reduce construction width (30m) at sensitive areas,
- Implement special method statements for construction and reinstatement at special/sensitive areas,
- Implement strategies for surface water and groundwater protection (Water Courses Impact Management Plan (SYA-PLN-ENV-GEN-010)),
- Re-locate project components, where practical, if some project areas contain rare species or environmentally sensitive areas,
- Implement dust control measures on access roads,
- Locate project components on previously disturbed areas rather than new areas where possible,
- Locate project components away from wetlands to the extent practicable,
- Avoid using sensitive areas if extra land is required for project activities,
- Implement strategies to minimize impacts to soil structure, quality and capability (Erosion Control, Reinstatement and Landscaping Plan (SYA-PLN-ENV-GEN-007)),
- Construction corridor will be narrowed in and close to habitats of importance,
- Minimum disturbance in natural vegetation in agricultural lands (used as nesting areas),
- Reeds, meadows, pastures and similar natural areas won’t be driven through by trucks,
- Comply with all related national and international legislations and international contracts of which Turkey is a party for protection of ecologically sensitive areas,

5.1. Habitats with High Conservation Importance

Based on the analyses of the Section 8.2.2 of ESIA Report and Section 4 of BAP (CIN-REP-ENV-GEN-017), the following impact factors are considered that might have a potential effect on terrestrial habitats and ecosystems during the construction period within their Area of Influence:

- Emission of dust in an impact area up to 200 meters;
- Emission of gaseous pollutants particularly NO_x and CO, will be mostly related to the vehicle and machinery exhausts and emissions from stationary sources like power generators in an impact area up to 500m;
- Changes of local morphology which are a result of excavation and dredging activities and the need for levelling and grading the areas;
- Reduction of topsoil quality/availability;
- Emission of noise during construction is related primarily to the use of construction machinery and transport of construction materials;
- Introduction of new buildings and infrastructures like facilities, workshops, and utilities during construction,
- Removal of natural vegetation,
- Introduction of alien species

The commitments and mitigation measures for habitats with high conservation importance are given below:

- A survey of the sites located in area where flora and fauna SCCs are potentially present will be conducted. The surveys should be conducted by expert of the taxon considered and should take place before any construction activity is started, preferably during favourable seasons for the taxon investigated (e.g. vegetative period for flora species). If SCC species are found, the recommendations expressed in Section 10 of BAP Report and Appendix-2 of this report shall be complied.
- In order to minimize the habitat loss, the size of temporary working areas should be restricted an limited as much as possible (Block valve/pigging/metering station in the province of Sivas from KP 580+800 to KP 581+100, in the province of Gümüşhane from KP 501+900 to KP 502+200)

The mitigation measures for terrestrial habitats and ecosystems given in Section 4 (Terrestrial Critical Habitats Action Plans) of BAP (CIN-REP-ENV-GEN-017) will be complied with.

5.2. Protected and Conservation Areas

Based on the analyses of the project Section 8.2.2.3 of ESIA Report, the following impact factors are considered that might have a potential effect on protected and conservation areas during the construction period within their Area of Influence:

- Emission of dust in an impact area up to 200 meters;
- Emission of gaseous pollutants particularly NO_x and CO, will be mostly related to the vehicle and machinery exhausts and emissions from stationary sources like power generators in an impact area up to 500m
- Changes of local morphology which are the result of excavation and dredging activities and the need for levelling and grading the areas,
- Reduction of topsoil quality/availability,
- Demand of freshwater which mainly arises from the needs of the project during construction and commissioning phase in an impact area up to 5,000 meters;
- Discharge of wastewater with different physical-chemical features, even if in compliance with standards, could cause changes in the water quality of the receptor in 1,000 m downstream of discharge point;
- Changes in the flow/circulation in natural water bodies mainly due to crossings can affect water quality and flow dynamics in an impact area up to 500 m;
- Sediment suspension up to 1,000 m;
- Emission of noise during construction is related primarily to the use of construction machinery and transport of construction materials up to 1,000 meters;
- Introduction of new buildings and infrastructures,
- Removal of natural vegetation,
- Introduction of alien species,

It is determined as a result of the assessments of these areas with impact factors in Section 8.2.2.3 of ESIA Report that low impacts (Low) and medium impacts (Medium) are present for the following protected and conservation areas:

- Erzincan
- Refahiye Forest (Low)
- Sivas
- Baliklikaya Wetland (Low)
- Çoraklik Lake Wetland (Low)
- Gölova Lake (Low)
- Hafik and Zara Hills (Low)
- Mağara Lake (Low)
- Tuzlu Lake Wetland (Low)
- Bataklıkdüzü 2 Wetland (Medium)

Even if no high impact is present and only one medium impact were highlighted for the component, the following measures will be followed before the starting of the construction activities in order to reduce the potential detrimental effects of the Project:

- The measures that are given in Chapter 4 of Biodiversity Action Plan (CIN-REP-ENV-GEN-017) (Chapter 4: Terrestrial Critical Habitats Action Plans) will be followed,
- If any species of high priority are found within the protected and conservation areas, all mitigations found in the BAP will be applied,
- Potential impact on the wetland flora species will be mitigated by implementing dust control measures;
- Maximize the use of existing corridors or roads;
- Provide temporary barriers and fencing to prevent wildlife from crossing heavily used working areas.

5.3. Terrestrial Flora

In consequence of the baseline surveys, which were carried out for ESIA Report, flora SCC which could be highly affected from the project activities were identified and given in Chapter 10 of BAP. Based on the analysis of the project, the following impact factors are considered to have a potential effect on flora SCC construction period within their Area of Influence (see section 8.2.3 of ESIA Report):

- Construction activities will affect terrestrial flora mainly through the removal of natural vegetation during the site preparation phase prior to construction; typically trees are felled along the pipeline RoW direction, while shrubs and grass species are removed by scraping.
- The emissions of dust are related mainly to the excavation transportation and storage of soil, and vehicle traffic on unpaved roads. The impacts on terrestrial flora are expected to be local and limited to the immediate surroundings of the construction site.
- Emissions of gaseous pollutants, particularly NO_x and SO_2, will be mostly related to the vehicle and machinery exhausts and emissions from stationary sources like power generators. Effects on flora are the depositions of pollutants on flora species.
- Changes of local morphology are a result of excavation and dredging activities and the need for levelling and grading the areas. This affects terrestrial flora indirectly through changes in local microhabitats (e.g. hydrological and hydrogeological conditions).
- The reduction of topsoil quality/availability due to project actions is mainly the result of earthworks, direct contamination of soil due to accidental spills of fuel/lubricant from machinery/vehicles,
- Introduction of new buildings and infrastructures will be related to the physical footprint: construction of temporary accommodation facilities, workshops, and utilities during construction.
- Alien species of flora and fauna can be introduced into the project area accidentally in several ways, including the introduction of individuals, seeds and propagules mixed

with soil from other locations or attached to vehicles and machinery for construction material. Disturbed ecosystems are particularly vulnerable to invasion by opportunistic alien species. Many invasive alien species grow faster than native plants and reproduce more quickly, and thus replace indigenous plants and completely alter the composition of the area they colonize.

The mitigation measures to be taken for the flora SCC are given in Chapter 10 of Biodiversity Action Plan (CIN-REP-ENV-GEN-017) and in Appendix-2 of this report.

5.4. Riparian Flora

It was confirmed according to the baseline data of Section 7.3.2.2 and Section 7.3.2.4 of ESIA Report that aquatic flora in along the project route is largely composed of common and cosmopolite species. The floristic composition showed a relatively low number of species and no particular hotspots with higher floristic diversity were identified.

Considering that no freshwater flora SCC was identified in consequence of baseline surveys along the pipeline route, no impacts are foreseen on this component.

5.5. Terrestrial Fauna

Based on the analysis of the project, the following impact factors are considered to have a potential effect on fauna SCC construction period within their Area of Influence (see Sections between 8.2.5 and 8.2.9 of ESIA Report):

- Habitats might be impacted by removal of natural vegetation due to clearing operations, changes of local morphology, introduction of alien species, e.g. during reinstatement of camp sites, and introduction of new buildings and infrastructure (e.g. compressor stations). These activities may result in changes to ecosite types generating effects on terrestrial fauna habitat suitability for refuging, feeding and reproduction, landscape fragmentation and barriers to movement.
- The degradation of the habitat could be also caused by the emissions of dust (e.g. from the excavation transportation and storage of soil, vehicles traffic on unpaved roads) and by the emissions of gaseous pollutants, particularly NO_x and CO, which could generate deposition of dust on the leaves and direct exposure to atmospheric pollutants with consequent effects on wildlife health. Increased fugitive dust from construction activities may temporarily remove habitat used by birds for foraging.
- Emission of noise due to the construction activities can cause sensory disturbance which may affect mammals through physiological stress. In general, sensory disturbance effects on fauna species are most detrimental at key times of the year such as late-winter periods, when animals tend to be in poor physical condition, and during the reproductive season (spring/early summer), when animals are raising young. In addition in proximity to the noise sources an impact on birds' signals communication can be foreseen.

The general mitigation measures to be taken considering the terrestrial fauna species are given below:

- Provide temporary barriers to prevent wildlife from crossing heavily used working areas and from accessing to waste disposal areas,
- Indicate high wildlife use areas with signage along main access roads where potential exists for vehicle/wildlife collision
- Enforce speed limits along main access roads and along the ROW
- Transport Project workforce by bus to reduce traffic volumes and ease enforcement on speed limits
- Use existing corridors for main access roads and ROW
- Implement a no weapons/no hunting policy for Project personnel, including subcontractors on site
- Maintain vegetated buffers wherever possible along known wildlife travel corridors (i.e., watercourses)
- Provide temporary noise barriers near sensitive areas
- Implement dust control measures on access roads and the ROW
- Suspend vegetation clearing and construction activities if an occupied denning is encountered until authorisation is granted from the appropriate expert or authority.
-

In addition to the general mitigation measures, commitments and mitigation measures according to terrestrial fauna groups are given under the headings blow:

5.5.1. Mammals

- For all habitats of mammal SCC, construction should be limited outside March to June,
- In order to minimise the habitat loss and nuisances, temporary working areas should be minimized as much as possible especially during the construction of Block valve, pigging, metering stations construction in Gümüşhane and Erzincan,
- It is required to check for mammals species track presence prior to vegetation clearance and also to make workers aware of the ecological sensitivities of the areas. In case species of concern are found, it is required to stop the work and consult an expert ecologist,
- A particular attention should be paid in the construction work of compressor station of Ardahan and Sivas to prevent any potential disturbance to the bezoar goat (*Capra aegragus*) and minimise the nuisances of the temporary working areas by taken the minimum measures as follows:
    - equipment should be selected with lower sound power levels;
    - engine cover should be kept closed when the equipment is in operation in order to minimize the noise;
    - engines should not be left in operating mode when they are not used;
    - fencing of construction areas is recommended.

5.5.2. Birds

- The biologist will check for bird nests prior to vegetation clearance and also to make workers aware of the ecological sensitivities of the areas and, in case species of concern are found, stopping the work and consult an expert biologist,
- The nests of the birds that breed during the land preparation-construction activities of the Project will not be damaged.

5.5.3. Reptilia

There are no special commitments and mitigation measures requirements stated in Section 8.2.7 of ESIA Report for reptilians.

5.5.4. Amphibians

There are no special commitments and mitigation measures requirements stated in Section 8.2.8 of ESIA Report for amphibians.

5.5.5. Terrestrial Invertebrates

- Special attention will be paid on the dust lifting during construction activities by irrigation procedures, since dust emission could originate reduction in the visibility and disturbance to the lepidopters' flight,
- Emissions from vehicle exhausts used for transport of workers, construction material, vehicles and equipment will be minimised through good practices e.g. proper maintenance, restriction on idling and running of vehicle engines only if necessarily, therefore it is considered that vehicle and equipment type and mode of operation will not cause air quality significant alterations and air quality standards breaching,
- Similarly to the good practices applied to reduce emissions of air pollutants mentioned above, noise emissions from vehicles and equipment will be minimized through the selection of only inherently quite devices, appropriate maintenance and replacement of any equipment found to be emitting excessive noise levels due to a faulty silencer, ill-fitting or broken engine covers or other reasons,
- Rocks over 30 cm should be removed, put aside and be replaced during the reinstatement.

The mitigation measures to be taken for the terrestrial invertebrates SCC are given in Chapter 10 of Biodiversity Action Plan (CIN-REP-ENV-GEN-017) and in Appendix-2 of this report.

5.6. Freshwater Aquatic Fauna

It is determined in the Section 8.2.10 of the ESIA Report that the main impacts deriving from the project components that exist in these areas are emission of noise, changes in

flow/circulation in natural water bodies and removal of natural vegetation. Other important impacts acting on the SCC which present in this rivers are the potential introduction of alien species, demand for freshwater and sediment suspension. The general commitments and mitigation measures for freshwater fishes and invertebrates are given below:

- It will be complied with Water Course Impact Management Plan (SYA-PLN-ENV-GEN-010).
- Site-specific working methods and construction drawings will be developed for water passages. These methods will contain procedures to protect water passages against pollution, minimize sedimentation, mitigate the impact on vegetation along the water passages, and restore the water passages to the condition before the construction;
- River water will not flow over the water pie or canal so it will enter and exit at normal river change level;
- Construction works will be conducted during the time when flow is low, if possible and will be conducted in a limited timeframe;
- The potential impacts of watercourse crossings on fish species will be mitigated by careful scheduling of the construction works to avoid spawning seasons. If this period cannot be avoided, the prior approval of EPCM will be obtained and mitigation measures given in Water Course Impact Management Plan (SYA-PLN-ENV-GEN-010) will be complied,
- Minimize riparian vegetation removals. If removal is necessary proper clearing techniques will be used and retained vegetation will be protected:
    - re-instate native soils or replace soil with topsoil/suitable planting medium;
    - if necessary, include soil/seed bank salvage, vegetation transplant or bio-engineering (e.g., live stakes, cuttings) techniques;
    - use only native species compatible with site conditions.
- Moreover, in order to reduce the demand of freshwater for the hydro testing and other project activities, the possibility of water re-use should be evaluated where practicable,

The types of river crossings are given in Section 8.2.10 of ESIA Report. The rivers that can be highly affected from project activities and the related mitigation measures are given in Chapter 10 of BAP (CIN-REP-ENV-GEN-017) and Appendix-2 of this report.

6. COLLECTION METHODS OF SEEDS AND BULBS

The collection of seeds and bulbs should be carried out between the dates specified in Chapter 10 of Biodiversity Action Plan (CIN-REP-ENV-GEN-017) and Appendix-2 of this report. The explanation of each specific method is detailed under the sub-headings.

6.1. Collecting Seeds

- The seeds collected shall be placed in 10 x 25 cm canvas bags and stored in a ventilated, cool place before transferring to the seed bank,
- For every species, 1,000-3,000 seeds should be collected;
- The seed will be collected with a team under supervision of an biologist before the soil stripping and the collection of seeds will be monitored by biologist (see Section 9.1);
- The seeds will be collected from RoW; if the seeds will be collected outside the RoW, Community Liaison Officers (CLOs) will be informed and their approval will be sought,
- Some of the collected seeds will be delivered to the seed gene bank available.
- The time and KPs of the species of which seeds will be collected are given in Section 10 of BAP (CIN-REP-ENV-GEN-017) and Appendix-2 of this report.

6.2. Collecting Bulbs

- Within LOT-2 section of the project, the only SCC whose bulbs will be collected is Bellevalia crassa (CH28 - see Section 5.1 of BAP);
- Therefore, for collecting bulbs of the species, the species whose bulb will be collected will be marked by stakes (see Figure 6.1);
- The material of the stakes will be made of wood, which is easily degraded in the nature;
- The bulbs of the Bellvalia crassa will be collected by a team under supervision of an biologist before the soil stripping and the collection of bulbs will be monitored by biologist (see Section 9.1);
- The bulbs will be collected from the ROW; if the bulbs will be collected outside the ROW, CLOs will be informed and their approval will be sought;
- The bulbs collected shall be placed in 10 x 25 cm canvas bags and stored in a ventilated, cool place before transferring to the seed bank,
- Some of the collected bulbs (from Edirne to Erzincan) will be delivered to the seed gene bank available.
- The time and KPs of the species of which bulbs collected are given in Section 10 of BAP (CIN-REP-ENV-GEN-017) and Appendix -2 of this report.

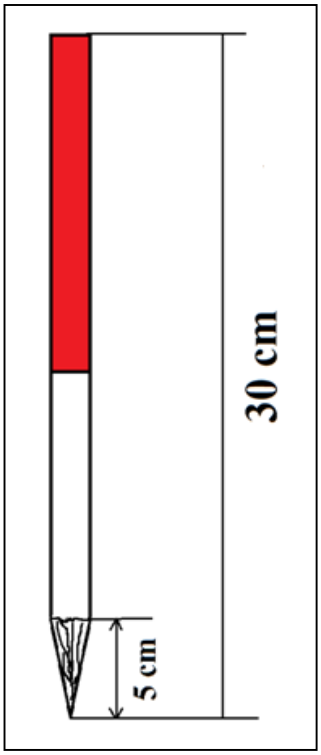


Figure 6.1: A Typical Stake which will be Used for Marking

7. TRANSLOCATION AND RELOCATION OF SPECIES

The procedures of translocation and relocation for the flora species (Section 3.4.3.1 of BAP (CIN-REP-ENV-GEN-017)) are given below:

- The individual plants to be transferred outside the ROW, near the project area and will be collected together with its soil of 15-30 cm depth, depending on the plant species and root structure, and will be planted in soil of the same depth.
- The plant specimens to be translocated shall be transferred in September-November.
- The first water shall be supplied to the transferred individuals.
- The plant specimens to be relocated will be transferred in March-May, depending on the elevation.

For the fauna species, it will be complied with the translocation and relocation procedures given in 3.4.3.2 of BAP (CIN-REP-ENV-GEN-017). The biologist will be responsible for the translocation of fauna and recording of translocated, injured or dead fauna. The information of reporting of translocated and relocated species are given in Section 10.2.

8. TREE FELLING

The reforestation strategy will be to successfully replace every tree felled during RoW clearance. However, not all trees will be replaced in the same location from which they were removed as trees will not be able to be replanted along an 8 m wide strip above the pipeline. The trees that are not planted on the ROW will be replanted in another location in accordance to the agreement with the local authorities.

For all tree falling and reinstatement works, it will be complied with Erosion Control, Reinstatement and Landscaping Plan (SYA-PLN-ENV-GEN-007).

9. TRAINING, REPORTING AND MONITORING

9.1. Training

All personnel will be trained to perform work activities in a manner consistent with environmental permits, site specific conditions, and best practices for the environmental monitoring, waste management, reinstatement, pollution prevention, spill response, cultural heritage.

All workers and project management will be trained about Biodiversity Action Plan by SYA's biologists. The training will include the topics that are given below.

- What is biodiversity?
- What is flora-fauna?
- What is endemic species?
- Compliance with season constraints
- Compliance with RoW boundaries during construction activities
- Recording of any dead/injured fauna
- Clearing and grading activities

Also the team that will collect seeds and bulbs will be trained about the topics by the SYA's biologist given below.

- When will the seeds and bulbs be collected?
- Where will they be collected from?
- When is the optimal period for collecting?
- Where and how will they be kept?

The trainings will be recorded to training register (Appendix 3) by SYA's biologist. All the trainings will be planned in line with the Environmental Training Plan (SYA-PLN-ENV-GEN-009).

9.2. Reporting

The registers given in Appendix-3 will be filled out and kept as records by SYA's biologist.

The progress of the ecological monitoring will be presented by SYA in the Monthly Report and will be provided to EPCM.

9.3. Monitoring

SYA’s biologists will be responsible for ecological monitoring during pre-construction and construction period, seed and bulb collection, fauna monitoring and training of all workers, supervisors, construction and project management about Biodiversity Action Plan (see Section 9.1). SYA’s biologists will be monitored by Environmental Inspectors of SYA.

10. REINSTATEMENT

All reinstatement works will be carried out in compliance with Erosion Control, Reinstatement and Landscaping Plan (SYA-PLN-ENV-GEN-007).

11. ECOLOGICAL SURVEYS

The existence of the SCC was checked during the ecological field survey, which was carried out between 7th and 11th April 2015 along KP410 and KP510 of Spread 3 and KP665 and KP765 of Spread 4.

As a result of the field surveys, 4 of the flora SCC species, namely *Chrysocamela noeana (EN), Thymus cappadocicus var. pruinosus (VU), Achillea sintenisii (VU), Salvia huberi (VU)* and *Gypsophila heteropoda subsp. minutiflora* were observed at the stations. The mitigation measures mentioned in Appendix-2 of this report and in BAP are applicable for these species and no further special mitigation measure is requisite.

For the fauna species that are not listed in ESIA Report for related provinces, namely *Nannospalax nehringi* (DD-Data Deficient) (Nehring's Blind Mole Rat) (Erzincan, Gümüşhane and Sivas)*, Mesocricetus brandti* (NT-Near Threatened) (Brandt's Hamster), *Allactaga williamsi* (LC-Least Concern) (Williams' Jerboa), *Aquila chrysaetos* (LC- Least Concern) (Golden Eagle) (Erzincan and Gümüşhane) and *Canis lupus (LC-Least Concern) (Gray Wolf*) (Erzincan), are found at the selected stations, which are given in Ecological Survey Report (SYA-REP-ENV-GEN-002). These species are not listed as SCC and no specific mitigation measures are defined for these species. The mitigation measures mentioned in Appendix-2 of this report and in BAP are applicable for these species and no further special mitigation measure is requisite.

The comprehensive data and results of the survey are given in Ecological Survey Report (SYA-REP-ENV-GEN-002).

12. REFERENCES

TNP-REP-ENV-GEN-002	Environmental and Social Impact Assessment (ESIA) Report of TANAP Project
WRP-SPC-EGG-PLG-001	Specification for Reinstatement
WRP-SPC-PPL-PLG-001	Pipeline Construction Specification
CIN-REP-ENV-GEN-017	Biodiversity Action Plan
WRP-LST-PPL-PLG-003	River Crossing Reinstatement and Scour Protection Schedule
SYA-PLN-ENV-GEN-010	Water Courses Impact Management Plan
SYA-PLN-ENV-GEN-007	Erosion Control, Reinstatement and Landscaping Plan
SYA-PLN-ENV-GEN-009	Environmental Training Plan
SYA-REP-ENV-GEN-002	Ecological Survey Report

Appendix-1: Maps of Habitats with High Conservation Importance and Protected and Conservation Areas

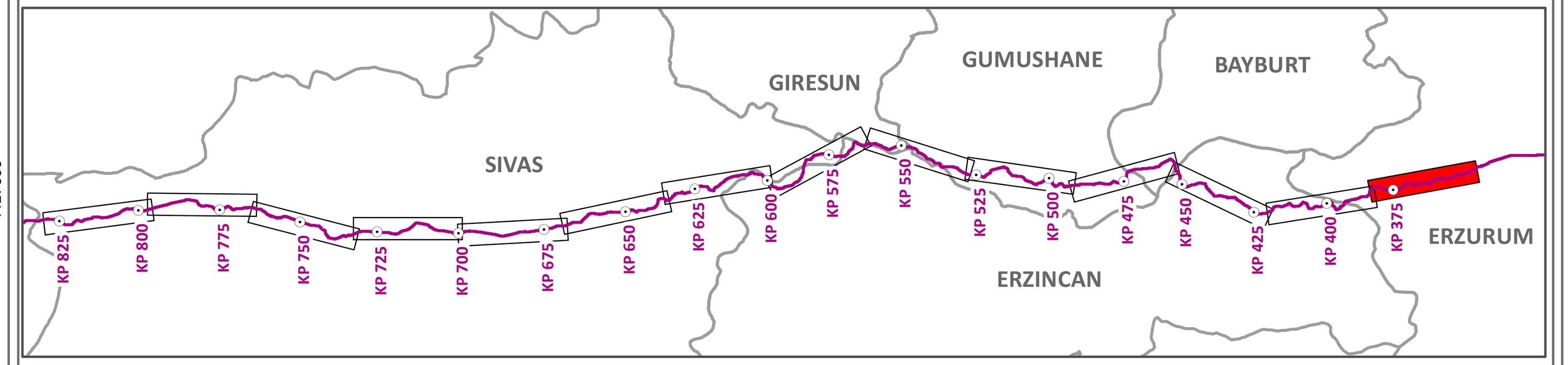
The maps are provided in pdf version.

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 01

KP 375+000 - 382+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

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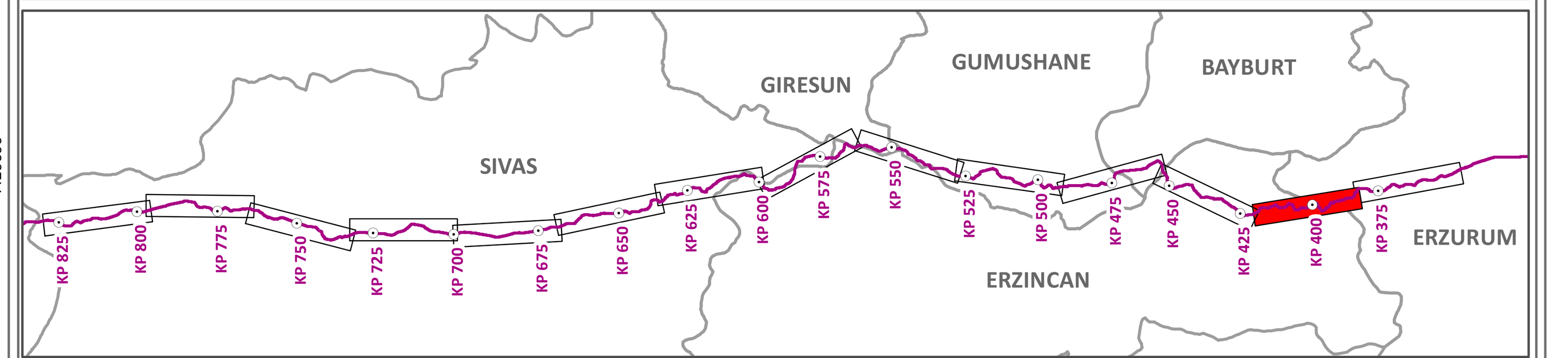
LOT 2

KEY MAP



MAP 02

KP 382+000 - 420+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

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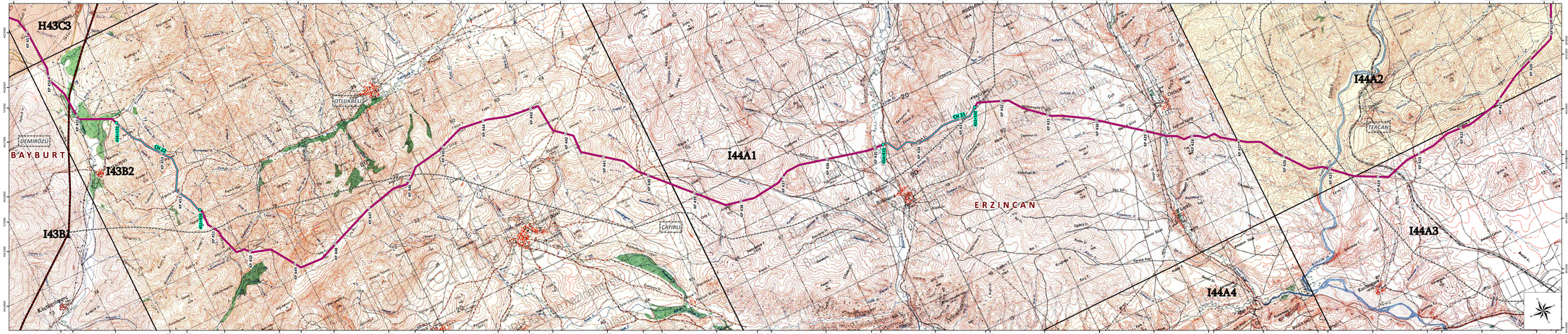

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TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 03

KP 420+000 - 457+000

LEGEND

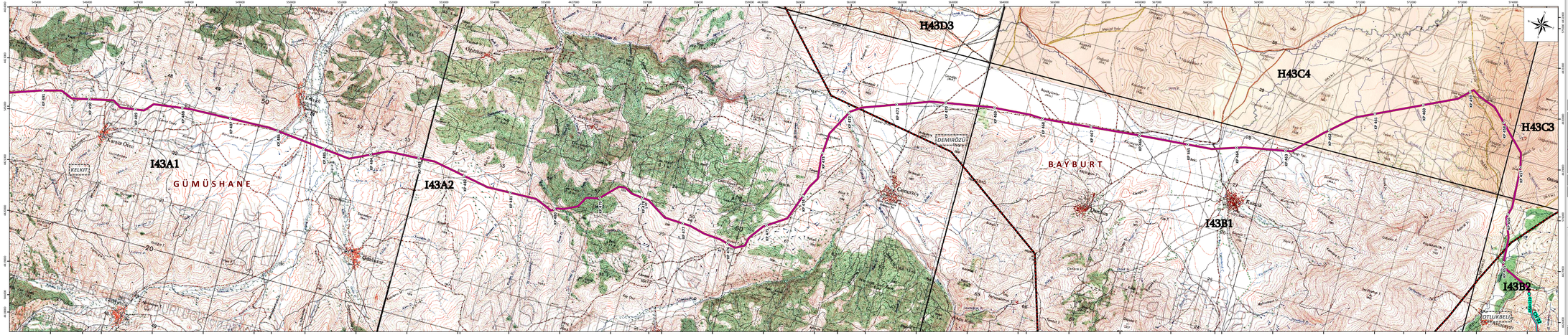
- TANAP NGPL Route
- Kilometer Point
- Camp Site
- Province Boundary
- District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

Projection: UTM Zone 37 Datum WGS84



TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 04

KP 457+000 - 491+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- Province Boundary
- District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

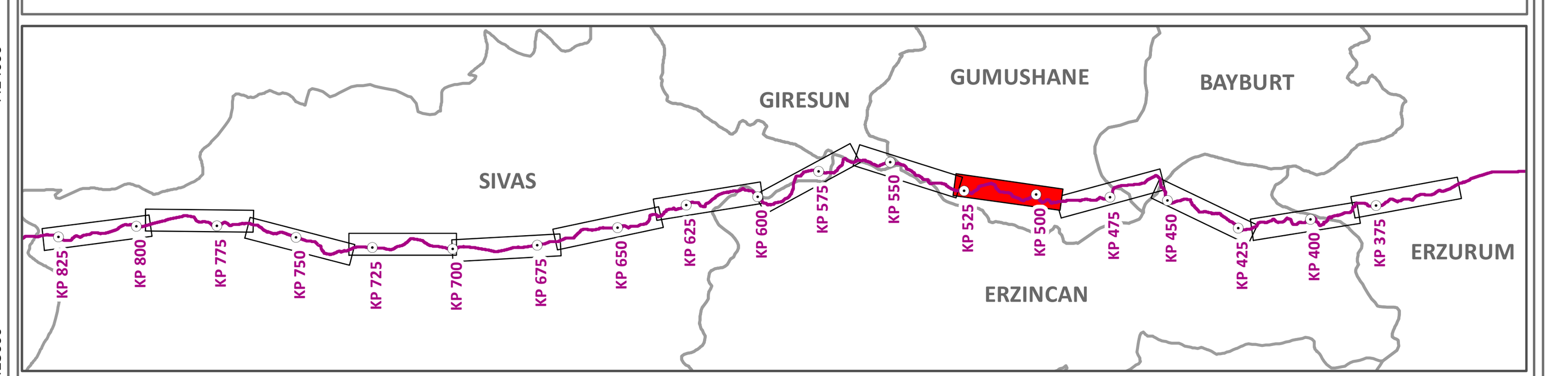
Projection :UTM Zone 37 Datum ED50

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 05

KP 491+000 - 528+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

ENERJİ VE ÇEVRE YATIRIMLARI A.Ş.
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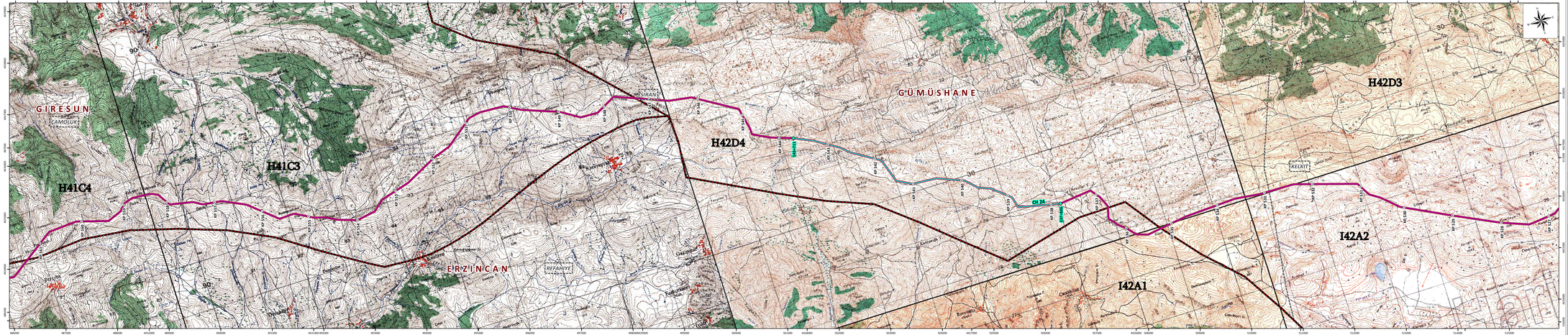


TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 06

KP 528+000 - 561+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- Province Boundary
- District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

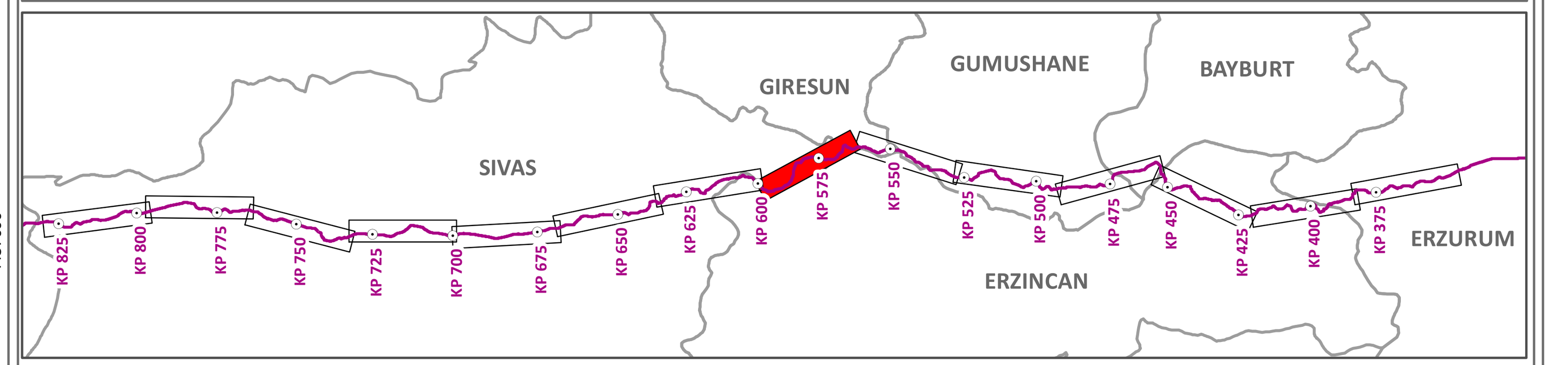
Projection :UTM Zone 37 Datum ED50

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 07

KP 561+000 - 601+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

ENERJİ VE ÇEVRE YATIRIMLARI A.Ş.
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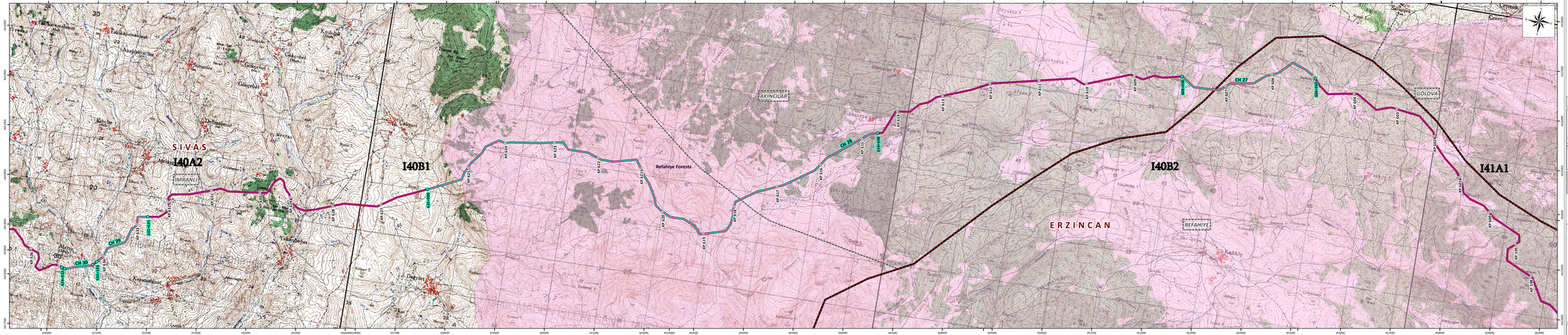


TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 08

KP 601+000 - 636+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- Province Boundary
- District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

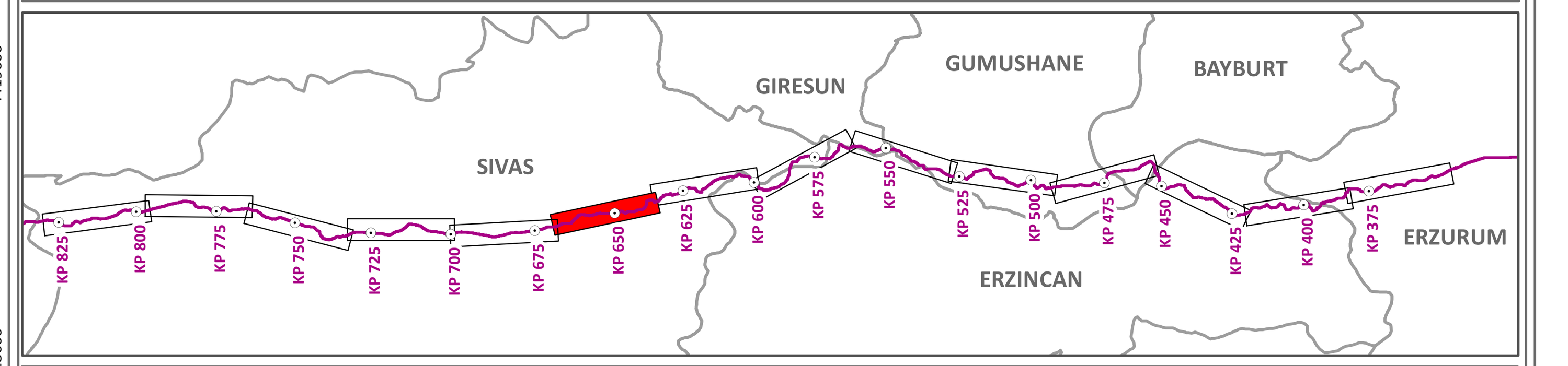
Projection: UTM Zone 37 Datum ED50

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 09

KP 636+000 - 669+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

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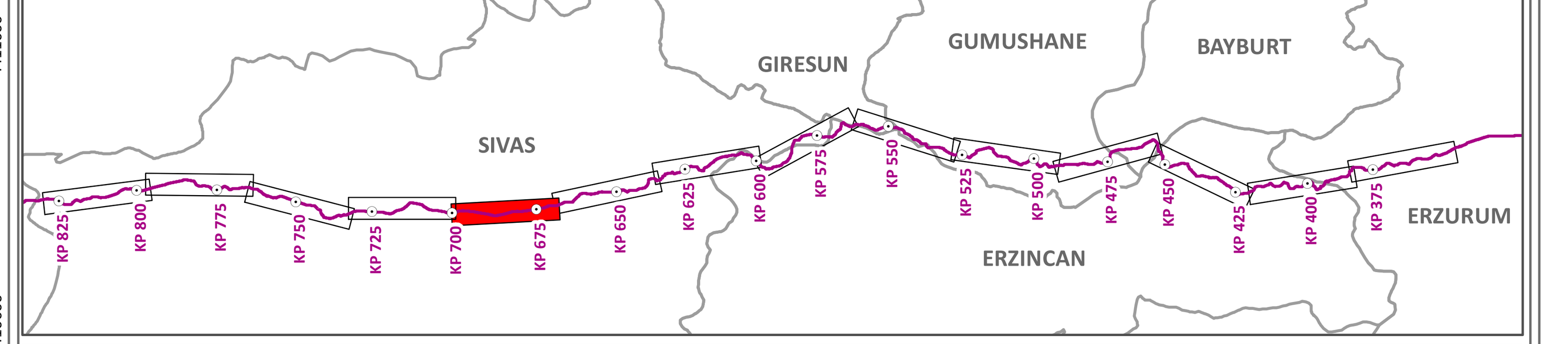
TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 10

KP 669+000 - 700+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SIVAS Province Boundary
- HAFIK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

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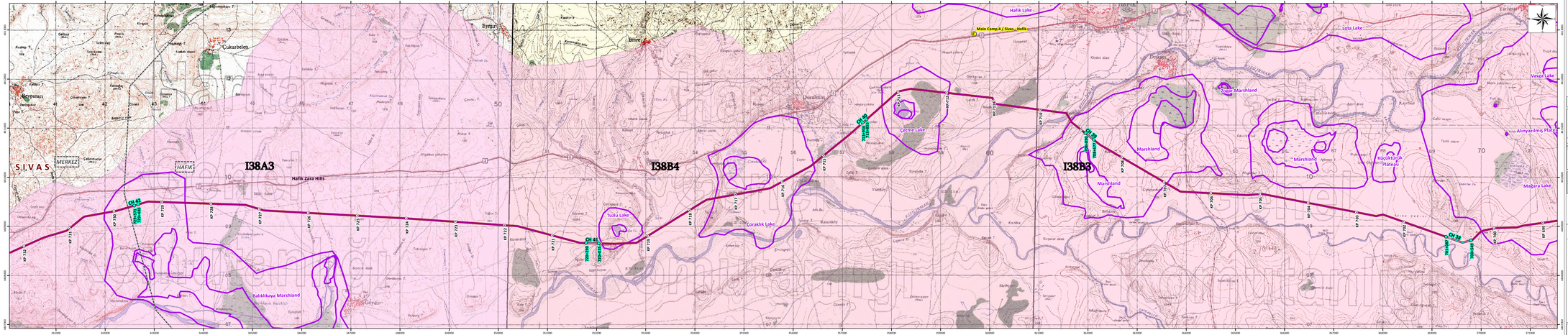


TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 11

KP 700+000 - 732+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- Province Boundary
- District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

1 0 1 2 3 4 5 Km

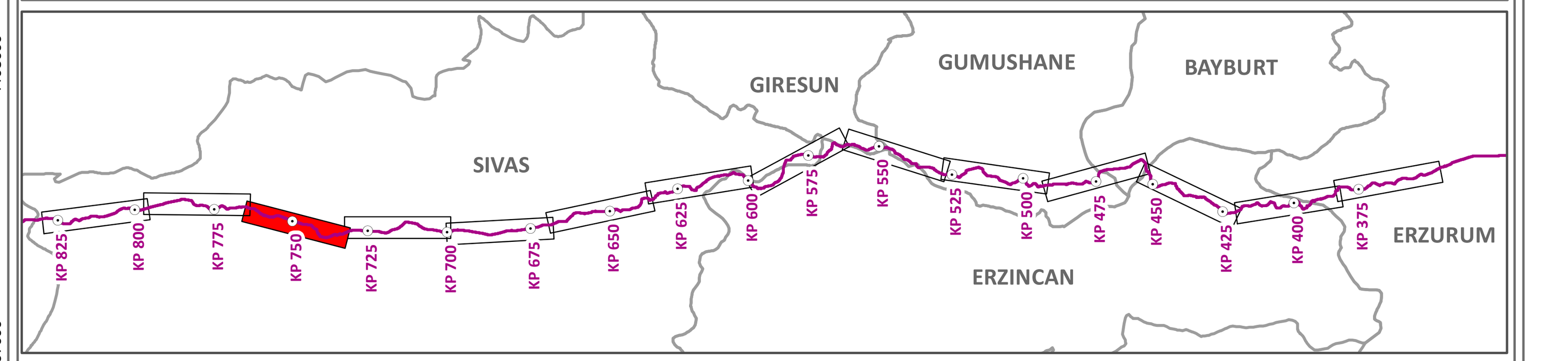
Projection: UTM Zone 37 Datum ED50

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 12

KP 732+000 - 765+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

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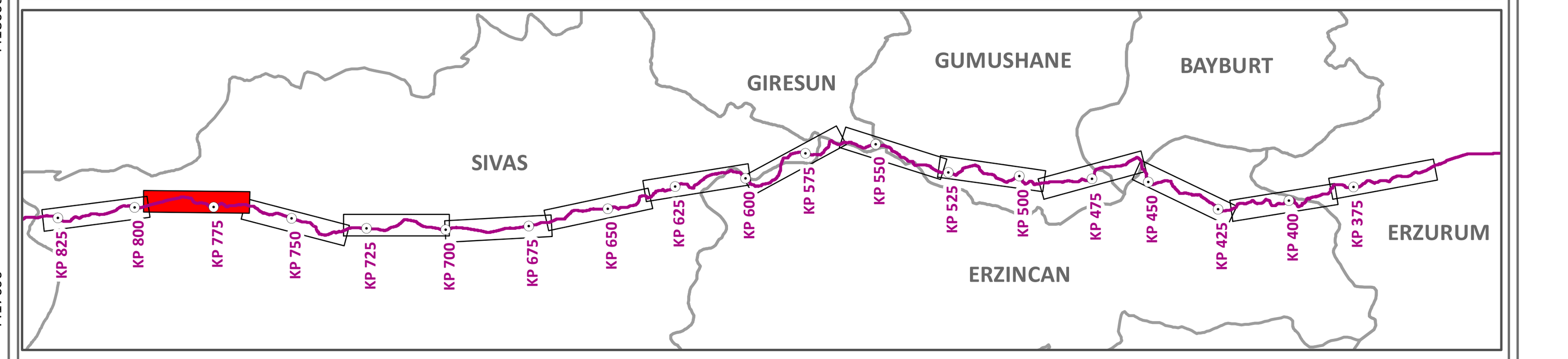
TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 13

KP 765+000 - 797+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

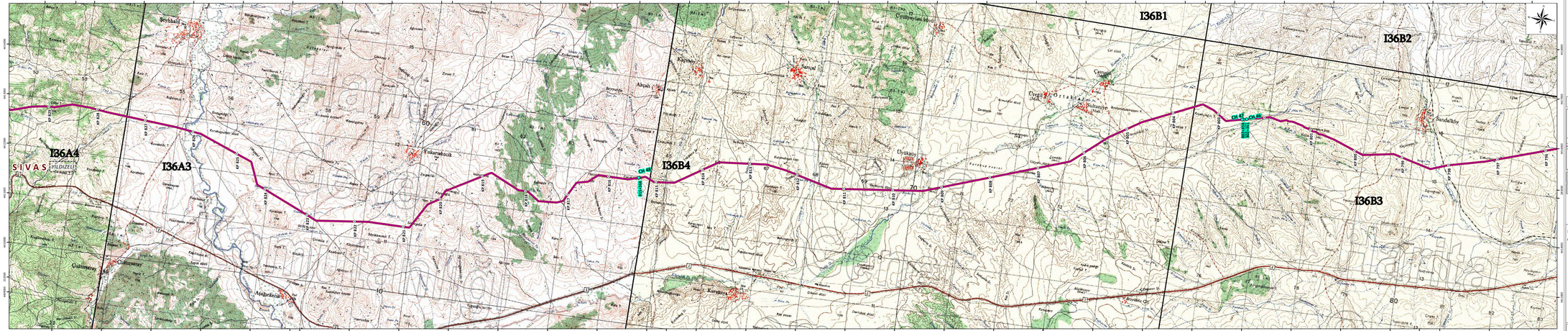
- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

ENERJİ VE ÇEVRE YATIRIMLARI A.Ş.
ENERGY AND ENVIRONMENTAL INVESTMENTS INC.



TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 14

KP 797+000 - 825+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SIVAS Province Boundary
- YILDIZELI District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- CH 48 Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

Appendix-2: Recommended Actions (Chapter 10 of BAP)

The table is provided in pdf version.

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 19	385+169-390+000	4,831	*Polyommatus antidolus*	August-February	* 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * The stones and rocks shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Stone and rock restoration shall be done according to the methodology and between the (385+509-385+580/ 385+959-386+009/ 386+570-386+627/ 386+759-386+790/ 387+230-387+288/ 387+753-387+814/ 388+237-388+303/ 388+808-388+872/ 389+255-389+326/ 389+746-389+836) KP's.	* 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * The stones and rocks shall be stored nearby the construction site. * The seeds of the plants of the *Onobrychis* and *Astragalus* genus, which are the food plants of the larvae, shall be collected between 15 July – 30 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Stone and rock restoration shall be done according to the methodology and between the (385+509-385+580/ 385+959-386+009/ 386+570-386+627/ 386+759-386+790/ 387+230-387+288/ 387+753-387+814/ 388+237-388+303/ 388+808-388+872/ 389+255-389+326/ 389+746-389+836) KP's. * The collected seeds of the *Onobrychis* and *Astragalus* plants shall be planted to the ROW and to the (37 S 625818.65-4418259.08 / 37 S 626292.01-4418397.42 / 37 S 626832.86-4418541.91 / 37 S 627342.77-4418689.28 / 37 S 628381.92-4419157.26) coordinates between September-November.	* 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * Stone and rock restoration shall be done according to the methodology and between the (385+509-385+580/ 385+959-386+009/ 386+570-386+627/ 386+759-386+790/ 387+230-387+288/ 387+753-387+814/ 388+237-388+303/ 388+808-388+872/ 389+255-389+326/ 389+746-389+836) KP's.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Stone and rock restoration shall be done. * The collected seeds of the *Onobrychis* and *Astragalus* plants shall be planted to the ROW and to the (37 S 625818.65-4418259.08 / 37 S 626292.01-4418397.42 / 37 S 626832.86-4418541.91 / 37 S 627342.77-4418689.28 / 37 S 628381.92-4419157.26) coordinates between September-November.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 20	393+489-394+339	0,85	*Zonitis nigriventris*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae, Labiatae, Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period and shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae, Labiatae, Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period and shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * No restriction	* Topsoil shall be replaced within a maximum of 3 months from removal. * No restriction	No restriction	None
CH 21	432+592-434+819	2,227	*Salvia huberi, Cousinia halyensis*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Salvia huberi* species shall be collected near the ROW between 1 July-1 August, the seeds of *Cousinia halyensis* species shall be collected near the ROW between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Salvia huberi* and *Cousinia halyensis* species shall be planted according to the methodology and to (37 S 591511.00-4418898.00 / 37 S 590974.00-4418942.00 / 37 S 590452.00-4418838.00/ 37 S 589846.00-4418931.00) coordinates on the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Salvia huberi* species shall be collected between 1 July-1 August, the seeds of *Cousinia halyensis* species shall be collected between 15 July-15 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Salvia huberi* and *Cousinia halyensis* species shall be planted according to the methodology and to (37 S 591511.00-4418898.00 / 37 S 590974.00-4418942.00 / 37 S 590452.00-4418838.00/ 37 S 589846.00-4418931.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Salvia huberi* species shall be collected between 1 July-1 August, the seeds of *Cousinia halyensis* species shall be collected between 15 July-15 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Salvia huberi* and *Cousinia halyensis* species shall be planted according to the methodology and to (37 S 591511.00-4418898.00 / 37 S 590974.00-4418942.00 / 37 S 590452.00-4418838.00/ 37 S 589846.00-4418931.00) coordinates to the ROW between September-November.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 22	451+458-454+120	2,662	*Isatis glauca ssp. sivasica, Polyommatus actis*	August-February	* If the construction works start in March 2015; the seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be collected near the ROW between 15 July-15 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 576028.17-4425766.25 / 37 S 576523.38-4425039.53 / 37 S 576546.39-4423957.85) coordinates on the ROW between September-November. * Terracing shall be carried out at the (451+966-452+070/ 453+894-454+000) KP's to prevent erosion. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (452+490-452+602/ 453+310-453+402) KP's.	* The seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be collected between 15 July-15 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 576028.17-4425766.25 / 37 S 576523.38-4425039.53 / 37 S 576546.39-4423957.85) coordinates to the ROW between September-November. * Terracing shall be carried out at the (451+966-452+070/ 453+894-454+000) KP's to prevent erosion. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (452+490-452+602/ 453+310-453+402) KP's.	* The seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be collected between 15 July-15 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 576028.17-4425766.25 / 37 S 576523.38-4425039.53 / 37 S 576546.39-4423957.85) coordinates to the ROW between September-November. * Terracing shall be carried out at the (451+966-452+070/ 453+894-454+000) KP's to prevent erosion. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (452+490-452+602/ 453+310-453+402) KP's.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 23	518+154-521+487	3,333	*Tanacetum densum ssp. sivasicum, Polyommatus actis*	August-February	* If the construction works start in March 2015; the seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be collected near the ROW between 1 July-1 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 523732.00-4427059.00 / 37 S 523091.00-4426900.00 / 37 S 522478.00-4426726.00 / 37 S 522307.00-4426273.00 / 37 S 521915.00-4425841.00) coordinates to the ROW between September-November. * The seeds of non-endemic native plants shall be collected and planted on the ROW for erosion control in dip slopes. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (518+738-518+818 / 519+242-519+326 / 519+745-519+810 / 520+013-520+111 / 520+742- 520-782 / 521+190- 521+243 / 521+403-521+449) KP's.	* The seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be collected between 1 July-1 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 523732.00-4427059.00 / 37 S 523091.00-4426900.00 / 37 S 522478.00-4426726.00 / 37 S 522307.00-4426273.00 / 37 S 521915.00-4425841.00) coordinates to the ROW between September-November. * The seeds of non-endemic native plants shall be collected and planted on the ROW for erosion control in dip slopes. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (518+738-518+818 / 519+242-519+326 / 519+745-519+810 / 520+013-520+111 / 520+742- 520-782 / 521+190- 521+243 / 521+403-521+449) KP's.	* The seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be collected between 1 July-1 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 523732.00-4427059.00 / 37 S 523091.00-4426900.00 / 37 S 522478.00-4426726.00 / 37 S 522307.00-4426273.00 / 37 S 521915.00-4425841.00) coordinates to the ROW between September-November. * The seeds of non-endemic native plants shall be collected and planted on the ROW for erosion control in dip slopes. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (518+738-518+818 / 519+242-519+326 / 519+745-519+810 / 520+013-520+111 / 520+742- 520-782 / 521+190- 521+243 / 521+403-521+449) KP's.	1 May-1 June	If all topsoil is removed prior to 1 May, there is no construction time constraint

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 24	537+806-543+711	5,905	*Tanacetum albipinnosum*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Tanacetum albipinnosum* species shall be collected near the ROW between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum albipinnosum* species shall be planted according to the methodology and to the (37 T 507164.00-4428721.00 / 37 T 506251.00-4428878.00 / 37 T 506682.00-4428782.00 / 37 T 506043.00-429193.00 / 37 T 505799.00-4429399.00 / 37 T 505458.00-4429587.00 / 37 T 505096.00-4429820.00 / 37 T 504828.00-429928.00 / 37 T 504424.00-4429977.00 / 37 T 504079.00-4430096.00 / 37 T 503882.00-4430442.00 / 37 T 503699.00-4430709.00 / 37 T 503404.00-4430891.00 / 37 T 503049.00-4431161.00 / 37 T 502769.00-4431335.00 / 37 T 502556.29-4431464.16) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Tanacetum albipinnosum* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum albipinnosum* species shall be planted according to the methodology and to the (37 T 507164.00-4428721.00 / 37 T 506251.00-4428878.00 / 37 T 506682.00-4428782.00 / 37 T 506043.00-429193.00 / 37 T 505799.00-4429399.00 / 37 T 505458.00-4429587.00 / 37 T 505096.00-4429820.00 / 37 T 504828.00-429928.00 / 37 T 504424.00-4429977.00 / 37 T 504079.00-4430096.00 / 37 T 503882.00-4430442.00 / 37 T 503699.00-4430709.00 / 37 T 503404.00-4430891.00 / 37 T 503049.00-4431161.00 / 37 T 502769.00-4431335.00 / 37 T 502556.29-4431464.16) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Tanacetum albipinnosum* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum albipinnosum* species shall be planted according to the methodology and to the (37 T 507164.00-4428721.00 / 37 T 506251.00-4428878.00 / 37 T 506682.00-4428782.00 / 37 T 506043.00-429193.00 / 37 T 505799.00-4429399.00 / 37 T 505458.00-4429587.00 / 37 T 505096.00-4429820.00 / 37 T 504828.00-429928.00 / 37 T 504424.00-4429977.00 / 37 T 504079.00-4430096.00 / 37 T 503882.00-4430442.00 / 37 T 503699.00-4430709.00 / 37 T 503404.00-4430891.00 / 37 T 503049.00-4431161.00 / 37 T 502769.00-4431335.00 / 37 T 502556.29-4431464.16) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil is removed prior to 1 May, there is no construction time constraint

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 25	564+425-565+125	0,7	*Isatis undulata*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Isatis undulata* species shall be collected near the ROW between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis undulata* species shall be planted according to the methodology and to the (37 T 484208.00-4434554.00 / 37 T 484039.00-4434704.00 /37 T 483877.00-4434805.00 /37 T 483732.00-4434817.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis undulata* species shall be planted according to the methodology and to the (37 T 484208.00-4434554.00 / 37 T 484039.00-4434704.00 / 37 T 483877.00-4434805.00 /37 T 483732.00-4434817.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis undulata* species shall be planted according to the methodology and to the (37 T 484208.00-4434554.00 / 37 T 484039.00-4434704.00 / 37 T 483877.00-4434805.00 / 37 T 483732.00-4434817.00) coordinates to the ROW between September-November.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 26	588+880-590+358	1,478	*Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cochleria sintenisii* species shall be collected near the ROW between 1 July-1 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 467562.00-4423758.00 / 37 S 467327.00-4423540.00 / 37 S 467222.00-4423461.00 / 37 S 467060.00-4423369.00 /37 S 466640.00-4423271.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 467562.00-4423758.00 / 37 S 467327.00-4423540.00 / 37 S 467222.00-4423461.00 / 37 S 467060.00-4423369.00 / 37 S 466640.00-4423271.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 467562.00-4423758.00 / 37 S 467327.00-4423540.00 / 37 S 467222.00-4423461.00 / 37 S 467060.00-4423369.00 / 37 S 466640.00-4423271.00) coordinates to the ROW between September-November.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 27	604+940-608+000	3,06	*Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cochleria sintenisii* species shall be collected near the ROW between 1 July-1 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 453088.00-4425551.00 / 37 S 453333.00-4425592.00 / 37 S 454270.00-4426118.00 / 37 S 454520.00-4426018.00 / 37 S 454806.00-4425766.00 / 37 S 454909.00-4425685.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 453088.00-4425551.00 / 37 S 453333.00-4425592.00 / 37 S 454270.00-4426118.00 / 37 S 454520.00-4426018.00 / 37 S 454806.00-4425766.00 / 37 S 454909.00-4425685.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 453088.00-4425551.00 / 37 S 453333.00-4425592.00 / 37 S 454270.00-4426118.00 / 37 S 454520.00-4426018.00 / 37 S 454806.00-4425766.00 / 37 S 454909.00-4425685.00) coordinates to the ROW between September-November.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 28	614+648-626+000	11,352	*Bellevalia crassa, Asperula capitellata, Cochlearia sintenisii, Thymus cappadocicus var. pruinosus, Achillea sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the bulbs of *Bellevalia crassa* species shall be collected near the ROW and carried to out of the ROW. * The seeds of the *Asperula capitellata*, *Cochleria sintenisii*, and *Thymus cappadocicus var. pruinosus* species shall be collected near the ROW between 1 July-1 August; the seeds of the *Achillea sintenisii* species shall be collected near the ROW between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Asperula capitellata*, *Thymus cappadocicus var. pruinosus*, *Cochleria sintenisii* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 443666.00-4421745.00/ 37 S443405.00-4421480.00/ 37 S 443357.00-4421037.00/ 37 S 442990.00-4420861.00/ 37 S 442507.00-4421031.00/ 37 S 441965.00-4421153.00/ 37 S 441483.00-4421840.00/ 37 S 440156.00-4422101.00/ 37 S 438720.00-4422064.00/ 37 S 439346. 52-4422147.31) coordinates to the ROW between September-November. * The collected individuals or bulbs of the *Bellevalia crassa* species shall be planted on the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The bulbs of *Bellevalia crassa* species shall be collected from the ROW between1 July-1 August. * The seeds of the *Asperula capitellata*, *Cochleria sintenisii*, and *Thymus cappadocicus var. pruinosus* species shall be collected between 1 July-1 August; the seeds of the *Achillea sintenisii* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Asperula capitellata*, *Thymus cappadocicus var. pruinosus*, *Cochleria sintenisii* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 443666.00-4421745.00/ 37 S443405.00-4421480.00/ 37 S 443357.00-4421037.00/ 37 S 442990.00-4420861.00/ 37 S 442507.00-4421031.00/ 37 S 441965.00-4421153.00/ 37 S 441483.00-4421840.00/ 37 S 440156.00-4422101.00/ 37 S 438720.00-4422064.00/ 37 S 439346. 52-4422147.31) coordinates to the ROW between September-November. * The collected individuals or bulbs of the *Bellevalia crassa* species shall be planted planted on the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The bulbs of *Bellevalia crassa* species shall be collected from the ROW between1 July-1 August. * The seeds of the *Asperula capitellata*, *Cochleria sintenisii*, and *Thymus cappadocicus var. pruinosus* species shall be collected between 1 July-1 August; the seeds of the *Achillea sintenisii* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Asperula capitellata*, *Thymus cappadocicus var. pruinosus*, *Cochleria sintenisii* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 443666.00-4421745.00/ 37 S443405.00-4421480.00/ 37 S 443357.00-4421037.00/ 37 S 442990.00-4420861.00/ 37 S 442507.00-4421031.00/ 37 S 441965.00-4421153.00/ 37 S 441483.00-4421840.00/ 37 S 440156.00-4422101.00/ 37 S 438720.00-4422064.00/ 37 S 439346. 52-4422147.31) coordinates to the ROW between September-November. * The collected individuals or bulbs of the *Bellevalia crassa* species shall be planted planted on the ROW.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 29	632+635 - 634+183	1,548	*Isatis undulata, Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected near the ROW, from the (37 S 431034.20-4418698.72) coordinates between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 431163.69-4418762.97 / 37 S 431439.06-4419180.05 / 37 S 431767.75-4419424.63) coordinates to the ROW between September-November. * Terracing shall be carried out at the (633+257-633+562) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected near the ROW, from the (37 S 431034.20-4418698.72) coordinates between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 431163.69-4418762.97 / 37 S 431439.06-4419180.05 / 37 S 431767.75-4419424.63) coordinates to the ROW between September-November. * Terracing shall be carried out at the (633+257-633+562) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected near the ROW, from the (37 S 431034.20-4418698.72) coordinates between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 431163.69-4418762.97 / 37 S 431439.06-4419180.05 / 37 S 431767.75-4419424.63) coordinates to the ROW between September-November. * Terracing shall be carried out at the (633+257-633+562) KP's to prevent erosion on the dip slopes.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 30	634+285-634+864	0,579	*Isatis undulata, Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of Isatis undulata and *Cochleria sintenisii* species shall be collected near the ROW between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 430808.10-4418378.12 / 37 S 430612.02-4418232.81) coordinates to the ROW between September-November. * Terracing shall be carried out at the (634+736-634+858) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Isatis undulata and *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 430808.10-4418378.12 / 37 S 430612.02-4418232.81) coordinates to the ROW between September-November. * Terracing shall be carried out at the (634+736-634+858) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 430808.10-4418378.12 / 37 S 430612.02-4418232.81) coordinates to the ROW between September-November. * Terracing shall be carried out at the (634+736-634+858) KP's to prevent erosion on the dip slopes.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 31	634+906-634+932	0,026	*Hextoma n. sp., Tipula n.sp*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The riparian vegetation shall be restored and aquatic and semi-aquatic areas shall be re-created at the (634+906- 634+932) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The riparian vegetation shall be restored and aquatic and semi-aquatic areas shall be re-created at the (634+906- 634+932) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The riparian vegetation shall be restored and aquatic and semi-aquatic areas shall be re-created at the (634+906- 634+932) KP's.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 32	652+000-654+878	2,878	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 416467.82-4414801.73/ 37 S 416377.69-4414800.92/37 S 416306.80-4414801.76/37 S 416251.56-4414800.98/37 S 416084.26-4414800.34/37 S 415833.94-4414800.57/ 37 S 415591.47-4414801.24 /37 S 413891.73-4414797.64) coordinates to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 416467.82-4414801.73/ 37 S 416377.69-4414800.92/37 S 416306.80-4414801.76/37 S 416251.56-4414800.98/37 S 416084.26-4414800.34/37 S 415833.94-4414800.57/ 37 S 415591.47-4414801.24 /37 S 413891.73-4414797.64) coordinates to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 416467.82-4414801.73/ 37 S 416377.69-4414800.92/37 S 416306.80-4414801.76/37 S 416251.56-4414800.98/37 S 416084.26-4414800.34/37 S 415833.94-4414800.57/ 37 S 415591.47-4414801.24 /37 S 413891.73-4414797.64) coordinates to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 33	656+000-656+431	0,431	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 412591.57-4414507.49/ 37 S 412429.08-4414443.13/ 37 S 412246.27-4414412.27) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 412591.57-4414507.49/ 37 S 412429.08-4414443.13/ 37 S 412246.27-4414412.27) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 412591.57-4414507.49/ 37 S 412429.08-4414443.13/ 37 S 412246.27-4414412.27) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 34	660+353 - 660+456	0,103	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 408394.58-4414398.36/ 37 S 408331.00-4414381.37) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 408394.58-4414398.36/ 37 S 408331.00-4414381.37) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 408394.58-4414398.36/ 37 S 408331.00-4414381.37) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 35	661+206 - 661+709	0,503	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected near the ROW between 15 June-15 July. * The *Astragalus zaraensis, Achillea sintenisii, Scorzonera aucherana, Thymus pectinatus, Gypsophila eriocalyx* species individuals shall be removed as tufts from the (661+236-661+267 / 661+353-661+387 / 661+432-661+461 / 661+531-661+576) KP's and shall be transferred to the (37 S 407182.00-4414267.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 407582.00-4414160.00/ 37 S 407486.00-4414130.00) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out between the (661+448-661+704) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected near the ROW between 15 June-15 July. * The *Astragalus zaraensis, Achillea sintenisii, Scorzonera aucherana, Thymus pectinatus, Gypsophila eriocalyx* species individuals shall be removed as tufts from the (661+236-661+267 / 661+353-661+387 / 661+432-661+461 / 661+531-661+576) KP's and shall be transferred to the (37 S 407182.00-4414267.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 407582.00-4414160.00/ 37 S 407486.00-4414130.00) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out between the (661+448-661+704) KP's.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 36	683+613-683+648	0,035	*Dysmachus safranboluticus, Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Minuartia corymbulosa var. gypsophiloides*	July-March	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis* species individuals shall be removed as tufts from the (37 S 386761.62 4408728.69) coordinates and shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * The individuals of the *Achillea sintenisii* species shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 386751.62-4408725.89) coordinates between September-November. * The transferred individuals of the *Astragalus zaraensis* species shall be planted to the (37 S 386761.62-4408728.69) coordinates. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis* species individuals shall be removed as tufts from the (37 S 386761.62 4408728.69) coordinates and shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * The individuals of the *Achillea sintenisii* species shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 386751.62-4408725.89) coordinates between September-November. * The transferred individuals of the *Astragalus zaraensis* species shall be planted to the (37 S 386761.62-4408728.69) coordinates. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis* species individuals shall be removed as tufts from the (37 S 386761.62 4408728.69) coordinates and shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * The individuals of the *Achillea sintenisii* species shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 386751.62-4408725.89) coordinates between September-November. * The transferred individuals of the *Astragalus zaraensis* species shall be planted to the (37 S 386761.62-4408728.69) coordinates. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 37	683+924-683+963	0,039	*Dysmachus safranboluticus, Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Minuartia corymbulosa var. gypsophiloides*	July-March	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species individuals shall be removed as tufts between the (683+934-683+954) KP's and shall be transferred to the (37 S 386463.44-4408686.64) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be planted according to the methodology and between the (683+934-683+954) KP's between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species as tufts shall be planted at the (683+934-683+954) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species individuals shall be removed as tufts between the (683+934-683+954) KP's and shall be transferred to the (37 S 386463.44-4408686.64) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be planted according to the methodology and between the (683+934-683+954) KP's between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species as tufts shall be planted at the (683+934-683+954) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species individuals shall be removed as tufts between the (683+934-683+954) KP's and shall be transferred to the (37 S 386463.44-4408686.64) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* species shall be planted according to the methodology and between the (683+934-683+954) KP's between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species as tufts shall be planted at the (683+934-683+954) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 38	700+549 - 701+087	0,538	*Astragalus aytatchii, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus aytatchii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora, Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus aytatchii, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis* and *Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 369839.96-4408605.07/ 37 S 369786.46-4408543.51/37 S 370048.89-4408740.47) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species as tufts shall be planted at the (700+757-701+006) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus aytatchii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora, Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis and Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus aytatchii, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis* and *Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 369839.96-4408605.07/ 37 S 369786.46-4408543.51/37 S 370048.89-4408740.47) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis and Thymus pectinatus* species as tufts shall be planted at the (700+757-701+006) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus aytatchii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora, Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus aytatchii, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis* and *Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 369839.96-4408605.07/ 37 S 369786.46-4408543.51/37 S 370048.89-4408740.47) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species as tufts shall be planted at the (700+757-701+006) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 39	708+677-708+890	0,213	*Achillea sintenisii, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Achillea sintenisii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Minuartia corymbulosa var. gypsophiloides, Astragalus zaraensis, Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 362348.79-4410413.51/ 37 S 362385.09-4410392.30/37 S 362445.47-4410357.19/37 S 362483.09-4410335.10) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Minuartia corymbulosa var. gypsophiloides, Astragalus zaraensis, Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 362348.79-4410413.51/ 37 S 362385.09-4410392.30/37 S 362445.47-4410357.19/37 S 362483.09-4410335.10) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Minuartia corymbulosa var. gypsophiloides, Astragalus zaraensis, Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 362348.79-4410413.51/ 37 S 362385.09-4410392.30/37 S 362445.47-4410357.19/37 S 362483.09-4410335.10) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 40	713+855-713+956	0,101	*Achillea sintenisii, Gypsophila aucheri, Gypsophila heteropoda ssp. minutiflora, Onosma sintenisii, Centaurea sivasica*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica, Gypsophila heteropoda ssp. minutiflora* species shall be planted according to the methodology and to the (37 S 357833.67-4411319.36/37 S 357807.42-4411296.16/37 S 357783.72-4411275.56) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, and Centaurea sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica, Gypsophila heteropoda ssp. minutiflora* species shall be planted according to the methodology and to the (37 S 357833.67-4411319.36/37 S 357807.42-4411296.16/37 S 357783.72-4411275.56) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, and Centaurea sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds *of Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica, Gypsophila heteropoda ssp. minutiflora* species shall be planted according to the methodology and to the (37 S 357833.67-4411319.36/37 S 357807.42-4411296.16/37 S 357783.72-4411275.56) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 41	720+035-720+290	0,255	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June; the seeds of *Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be collected near the ROW between 15 June-15 July. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be planted according to the methodology and to the (37 S 352322.75-4408468.34/37 S 352395.20-4408471.60/37 S 352452.02-4408473.12) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out at the (720+035-720+083) KP's to prevent erosion.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June; the seeds of *Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri,* and *Onosma sintenisii* species shall be collected near the ROW between 15 June-15 July. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be planted according to the methodology and to the (37 S 352322.75-4408468.34/37 S 352395.20-4408471.60/37 S 352452.02-4408473.12) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out at the (720+035-720+083) KP's to prevent erosion.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June; the seeds of *Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be collected near the ROW between 15 June-15 July. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be planted according to the methodology and to the (37 S 352322.75-4408468.34/37 S 352395.20-4408471.60/37 S 352452.02-4408473.12) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out at the (720+035-720+083) KP's to prevent erosion.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 42	729+485-729+571	0,086	*Astragalus zaraensis, Achillea sintenisii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The species individuals shall be removed as tufts between the (729+485-729+571) KP's and shall be transferred to the (37 S 343055.79-4409365.90) coordinates. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be planted according to the methodology between September-November. * The removed individuals of the species as tufts shall be planted at the (729+485-729+571) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The species individuals shall be removed as tufts between the (729+485-729+571) KP's and shall be transferred to the (37 S 343055.79-4409365.90) coordinates. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be planted according to the methodology between September-November. * The removed individuals of the species as tufts shall be planted at the (729+485-729+571) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The species individuals shall be removed as tufts between the (729+485-729+571) KP's and shall be transferred to the (37 S 343055.79-4409365.90) coordinates. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be planted according to the methodology between September-November. * The removed individuals of the species as tufts shall be planted at the (729+485-729+571) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 43	733+201-733+366	0,165	*Onosma sintenisii, Isatis glauca ssp. sivasica, Achillea sintenisii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be collected between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP'sand shall be transferred to the (37 S 339751.11-4407877.07) coordinates. * Some of the collected seeds of *Onosma sintenisii and Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 339593.61-4408086.60/ 37 S 339650.73-4408112.15) coordinates between September-November. * The translocated *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be planted between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be collected between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP'sand shall be transferred to the (37 S 339751.11-4407877.07) coordinates. * Some of the collected seeds of *Onosma sintenisii* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 339593.61-4408086.60/ 37 S 339650.73-4408112.15) coordinates between September-November. * The translocated *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be planted between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be collected between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP'sand shall be transferred to the (37 S 339751.11-4407877.07) coordinates. * Some of the collected seeds of *Onosma sintenisii* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 339593.61-4408086.60/ 37 S 339650.73-4408112.15) coordinates between September-November. * The translocated *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be planted between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 44	741+301-741+446	0,145	*Achillea sintenisii, Chrysocamela noeana, Astragalus zaraensis, Cousinia sivasica*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Achillea sintenisii, Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW between 15 June-15 July, the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates * Some of the collected seeds of *Cousinia sivasica* and *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Chrysocamela noeana, Cousinia sivasica, Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 332486.75-4408322.38/37 S 332507.73-4408280.80/37 S 332517.23-4408261.61) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW between 15 June-15 July, the seeds of Chrysocamela *noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates * Some of the collected seeds of *Cousinia sivasica* and *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Chrysocamela noeana, Cusinia sivasica, Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 332486.75-4408322.38/37 S 332507.73-4408280.80/37 S 332517.23-4408261.61) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW between 15 June-15 July, the seeds of Chrysocamela *noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates * Some of the collected seeds of *Cousinia sivasica* and *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Chrysocamela noeana, Cousinia sivasica, Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 332486.75-4408322.38/37 S 332507.73-4408280.80/37 S 332517.23-4408261.61) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-15 July	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 45	746+599-749+672 (in natural habitats)	3,073	*Dysmachus safranboluticus*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	No restriction	None
CH 46	802+361-802+428	0,067	*Hexatoma n. sp., Cousinia halysensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July. * *Juncus* species individuals between the (802+409-802+422) KP's shall be removed and transferred at the (37 S 276993.99-4415718.69) coordinates.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 277036.02-4415687.53) coordinates ROW between September-November. * *Juncus* species removed individuals shall be transferred on the ROW between the (802+409-802+422) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July. * *Juncus* species individuals between the (802+409-802+422) KP's shall be removed and transferred at the (37 S 276993.99-4415718.69) coordinates.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 277036.02-4415687.53) coordinates ROW between September-November. * *Juncus* species removed individuals shall be transferred on the ROW between the (802+409-802+422) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July. * *Juncus* species individuals between the (802+409-802+422) KP's shall be removed and transferred at the (37 S 276993.99-4415718.69) coordinates.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 277036.02-4415687.53) coordinates ROW between September-November. * *Juncus* species removed individuals shall be transferred on the ROW between the (802+409-802+422) KP's.	1 May-15 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 47	802+454-802+755	0,301	*Hexatoma n. sp., Cousinia halysensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 276937.99-4415685.90/37 S 276803.30-4415655.66/37 S 276720.58-4415638.33) coordinates ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 276937.99-4415685.90/37 S 276803.30-4415655.66/37 S 276720.58-4415638.33) coordinates ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 276937.99-4415685.90/37 S 276803.30-4415655.66/37 S 276720.58-4415638.33) coordinates ROW between September-November.	1 May-15 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 48	815+368-815+380	0,012	*Hilara n. sp. 3*	July-March	* The riparian vegetation at the creek bank between the (815+368-815+380) KP's shall be scraped at a depth of 10-15 cm as a layer and stored at the creek side.	* The stored top soil shall be laid back in 3 months at the latest. * The riparian vegetation shall be restored between the (815+368-815+380) KP's and the creek flow shall be provided again.	* The riparian vegetation at the creek bank between the (815+368-815+380) KP's shall be scraped at a depth of 10-15 cm as a layer and stored at the creek side.	* The stored top soil shall be laid back in 3 months at the latest. * The riparian vegetation shall be restored between the (815+368-815+380) KP's and the creek flow shall be provided again.	* The riparian vegetation at the creek bank between the (815+368-815+380) KP's shall be scraped at a depth of 10-15 cm as a layer and stored at the creek side.	* The stored top soil shall be laid back in 3 months at the latest. * The riparian vegetation shall be restored between the (815+368-815+380) KP's and the creek flow shall be provided again.	No restriction	None
CH 49	846+021-846+224	0,203	*Dioctria n. sp. 2, Dysmachus safranboluticus*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested at the (846+021-846+224) KP's and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested at the (846+021-846+224) KP's and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested at the (846+021-846+224) KP's and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	No restriction	None

Appendix-3: Registers

FAUNA REGISTER

SPREAD 3

	Relocated	Injured	Dead
Total this month:			
Total to date:			

Date	Species (Scientific name)	Count	Location of fauna	Relocated count	Injured count	Death count	Relocation Area	Comments

FAUNA REGISTER

SPREAD 4

	Relocated	Injured	Dead
Total this month:			
Total to date:			

Date	Species (Scientific name)	Count	Location of fauna	Relocated count	Injured count	Death count	Relocation Area	Comments

SENSITIVE AREAS REGISTER

LOT 2

TERRESTRIAL CRITICAL HABITATS

ID	Was the no-construction time frame enforced? (if required)	Which seeds were collected?	Date seeds were collected	Amount of seed collected	Seed storage location	Date seeds were planted on ROW	Location where seeds were replanted	Which plants/bulbs were collected?	Date plants/bulbs were collected	How many plants/bulbs were collected	Plants/bulbs Storage location	Date plants/bulbs replanted on ROW during restoration	How many plants/bulbs were replanted on ROW during restoration	Location where plants/bulbs were replanted	Date Herbaceous plants were on ROW	Storage location of herbaceous plants collected.	Date when herbaceous plants were laid on ROW during restoration	Date topsoil was stripped	Date topsoil was reinstated	Date when rocks were collected? (30cm or larger)	Rock storage location	Date rocks were relocated on ROW	Invasive flora species control	Terracing during reinstatement to prevent erosion
CH19																								
CH 20																								
CH21																								
CH22																								
CH23																								
CH 24																								
CH25																								
CH26																								
CH27																								
CH28																								
CH29																								
CH30																								
CH31																								
CH32																								
CH33																								
CH34																								
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CH37																								
CH38																								
CH39																								
CH40																								
CH41																								
CH42																								
CH43																								
CH44																								
CH45																								
CH46																								
CH47																								
CH48																								

FRESHWATER CRITICAL HABITATS

ID	Was the no-construction time frame enforced? (if required)	Start date of crossing (when banks are being topsoiled/graded)	End date of crossing (when final reinstatement completed)	Control of sediment release	Minimize erosion, sedimentation and impact to riparian vegetation	Avoid impact and removal of gravel	Date Erosion and sediment controls in place	Restoration of channel bottom	Restoration of riparian area (contours and vegetation)	Water protection zone marked/flagged ? (30m buffer zone on either side of crossing)	Water sample taken upstream/down stream? Prior/during/post construction
FCH8											
FCH9											
FCH10											
FCH11											
FCH12											

REINSTATEMENT REGISTER
SPREAD 3

KP Start	KP End	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

REINSTATEMENT REGISTER
SPREAD 4

KP Start	KP End	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

TREE CUTTING REGISTER
SPREAD 3

KP	Number of Trees Cut	Type of Trees Cut*

* Please include a photo

WATERCOURSE CROSSINGS REGISTER
SPREAD 3

KP Location of watercourse	Name	Crossing Start Date	Crossing Finish date	Reinstatement Start Date	Reinstatement Finish date	Date erosion and sediment control devices were installed	Comments

WATERCOURSE CROSSINGS REGISTER
SPREAD 4

KP Location of watercourse	Name	Crossing Start Date	Crossing Finish date	Reinstatement Start Date	Reinstatement Finish date	Date erosion and sediment control devices were installed	Comments

TRAINING REGISTER - LOT 2
Reporting Period:

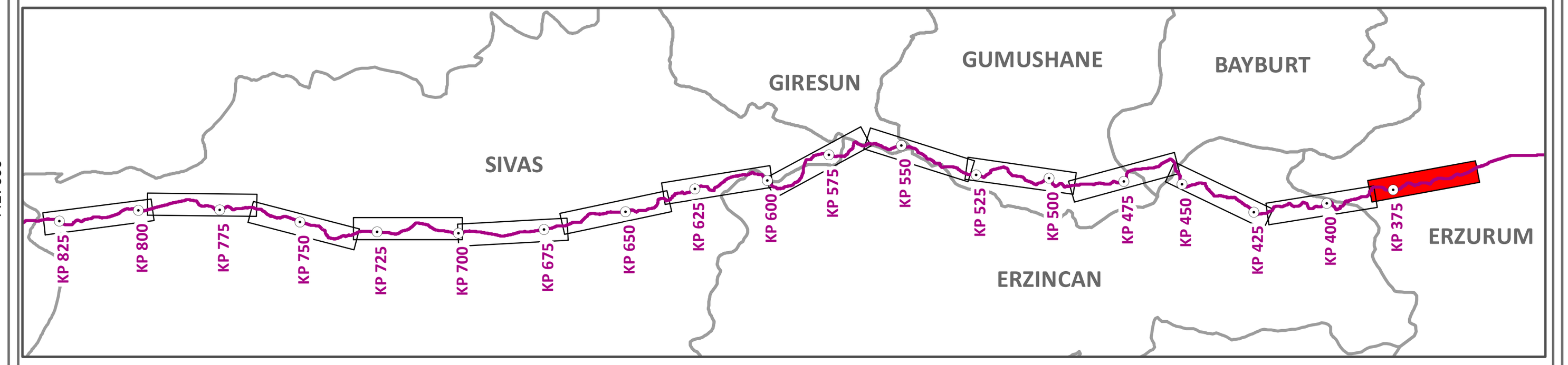
Date	Subject	Duration (min)	Location	Attendees (who)	Number of attendees	Total Manhours

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 01

KP 375+000 - 382+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

ENERJİ VE ÇEVRE YATIRIMLARI A.Ş.
ENERGY AND ENVIRONMENTAL INVESTMENTS INC.

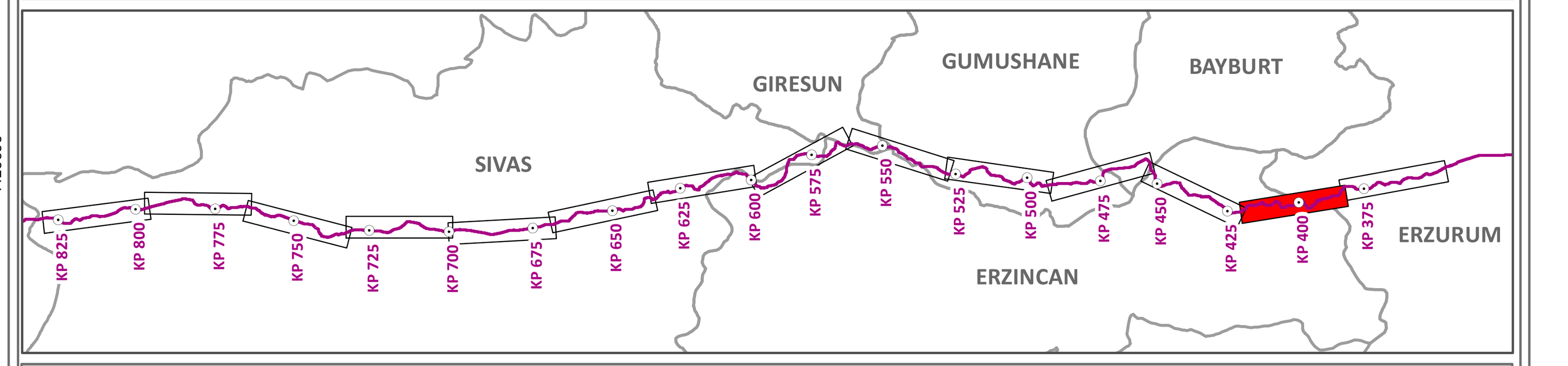
TANAP

TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 02

KP 382+000 - 420+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

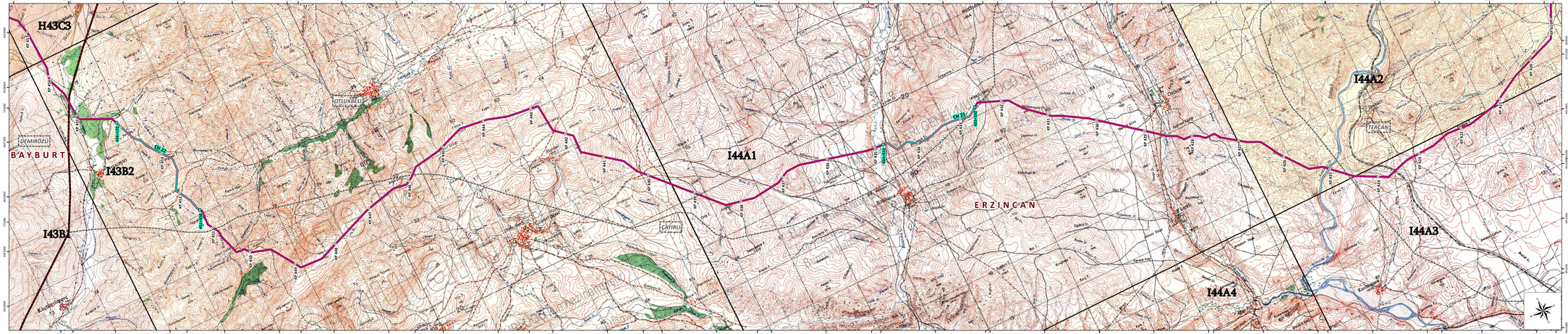
- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

ENERJİ VE ÇEVRE YATIRIMLARI A.Ş.
ENERGY AND ENVIRONMENTAL INVESTMENTS INC.



TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 03

KP 420+000 - 457+000

LEGEND

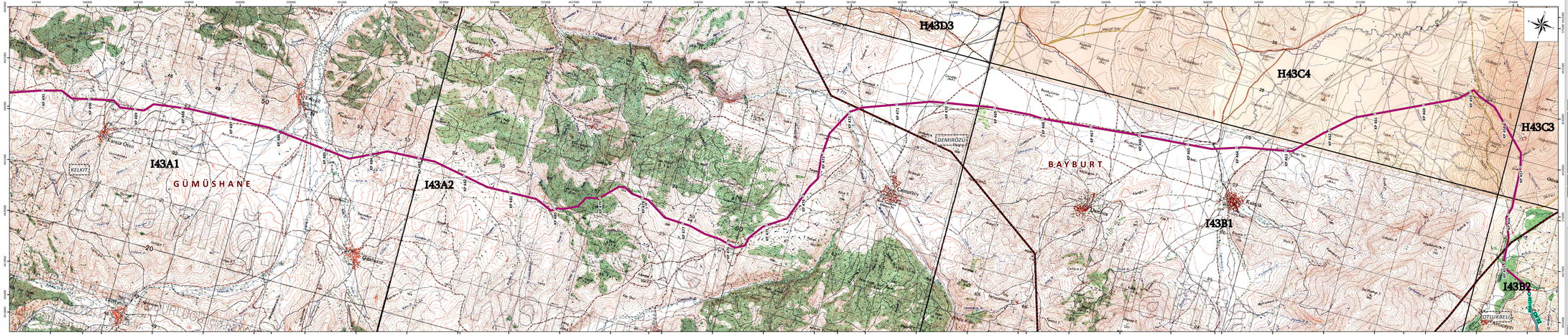
- TANAP NGPL Route
- Kilometer Point
- Camp Site
- Province Boundary
- District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

Projection: UTM Zone 37 Datum WGS84



TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 04

KP 457+000 - 491+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- Province Boundary
- District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

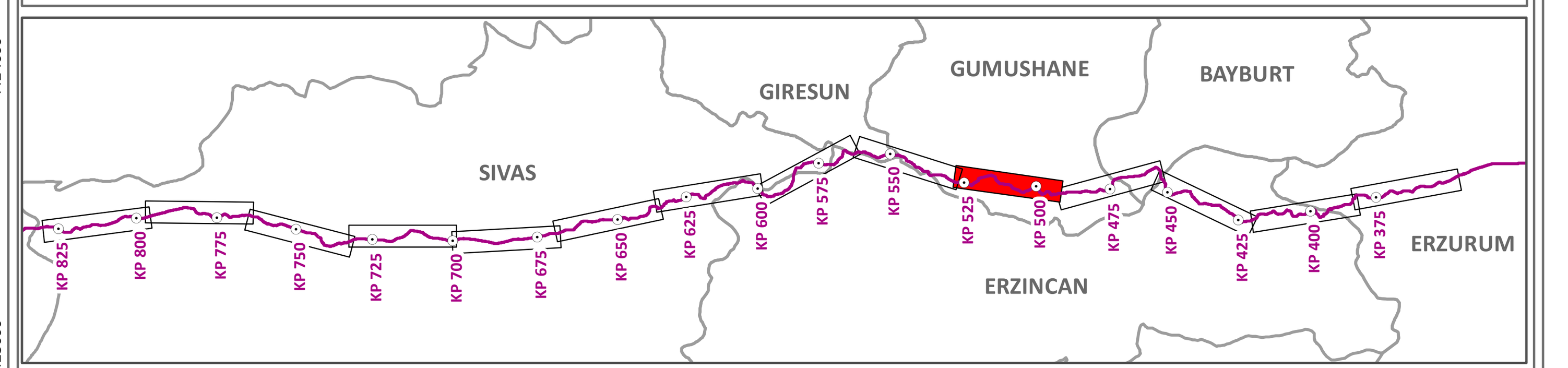
SCALE:1/25.000

Projection :UTM Zone 37 Datum ED50

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2


KEY MAP

MAP 05

KP 491+000 - 528+000

LEGEND

TANAP NGPL Route	Province Boundary (SİVAS)
Kilometer Point	District Boundary (HAFİK)
Camp Site	1/25.000 scaled Topographical Map Boundary (M40a1)

Critical Habitat

Kilometer Point For Critical Habitat	Biodiversity Area
CH 20 Critical Habitat	Protected Area

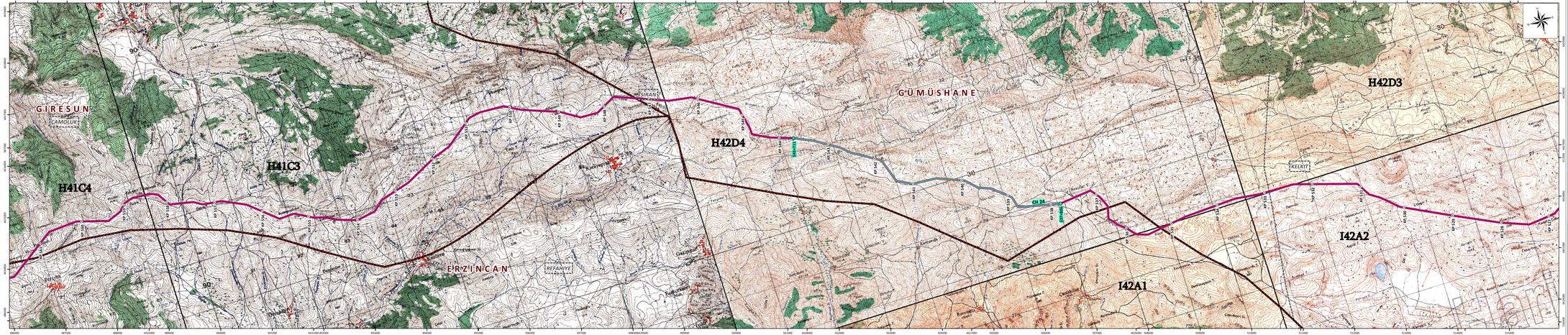
SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

ENERJİ VE ÇEVRE YATIRIMLARI A.Ş.

ENERGY AND ENVIRONMENTAL INVESTMENTS INC.



TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 06

KP 528+000 - 561+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- Province Boundary
- District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

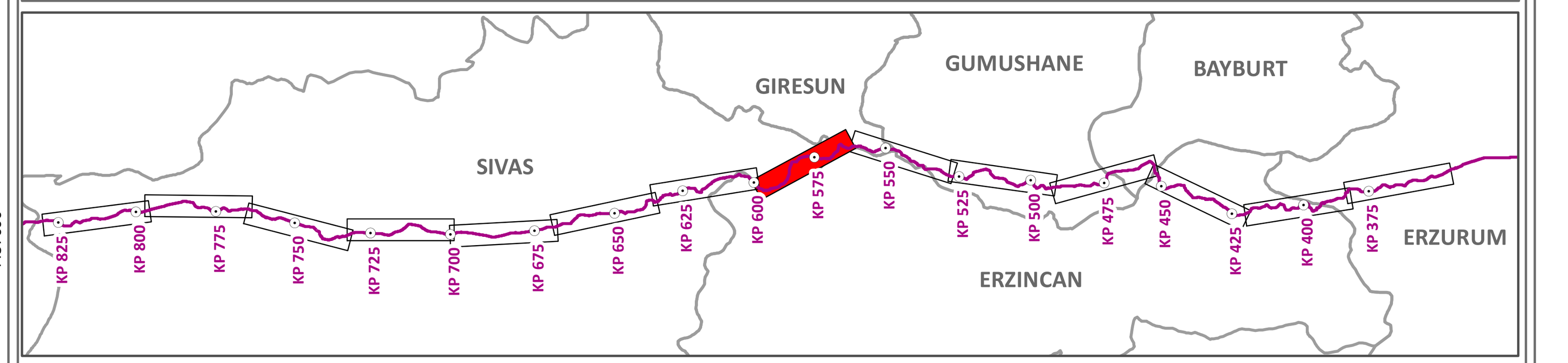
Projection :UTM Zone 37 Datum ED50

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 07

KP 561+000 - 601+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

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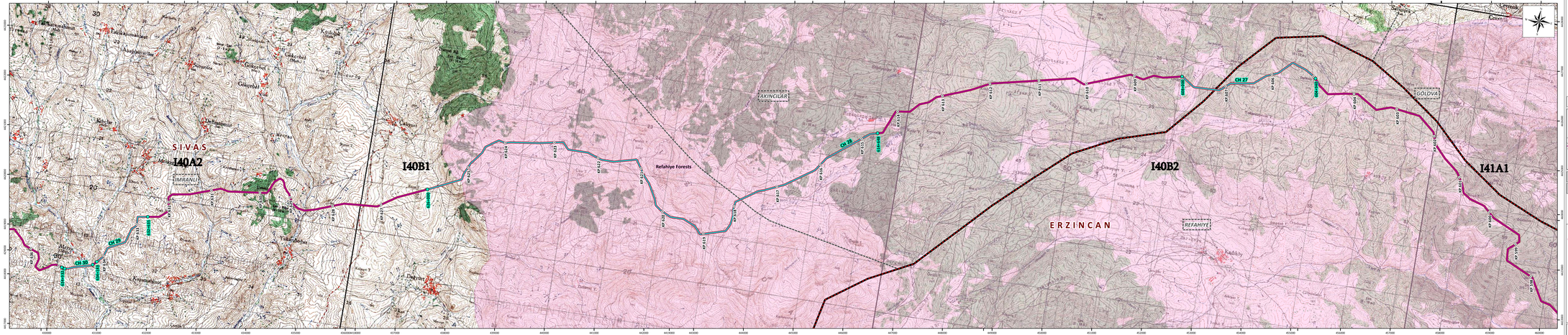


TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 08

KP 601+000 - 636+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- Province Boundary
- District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

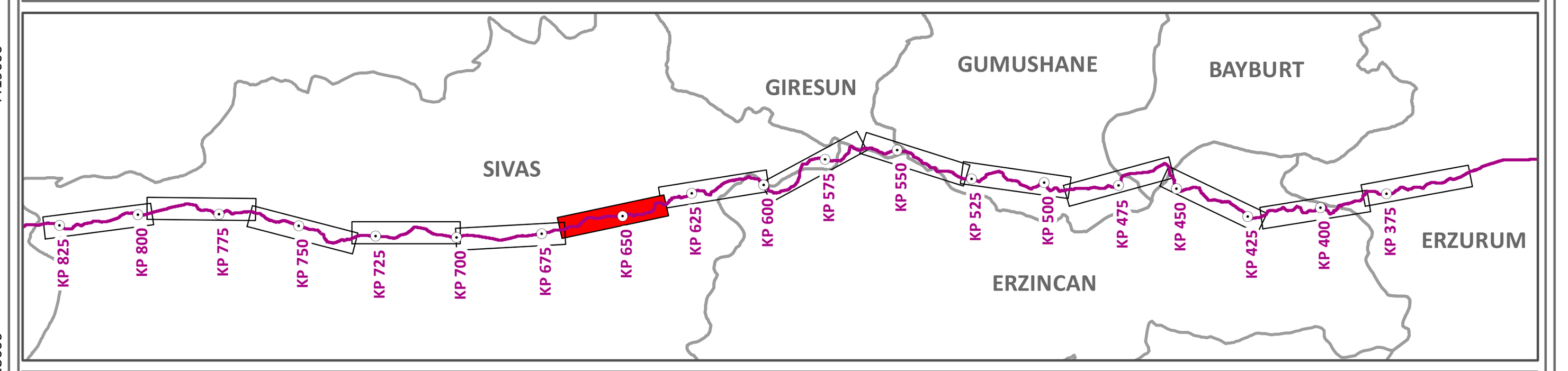
Projection: UTM Zone 37 Datum ED50

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 09

KP 636+000 - 669+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

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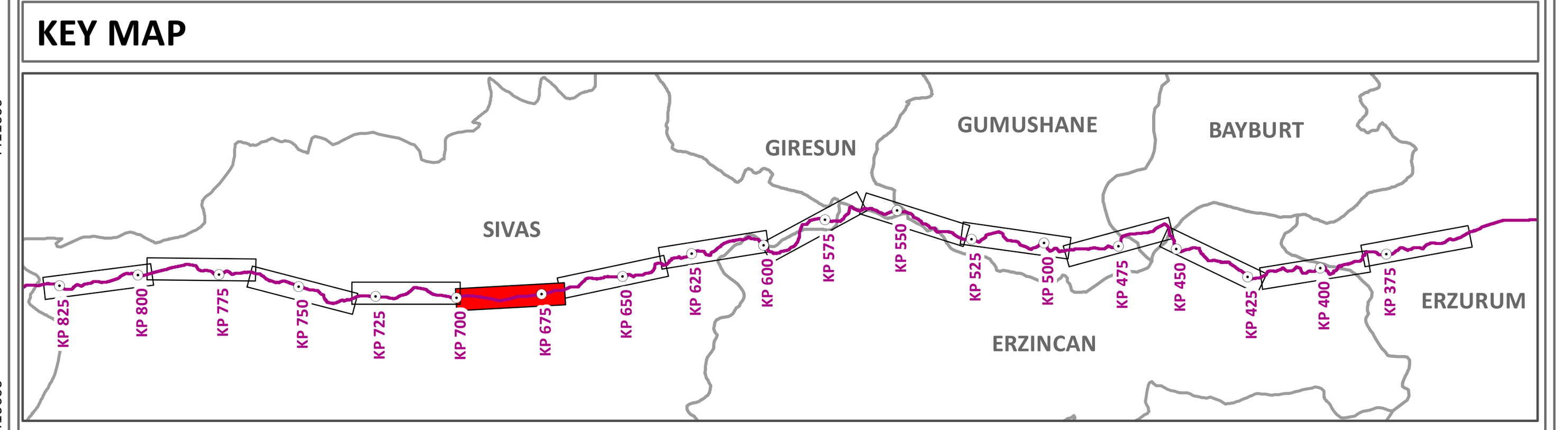
ENERGY AND ENVIRONMENTAL INVESTMENTS INC.

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 10

KP 669+000 - 700+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

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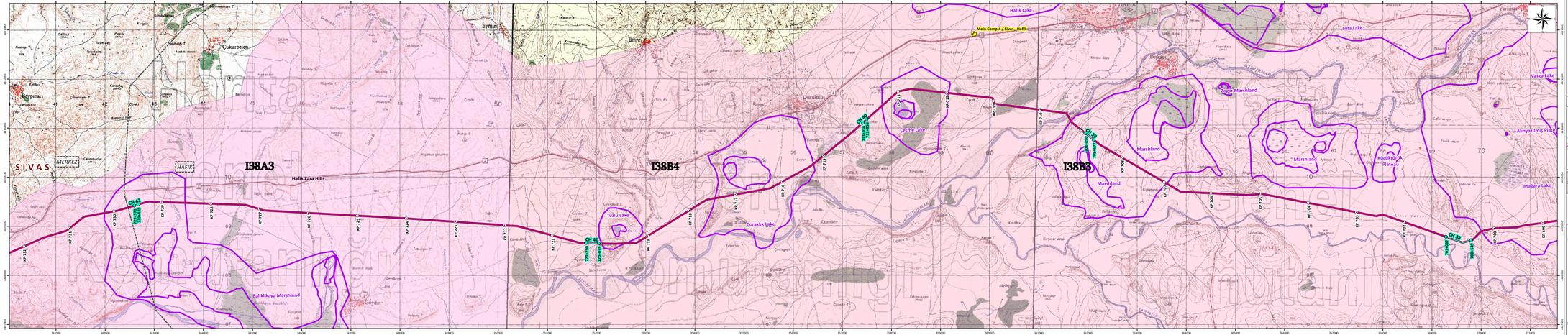


TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 11

KP 700+000 - 732+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- Province Boundary
- District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

1 0 1 2 3 4 5 Km

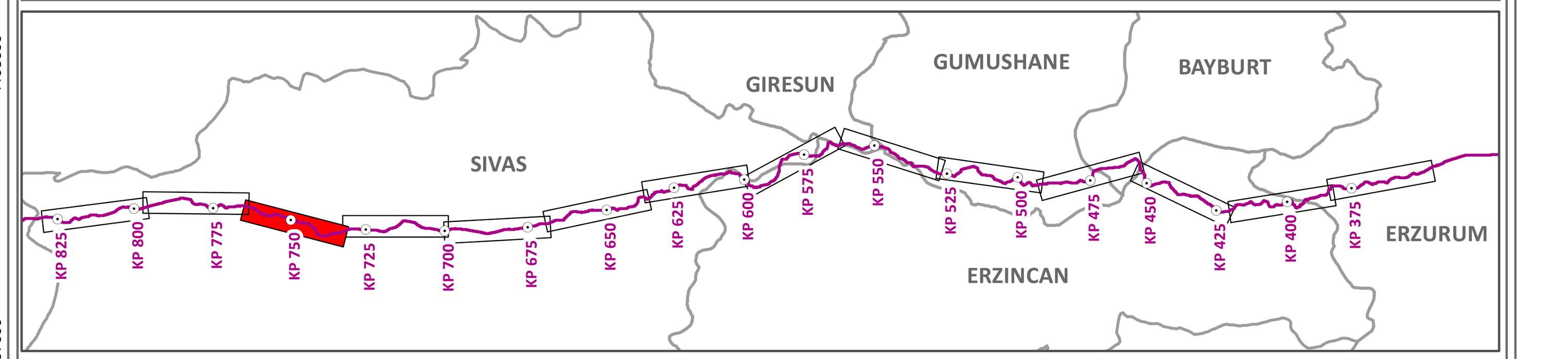
Projection: UTM Zone 37 Datum ED50

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 12

KP 732+000 - 765+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

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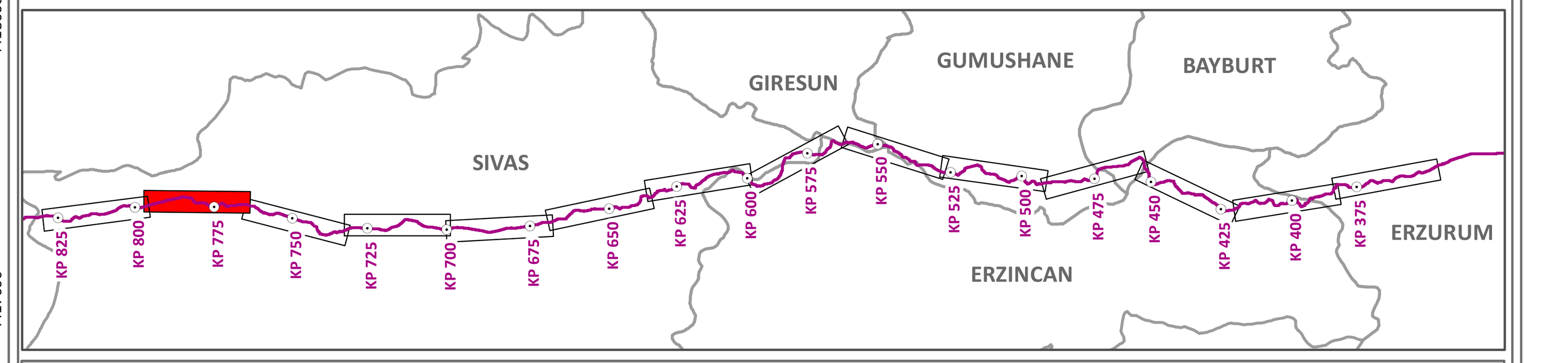
ENERGY AND ENVIRONMENTAL INVESTMENTS INC.

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP



MAP 13

KP 765+000 - 797+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SİVAS Province Boundary
- HAFİK District Boundary
- M40a1 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- Kilometer Point For Critical Habitat
- CH 20 Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

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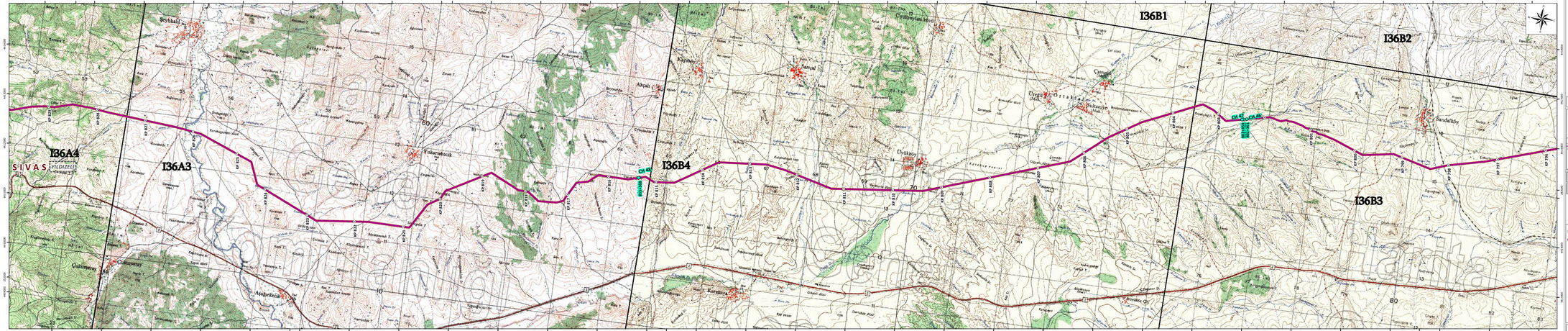
ENERGY AND ENVIRONMENTAL INVESTMENTS INC.



TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

LOT 2

KEY MAP

MAP 14

KP 797+000 - 825+000

LEGEND

- TANAP NGPL Route
- Kilometer Point
- Camp Site
- SIVAS Province Boundary
- YILDIZELI District Boundary
- 1/25.000 scaled Topographical Map Boundary

Critical Habitat

- CH 48 Kilometer Point For Critical Habitat
- Critical Habitat
- Biodiversity Area
- Protected Area

SCALE:1/25.000

0 500 1000 m

Projection: UTM Zone 37 Datum ED50

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 19	385+169-390+000	4,831	*Polyommatus antidolus*	August-February	* 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * The stones and rocks shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Stone and rock restoration shall be done according to the methodology and between the (385+509-385+580/ 385+959-386+009/ 386+570-386+627/ 386+759-386+790/ 387+230-387+288/ 387+753-387+814/ 388+237-388+303/ 388+808-388+872/ 389+255-389+326/ 389+746-389+836) KP's.	* 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * The stones and rocks shall be stored nearby the construction site. * The seeds of the plants of the *Onobrychis* and *Astragalus* genus, which are the food plants of the larvae, shall be collected between 15 July – 30 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Stone and rock restoration shall be done according to the methodology and between the (385+509-385+580/ 385+959-386+009/ 386+570-386+627/ 386+759-386+790/ 387+230-387+288/ 387+753-387+814/ 388+237-388+303/ 388+808-388+872/ 389+255-389+326/ 389+746-389+836) KP's. * The collected seeds of the *Onobrychis* and *Astragalus* plants shall be planted to the ROW and to the (37 S 625818.65-4418259.08 / 37 S 626292.01-4418397.42 / 37 S 626832.86-4418541.91 / 37 S 627342.77-4418689.28 / 37 S 628381.92-4419157.26) coordinates between September-November.	* 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * Stone and rock restoration shall be done according to the methodology and between the (385+509-385+580/ 385+959-386+009/ 386+570-386+627/ 386+759-386+790/ 387+230-387+288/ 387+753-387+814/ 388+237-388+303/ 388+808-388+872/ 389+255-389+326/ 389+746-389+836) KP's.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Stone and rock restoration shall be done. * The collected seeds of the *Onobrychis* and *Astragalus* plants shall be planted to the ROW and to the (37 S 625818.65-4418259.08 / 37 S 626292.01-4418397.42 / 37 S 626832.86-4418541.91 / 37 S 627342.77-4418689.28 / 37 S 628381.92-4419157.26) coordinates between September-November.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 20	393+489-394+339	0,85	*Zonitis nigriventris*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae, Labiatae, Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period and shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae, Labiatae, Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period and shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * No restriction	* Topsoil shall be replaced within a maximum of 3 months from removal. * No restriction	No restriction	None
CH 21	432+592-434+819	2,227	*Salvia huberi, Cousinia halyensis*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Salvia huberi* species shall be collected near the ROW between 1 July-1 August, the seeds of *Cousinia halyensis* species shall be collected near the ROW between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Salvia huberi* and *Cousinia halyensis* species shall be planted according to the methodology and to (37 S 591511.00-4418898.00 / 37 S 590974.00-4418942.00 / 37 S 590452.00-4418838.00/ 37 S 589846.00-4418931.00) coordinates on the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Salvia huberi* species shall be collected between 1 July-1 August, the seeds of *Cousinia halyensis* species shall be collected between 15 July-15 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Salvia huberi* and *Cousinia halyensis* species shall be planted according to the methodology and to (37 S 591511.00-4418898.00 / 37 S 590974.00-4418942.00 / 37 S 590452.00-4418838.00/ 37 S 589846.00-4418931.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Salvia huberi* species shall be collected between 1 July-1 August, the seeds of *Cousinia halyensis* species shall be collected between 15 July-15 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Salvia huberi* and *Cousinia halyensis* species shall be planted according to the methodology and to (37 S 591511.00-4418898.00 / 37 S 590974.00-4418942.00 / 37 S 590452.00-4418838.00/ 37 S 589846.00-4418931.00) coordinates to the ROW between September-November.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 22	451+458-454+120	2,662	*Isatis glauca ssp. sivasica, Polyommatus actis*	August-February	* If the construction works start in March 2015; the seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be collected near the ROW between 15 July-15 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 576028.17-4425766.25 / 37 S 576523.38-4425039.53 / 37 S 576546.39-4423957.85) coordinates on the ROW between September-November. * Terracing shall be carried out at the (451+966-452+070/ 453+894-454+000) KP's to prevent erosion. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (452+490-452+602/ 453+310-453+402) KP's.	* The seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be collected between 15 July-15 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 576028.17-4425766.25 / 37 S 576523.38-4425039.53 / 37 S 576546.39-4423957.85) coordinates to the ROW between September-November. * Terracing shall be carried out at the (451+966-452+070/ 453+894-454+000) KP's to prevent erosion. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (452+490-452+602/ 453+310-453+402) KP's.	* The seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be collected between 15 July-15 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 576028.17-4425766.25 / 37 S 576523.38-4425039.53 / 37 S 576546.39-4423957.85) coordinates to the ROW between September-November. * Terracing shall be carried out at the (451+966-452+070/ 453+894-454+000) KP's to prevent erosion. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (452+490-452+602/ 453+310-453+402) KP's.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 23	518+154-521+487	3,333	*Tanacetum densum ssp. sivasicum, Polyommatus actis*	August-February	* If the construction works start in March 2015; the seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be collected near the ROW between 1 July-1 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 523732.00-4427059.00 / 37 S 523091.00-4426900.00 / 37 S 522478.00-4426726.00 / 37 S 522307.00-4426273.00 / 37 S 521915.00-4425841.00) coordinates to the ROW between September-November. * The seeds of non-endemic native plants shall be collected and planted on the ROW for erosion control in dip slopes. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (518+738-518+818 / 519+242-519+326 / 519+745-519+810 / 520+013-520+111 / 520+742- 520-782 / 521+190- 521+243 / 521+403-521+449) KP's.	* The seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be collected between 1 July-1 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 523732.00-4427059.00 / 37 S 523091.00-4426900.00 / 37 S 522478.00-4426726.00 / 37 S 522307.00-4426273.00 / 37 S 521915.00-4425841.00) coordinates to the ROW between September-November. * The seeds of non-endemic native plants shall be collected and planted on the ROW for erosion control in dip slopes. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (518+738-518+818 / 519+242-519+326 / 519+745-519+810 / 520+013-520+111 / 520+742- 520-782 / 521+190- 521+243 / 521+403-521+449) KP's.	* The seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be collected between 1 July-1 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 523732.00-4427059.00 / 37 S 523091.00-4426900.00 / 37 S 522478.00-4426726.00 / 37 S 522307.00-4426273.00 / 37 S 521915.00-4425841.00) coordinates to the ROW between September-November. * The seeds of non-endemic native plants shall be collected and planted on the ROW for erosion control in dip slopes. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (518+738-518+818 / 519+242-519+326 / 519+745-519+810 / 520+013-520+111 / 520+742- 520-782 / 521+190- 521+243 / 521+403-521+449) KP's.	1 May-1 June	If all topsoil is removed prior to 1 May, there is no construction time constraint

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 24	537+806-543+711	5,905	*Tanacetum albipinnosum*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Tanacetum albipinnosum* species shall be collected near the ROW between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum albipinnosum* species shall be planted according to the methodology and to the (37 T 507164.00-4428721.00 / 37 T 506251.00-4428878.00 / 37 T 506682.00-4428782.00 / 37 T 506043.00-429193.00 / 37 T 505799.00-4429399.00 / 37 T 505458.00-4429587.00 / 37 T 505096.00-4429820.00 / 37 T 504828.00-429928.00 / 37 T 504424.00-4429977.00 / 37 T 504079.00-4430096.00 / 37 T 503882.00-4430442.00 / 37 T 503699.00-4430709.00 / 37 T 503404.00-4430891.00 / 37 T 503049.00-4431161.00 / 37 T 502769.00-4431335.00 / 37 T 502556.29-4431464.16) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Tanacetum albipinnosum* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum albipinnosum* species shall be planted according to the methodology and to the (37 T 507164.00-4428721.00 / 37 T 506251.00-4428878.00 / 37 T 506682.00-4428782.00 / 37 T 506043.00-429193.00 / 37 T 505799.00-4429399.00 / 37 T 505458.00-4429587.00 / 37 T 505096.00-4429820.00 / 37 T 504828.00-429928.00 / 37 T 504424.00-4429977.00 / 37 T 504079.00-4430096.00 / 37 T 503882.00-4430442.00 / 37 T 503699.00-4430709.00 / 37 T 503404.00-4430891.00 / 37 T 503049.00-4431161.00 / 37 T 502769.00-4431335.00 / 37 T 502556.29-4431464.16) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Tanacetum albipinnosum* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum albipinnosum* species shall be planted according to the methodology and to the (37 T 507164.00-4428721.00 / 37 T 506251.00-4428878.00 / 37 T 506682.00-4428782.00 / 37 T 506043.00-429193.00 / 37 T 505799.00-4429399.00 / 37 T 505458.00-4429587.00 / 37 T 505096.00-4429820.00 / 37 T 504828.00-429928.00 / 37 T 504424.00-4429977.00 / 37 T 504079.00-4430096.00 / 37 T 503882.00-4430442.00 / 37 T 503699.00-4430709.00 / 37 T 503404.00-4430891.00 / 37 T 503049.00-4431161.00 / 37 T 502769.00-4431335.00 / 37 T 502556.29-4431464.16) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil is removed prior to 1 May, there is no construction time constraint

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 25	564+425-565+125	0,7	*Isatis undulata*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Isatis undulata* species shall be collected near the ROW between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis undulata* species shall be planted according to the methodology and to the (37 T 484208.00-4434554.00 / 37 T 484039.00-4434704.00 /37 T 483877.00-4434805.00 /37 T 483732.00-4434817.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis undulata* species shall be planted according to the methodology and to the (37 T 484208.00-4434554.00 / 37 T 484039.00-4434704.00 / 37 T 483877.00-4434805.00 /37 T 483732.00-4434817.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis undulata* species shall be planted according to the methodology and to the (37 T 484208.00-4434554.00 / 37 T 484039.00-4434704.00 / 37 T 483877.00-4434805.00 / 37 T 483732.00-4434817.00) coordinates to the ROW between September-November.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 26	588+880-590+358	1,478	*Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cochleria sintenisii* species shall be collected near the ROW between 1 July-1 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 467562.00-4423758.00 / 37 S 467327.00-4423540.00 / 37 S 467222.00-4423461.00 / 37 S 467060.00-4423369.00 /37 S 466640.00-4423271.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 467562.00-4423758.00 / 37 S 467327.00-4423540.00 / 37 S 467222.00-4423461.00 / 37 S 467060.00-4423369.00 / 37 S 466640.00-4423271.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 467562.00-4423758.00 / 37 S 467327.00-4423540.00 / 37 S 467222.00-4423461.00 / 37 S 467060.00-4423369.00 / 37 S 466640.00-4423271.00) coordinates to the ROW between September-November.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 27	604+940-608+000	3,06	*Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cochleria sintenisii* species shall be collected near the ROW between 1 July-1 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 453088.00-4425551.00 / 37 S 453333.00-4425592.00 / 37 S 454270.00-4426118.00 / 37 S 454520.00-4426018.00 / 37 S 454806.00-4425766.00 / 37 S 454909.00-4425685.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 453088.00-4425551.00 / 37 S 453333.00-4425592.00 / 37 S 454270.00-4426118.00 / 37 S 454520.00-4426018.00 / 37 S 454806.00-4425766.00 / 37 S 454909.00-4425685.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 453088.00-4425551.00 / 37 S 453333.00-4425592.00 / 37 S 454270.00-4426118.00 / 37 S 454520.00-4426018.00 / 37 S 454806.00-4425766.00 / 37 S 454909.00-4425685.00) coordinates to the ROW between September-November.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 28	614+648-626+000	11,352	*Bellevalia crassa, Asperula capitellata, Cochlearia sintenisii, Thymus cappadocicus var. pruinosus, Achillea sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the bulbs of *Bellevalia crassa* species shall be collected near the ROW and carried to out of the ROW. * The seeds of the *Asperula capitellata*, *Cochleria sintenisii*, and *Thymus cappadocicus var. pruinosus* species shall be collected near the ROW between 1 July-1 August; the seeds of the *Achillea sintenisii* species shall be collected near the ROW between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Asperula capitellata*, *Thymus cappadocicus var. pruinosus*, *Cochleria sintenisii* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 443666.00-4421745.00/ 37 S443405.00-4421480.00/ 37 S 443357.00-4421037.00/ 37 S 442990.00-4420861.00/ 37 S 442507.00-4421031.00/ 37 S 441965.00-4421153.00/ 37 S 441483.00-4421840.00/ 37 S 440156.00-4422101.00/ 37 S 438720.00-4422064.00/ 37 S 439346. 52-4422147.31) coordinates to the ROW between September-November. * The collected individuals or bulbs of the *Bellevalia crassa* species shall be planted on the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The bulbs of *Bellevalia crassa* species shall be collected from the ROW between1 July-1 August. * The seeds of the *Asperula capitellata*, *Cochleria sintenisii*, and *Thymus cappadocicus var. pruinosus* species shall be collected between 1 July-1 August; the seeds of the *Achillea sintenisii* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Asperula capitellata*, *Thymus cappadocicus var. pruinosus*, *Cochleria sintenisii* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 443666.00-4421745.00/ 37 S443405.00-4421480.00/ 37 S 443357.00-4421037.00/ 37 S 442990.00-4420861.00/ 37 S 442507.00-4421031.00/ 37 S 441965.00-4421153.00/ 37 S 441483.00-4421840.00/ 37 S 440156.00-4422101.00/ 37 S 438720.00-4422064.00/ 37 S 439346. 52-4422147.31) coordinates to the ROW between September-November. * The collected individuals or bulbs of the *Bellevalia crassa* species shall be planted planted on the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The bulbs of *Bellevalia crassa* species shall be collected from the ROW between1 July-1 August. * The seeds of the *Asperula capitellata*, *Cochleria sintenisii*, and *Thymus cappadocicus var. pruinosus* species shall be collected between 1 July-1 August; the seeds of the *Achillea sintenisii* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Asperula capitellata*, *Thymus cappadocicus var. pruinosus*, *Cochleria sintenisii* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 443666.00-4421745.00/ 37 S443405.00-4421480.00/ 37 S 443357.00-4421037.00/ 37 S 442990.00-4420861.00/ 37 S 442507.00-4421031.00/ 37 S 441965.00-4421153.00/ 37 S 441483.00-4421840.00/ 37 S 440156.00-4422101.00/ 37 S 438720.00-4422064.00/ 37 S 439346. 52-4422147.31) coordinates to the ROW between September-November. * The collected individuals or bulbs of the *Bellevalia crassa* species shall be planted planted on the ROW.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 29	632+635 - 634+183	1,548	*Isatis undulata, Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected near the ROW, from the (37 S 431034.20-4418698.72) coordinates between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 431163.69-4418762.97 / 37 S 431439.06-4419180.05 / 37 S 431767.75-4419424.63) coordinates to the ROW between September-November. * Terracing shall be carried out at the (633+257-633+562) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected near the ROW, from the (37 S 431034.20-4418698.72) coordinates between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 431163.69-4418762.97 / 37 S 431439.06-4419180.05 / 37 S 431767.75-4419424.63) coordinates to the ROW between September-November. * Terracing shall be carried out at the (633+257-633+562) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected near the ROW, from the (37 S 431034.20-4418698.72) coordinates between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 431163.69-4418762.97 / 37 S 431439.06-4419180.05 / 37 S 431767.75-4419424.63) coordinates to the ROW between September-November. * Terracing shall be carried out at the (633+257-633+562) KP's to prevent erosion on the dip slopes.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 30	634+285-634+864	0,579	*Isatis undulata, Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of Isatis undulata and *Cochleria sintenisii* species shall be collected near the ROW between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 430808.10-4418378.12 / 37 S 430612.02-4418232.81) coordinates to the ROW between September-November. * Terracing shall be carried out at the (634+736-634+858) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Isatis undulata and *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 430808.10-4418378.12 / 37 S 430612.02-4418232.81) coordinates to the ROW between September-November. * Terracing shall be carried out at the (634+736-634+858) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 430808.10-4418378.12 / 37 S 430612.02-4418232.81) coordinates to the ROW between September-November. * Terracing shall be carried out at the (634+736-634+858) KP's to prevent erosion on the dip slopes.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 31	634+906-634+932	0,026	*Hextoma n. sp., Tipula n.sp*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The riparian vegetation shall be restored and aquatic and semi-aquatic areas shall be re-created at the (634+906- 634+932) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The riparian vegetation shall be restored and aquatic and semi-aquatic areas shall be re-created at the (634+906- 634+932) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The riparian vegetation shall be restored and aquatic and semi-aquatic areas shall be re-created at the (634+906- 634+932) KP's.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 32	652+000-654+878	2,878	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 416467.82-4414801.73/ 37 S 416377.69-4414800.92/37 S 416306.80-4414801.76/37 S 416251.56-4414800.98/37 S 416084.26-4414800.34/37 S 415833.94-4414800.57/ 37 S 415591.47-4414801.24 /37 S 413891.73-4414797.64) coordinates to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 416467.82-4414801.73/ 37 S 416377.69-4414800.92/37 S 416306.80-4414801.76/37 S 416251.56-4414800.98/37 S 416084.26-4414800.34/37 S 415833.94-4414800.57/ 37 S 415591.47-4414801.24 /37 S 413891.73-4414797.64) coordinates to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 416467.82-4414801.73/ 37 S 416377.69-4414800.92/37 S 416306.80-4414801.76/37 S 416251.56-4414800.98/37 S 416084.26-4414800.34/37 S 415833.94-4414800.57/ 37 S 415591.47-4414801.24 /37 S 413891.73-4414797.64) coordinates to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 33	656+000-656+431	0,431	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 412591.57-4414507.49/ 37 S 412429.08-4414443.13/ 37 S 412246.27-4414412.27) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 412591.57-4414507.49/ 37 S 412429.08-4414443.13/ 37 S 412246.27-4414412.27) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 412591.57-4414507.49/ 37 S 412429.08-4414443.13/ 37 S 412246.27-4414412.27) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 34	660+353 - 660+456	0,103	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 408394.58-4414398.36/ 37 S 408331.00-4414381.37) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 408394.58-4414398.36/ 37 S 408331.00-4414381.37) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 408394.58-4414398.36/ 37 S 408331.00-4414381.37) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 35	661+206 - 661+709	0,503	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected near the ROW between 15 June-15 July. * The *Astragalus zaraensis, Achillea sintenisii, Scorzonera aucherana, Thymus pectinatus, Gypsophila eriocalyx* species individuals shall be removed as tufts from the (661+236-661+267 / 661+353-661+387 / 661+432-661+461 / 661+531-661+576) KP's and shall be transferred to the (37 S 407182.00-4414267.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 407582.00-4414160.00/ 37 S 407486.00-4414130.00) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out between the (661+448-661+704) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected near the ROW between 15 June-15 July. * The *Astragalus zaraensis, Achillea sintenisii, Scorzonera aucherana, Thymus pectinatus, Gypsophila eriocalyx* species individuals shall be removed as tufts from the (661+236-661+267 / 661+353-661+387 / 661+432-661+461 / 661+531-661+576) KP's and shall be transferred to the (37 S 407182.00-4414267.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 407582.00-4414160.00/ 37 S 407486.00-4414130.00) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out between the (661+448-661+704) KP's.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 36	683+613-683+648	0,035	*Dysmachus safranboluticus, Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Minuartia corymbulosa var. gypsophiloides*	July-March	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis* species individuals shall be removed as tufts from the (37 S 386761.62 4408728.69) coordinates and shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * The individuals of the *Achillea sintenisii* species shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 386751.62-4408725.89) coordinates between September-November. * The transferred individuals of the *Astragalus zaraensis* species shall be planted to the (37 S 386761.62-4408728.69) coordinates. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis* species individuals shall be removed as tufts from the (37 S 386761.62 4408728.69) coordinates and shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * The individuals of the *Achillea sintenisii* species shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 386751.62-4408725.89) coordinates between September-November. * The transferred individuals of the *Astragalus zaraensis* species shall be planted to the (37 S 386761.62-4408728.69) coordinates. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis* species individuals shall be removed as tufts from the (37 S 386761.62 4408728.69) coordinates and shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * The individuals of the *Achillea sintenisii* species shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 386751.62-4408725.89) coordinates between September-November. * The transferred individuals of the *Astragalus zaraensis* species shall be planted to the (37 S 386761.62-4408728.69) coordinates. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 37	683+924-683+963	0,039	*Dysmachus safranboluticus, Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Minuartia corymbulosa var. gypsophiloides*	July-March	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species individuals shall be removed as tufts between the (683+934-683+954) KP's and shall be transferred to the (37 S 386463.44-4408686.64) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be planted according to the methodology and between the (683+934-683+954) KP's between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species as tufts shall be planted at the (683+934-683+954) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species individuals shall be removed as tufts between the (683+934-683+954) KP's and shall be transferred to the (37 S 386463.44-4408686.64) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be planted according to the methodology and between the (683+934-683+954) KP's between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species as tufts shall be planted at the (683+934-683+954) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species individuals shall be removed as tufts between the (683+934-683+954) KP's and shall be transferred to the (37 S 386463.44-4408686.64) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* species shall be planted according to the methodology and between the (683+934-683+954) KP's between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species as tufts shall be planted at the (683+934-683+954) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 38	700+549 - 701+087	0,538	*Astragalus aytatchii, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus aytatchii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora, Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus aytatchii, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis* and *Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 369839.96-4408605.07/ 37 S 369786.46-4408543.51/37 S 370048.89-4408740.47) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species as tufts shall be planted at the (700+757-701+006) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus aytatchii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora, Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis and Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus aytatchii, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis* and *Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 369839.96-4408605.07/ 37 S 369786.46-4408543.51/37 S 370048.89-4408740.47) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis and Thymus pectinatus* species as tufts shall be planted at the (700+757-701+006) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus aytatchii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora, Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus aytatchii, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis* and *Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 369839.96-4408605.07/ 37 S 369786.46-4408543.51/37 S 370048.89-4408740.47) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species as tufts shall be planted at the (700+757-701+006) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 39	708+677-708+890	0,213	*Achillea sintenisii, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Achillea sintenisii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Minuartia corymbulosa var. gypsophiloides, Astragalus zaraensis, Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 362348.79-4410413.51/ 37 S 362385.09-4410392.30/37 S 362445.47-4410357.19/37 S 362483.09-4410335.10) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Minuartia corymbulosa var. gypsophiloides, Astragalus zaraensis, Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 362348.79-4410413.51/ 37 S 362385.09-4410392.30/37 S 362445.47-4410357.19/37 S 362483.09-4410335.10) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Minuartia corymbulosa var. gypsophiloides, Astragalus zaraensis, Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 362348.79-4410413.51/ 37 S 362385.09-4410392.30/37 S 362445.47-4410357.19/37 S 362483.09-4410335.10) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 40	713+855-713+956	0,101	*Achillea sintenisii, Gypsophila aucheri, Gypsophila heteropoda ssp. minutiflora, Onosma sintenisii, Centaurea sivasica*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica, Gypsophila heteropoda ssp. minutiflora* species shall be planted according to the methodology and to the (37 S 357833.67-4411319.36/37 S 357807.42-4411296.16/37 S 357783.72-4411275.56) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, and Centaurea sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica, Gypsophila heteropoda ssp. minutiflora* species shall be planted according to the methodology and to the (37 S 357833.67-4411319.36/37 S 357807.42-4411296.16/37 S 357783.72-4411275.56) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, and Centaurea sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds *of Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica, Gypsophila heteropoda ssp. minutiflora* species shall be planted according to the methodology and to the (37 S 357833.67-4411319.36/37 S 357807.42-4411296.16/37 S 357783.72-4411275.56) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 41	720+035-720+290	0,255	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June; the seeds of *Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be collected near the ROW between 15 June-15 July. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be planted according to the methodology and to the (37 S 352322.75-4408468.34/37 S 352395.20-4408471.60/37 S 352452.02-4408473.12) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out at the (720+035-720+083) KP's to prevent erosion.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June; the seeds of *Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri,* and *Onosma sintenisii* species shall be collected near the ROW between 15 June-15 July. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be planted according to the methodology and to the (37 S 352322.75-4408468.34/37 S 352395.20-4408471.60/37 S 352452.02-4408473.12) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out at the (720+035-720+083) KP's to prevent erosion.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June; the seeds of *Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be collected near the ROW between 15 June-15 July. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be planted according to the methodology and to the (37 S 352322.75-4408468.34/37 S 352395.20-4408471.60/37 S 352452.02-4408473.12) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out at the (720+035-720+083) KP's to prevent erosion.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 42	729+485-729+571	0,086	*Astragalus zaraensis, Achillea sintenisii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The species individuals shall be removed as tufts between the (729+485-729+571) KP's and shall be transferred to the (37 S 343055.79-4409365.90) coordinates. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be planted according to the methodology between September-November. * The removed individuals of the species as tufts shall be planted at the (729+485-729+571) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The species individuals shall be removed as tufts between the (729+485-729+571) KP's and shall be transferred to the (37 S 343055.79-4409365.90) coordinates. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be planted according to the methodology between September-November. * The removed individuals of the species as tufts shall be planted at the (729+485-729+571) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The species individuals shall be removed as tufts between the (729+485-729+571) KP's and shall be transferred to the (37 S 343055.79-4409365.90) coordinates. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be planted according to the methodology between September-November. * The removed individuals of the species as tufts shall be planted at the (729+485-729+571) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 43	733+201-733+366	0,165	*Onosma sintenisii, Isatis glauca ssp. sivasica, Achillea sintenisii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be collected between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP'sand shall be transferred to the (37 S 339751.11-4407877.07) coordinates. * Some of the collected seeds of *Onosma sintenisii and Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 339593.61-4408086.60/ 37 S 339650.73-4408112.15) coordinates between September-November. * The translocated *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be planted between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be collected between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP'sand shall be transferred to the (37 S 339751.11-4407877.07) coordinates. * Some of the collected seeds of *Onosma sintenisii* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 339593.61-4408086.60/ 37 S 339650.73-4408112.15) coordinates between September-November. * The translocated *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be planted between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be collected between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP'sand shall be transferred to the (37 S 339751.11-4407877.07) coordinates. * Some of the collected seeds of *Onosma sintenisii* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 339593.61-4408086.60/ 37 S 339650.73-4408112.15) coordinates between September-November. * The translocated *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be planted between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 44	741+301-741+446	0,145	*Achillea sintenisii, Chrysocamela noeana, Astragalus zaraensis, Cousinia sivasica*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Achillea sintenisii, Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW between 15 June-15 July, the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates * Some of the collected seeds of *Cousinia sivasica* and *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Chrysocamela noeana, Cousinia sivasica, Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 332486.75-4408322.38/37 S 332507.73-4408280.80/37 S 332517.23-4408261.61) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW between 15 June-15 July, the seeds of Chrysocamela *noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates * Some of the collected seeds of *Cousinia sivasica* and *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Chrysocamela noeana, Cusinia sivasica, Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 332486.75-4408322.38/37 S 332507.73-4408280.80/37 S 332517.23-4408261.61) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW between 15 June-15 July, the seeds of Chrysocamela *noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates * Some of the collected seeds of *Cousinia sivasica* and *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Chrysocamela noeana, Cousinia sivasica, Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 332486.75-4408322.38/37 S 332507.73-4408280.80/37 S 332517.23-4408261.61) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-15 July	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 45	746+599-749+672 (in natural habitats)	3,073	*Dysmachus safranboluticus*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	No restriction	None
CH 46	802+361-802+428	0,067	*Hexatoma n. sp., Cousinia halysensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July. * *Juncus* species individuals between the (802+409-802+422) KP's shall be removed and transferred at the (37 S 276993.99-4415718.69) coordinates.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 277036.02-4415687.53) coordinates ROW between September-November. * *Juncus* species removed individuals shall be transferred on the ROW between the (802+409-802+422) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July. * *Juncus* species individuals between the (802+409-802+422) KP's shall be removed and transferred at the (37 S 276993.99-4415718.69) coordinates.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 277036.02-4415687.53) coordinates ROW between September-November. * *Juncus* species removed individuals shall be transferred on the ROW between the (802+409-802+422) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July. * *Juncus* species individuals between the (802+409-802+422) KP's shall be removed and transferred at the (37 S 276993.99-4415718.69) coordinates.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 277036.02-4415687.53) coordinates ROW between September-November. * *Juncus* species removed individuals shall be transferred on the ROW between the (802+409-802+422) KP's.	1 May-15 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 47	802+454-802+755	0,301	*Hexatoma n. sp., Cousinia halysensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 276937.99-4415685.90/37 S 276803.30-4415655.66/37 S 276720.58-4415638.33) coordinates ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 276937.99-4415685.90/37 S 276803.30-4415655.66/37 S 276720.58-4415638.33) coordinates ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 276937.99-4415685.90/37 S 276803.30-4415655.66/37 S 276720.58-4415638.33) coordinates ROW between September-November.	1 May-15 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 48	815+368-815+380	0,012	*Hilara n. sp. 3*	July-March	* The riparian vegetation at the creek bank between the (815+368-815+380) KP's shall be scraped at a depth of 10-15 cm as a layer and stored at the creek side.	* The stored top soil shall be laid back in 3 months at the latest. * The riparian vegetation shall be restored between the (815+368-815+380) KP's and the creek flow shall be provided again.	* The riparian vegetation at the creek bank between the (815+368-815+380) KP's shall be scraped at a depth of 10-15 cm as a layer and stored at the creek side.	* The stored top soil shall be laid back in 3 months at the latest. * The riparian vegetation shall be restored between the (815+368-815+380) KP's and the creek flow shall be provided again.	* The riparian vegetation at the creek bank between the (815+368-815+380) KP's shall be scraped at a depth of 10-15 cm as a layer and stored at the creek side.	* The stored top soil shall be laid back in 3 months at the latest. * The riparian vegetation shall be restored between the (815+368-815+380) KP's and the creek flow shall be provided again.	No restriction	None
CH 49	846+021-846+224	0,203	*Dioctria n. sp. 2, Dysmachus safranboluticus*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested at the (846+021-846+224) KP's and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested at the (846+021-846+224) KP's and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested at the (846+021-846+224) KP's and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	No restriction	None

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PROJECT

Project Doc.No.	FRN-PLN-ENV-PL1-003	**Rev**	**Status**
		P4-1	Re-IAA
Document Title :	CONSTRUCTION IMPACT MANAGEMENT PLAN		
Tag Nos.			
Contractor:	FERNAS İNŞAAT A.Ş.		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAA. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAA. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

FENAS®	**TANAP** TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT (LOT-1)	TANAP WorleyParsons resources & energy

Construction Impact Management Plan

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP APPROVED
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DOCUMENT REVISION HISTORY SHEET

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P4-A	DIC	04.05.2015	Discipline Internal Check
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HOLDS

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1. PURPOSE AND SCOPE

This Construction Impact Management Plan (CIMP) is prepared to set a framework to manage the ecological dynamics affected by pipeline, installation and other construction work to be carried out in LOT-1 during pre-construction and construction phase. Other construction impacts, including those to air, water, cultural heritage etc are addressed in separate Fernas environmental and social management plans

The objective of this plan will be the ecological management of the project components in all areas affected by construction activities. This plan consists of mitigation measures to eliminate the possible impacts of the project or to reduce the impacts to acceptable levels. In this context, this plan;

- Is based on general baseline data, Project ESIA and BAP,
- Provides an early identification of potential sensitive areas and area of influence,
- Mentions about pre-assessment of ecological structure and natural components (flora, fauna, wildlife and habitats)
- Aims lowering the wildlife impacts – (by considering the reproductive period)
- Includes erosion and reinstatement issues ,

Scope of this management plan follows the conditions given below;

- Ecological surveys and translocation of flora and fauna,
- Habitat and species protection,
- Minimising habitat disturbance,
- Terrestrial and freshwater flora and fauna,
- Terrestrial and freshwater habitats and ecosystems,
- Special and Ecologically Sensitive/Priority Areas (ESA),
- Biorestoration and reinstatement,
- Seeding,
- Training personnel,
- Erosion and drainage control,

Since this plan is a living document, it will be updated in the following circumstances;

- changings in local regulatory requirements,
- obtained new information on the current status of the project area,
- changings to be implemented as a result of the Project engineering studies progress, discovering new species, complaints from local community.

1.1 Abbreviations

CLIENT **:** TANAP Doğalgaz İletim A.Ş.
Project **:** Trans Anatolian Natural Gas Pipeline Project (TANAP)
EPCM **:** Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi
CONTRACTOR **:** FERNAS Insaat A.S.
ESIA **:** Environmental and Social Impact Assessment
BAP **:** Biodiversity Action Plan
SCC **:** Species of Conservation Concern
CR **:** Critically Endangered
RoW **:** Right Of Way
KP **:** Kilometrical Point
KBA **:** Key Biodiversity Area,
IBA **:** Important Bird Area
PBA **:** Priority Butterfly Area
EUNIS **:** The European Nature Information System
WDA **:** Wildlife Development Area

1.2 Reference Documents

- The Project English ESIA Report (TNP-REP-ENV-GEN-002),
- The Project Turkish ESIA Report (TNP-REP-ENV-GEN-001),Biodiversity Action Plan (CIN-REP-ENV-GEN-017),
- TANAP Environmental and Social Management Plan (TNP-PLN-ENV-GEN-001 P3-0),
- CONTRACTOR Environmental and Social Management Plan (FRN-PLN-ENV-PL1-001),
- CONTRACTOR Environmental and Social Monitoring Plan (FRN-PLN-ENV-PL1-011),
- CONTRACTOR Employment and Training Plan (FRN-PLN-ENV-PL1-004),

- CONTRACTOR Pollution Prevention Plan (FRN-PLN-ENV-PL1-009),
- CONTRATOR Waste Management Plan (FRN-PLN-ENV-PL1-012),
- CONTRACTOR Cultural Heritage Management Plan (FRN-PLN-ENV-PL1-016),
- CONTRACTOR Aggregates Management Plan (FRN-PLN-ENV-PL1-015),
- CONTRACTOR Traffic Management Plan (FRN-PLN-ENV-PL1-006),
- CONTRACTOR Erosion, Reinstatement and Landscaping Plan (FRN-PLN-ENV-PL1-008),
- Engagement of Hydrotest water discharge and other impacts of hydrotest will be addressed in the CONTRATOR Procedure for Pre-Hyrotest (FRN-PCD-PPL 1-019)
- EPCM Environmental and Social Management System (WRP-PLN-ENV-GEN 002)

1.3 Legislation Framework

All activities to be conducted during and before construction activities will comply with the Project English ESIA Report (TNP-REP-ENV-GEN-002), Project Turkish ESIA Report (TNP-REP-ENV-GEN-001) the Environmental and Social Management System (ESMS) (ILF-PLN-ENV-GEN-001), national and international regulations and requirements.

1.4 Definitions

Area of Influence : The Project AoI includes the areas likely to be affected by the physical facilities constituting the Pipeline system that will be directly owned, operated or managed by TANAP and its CONTRACTOR.

Biological Diversity : The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Biorestoration : Reinstatement of the biotic or living, component of the environment, achieved through habitat recreation.

Ecologically Sensitive Areas : The areas that have a national or international conservation status, habitats of high conservation values and river crossings.

Ecosystem : Systems that consists of living and non-living parts in nature interacting to form a stable system. Dynamic complex of plant, animal and microorganism communities and their non-living environment interacting as a functional unit.

Fauna **:** All the animal species of a region or geological period.

Flora **:** All the plant species that make up the vegetation of a given area from a particular geological time.

Habitat **:** Terrestrial, freshwater or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment.

Vegetation **:** Disregarding the regions in the classification of the plants, the plant cover of a region.

Wetlands **:** Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

2. RESPONSIBILITIES

FERNAS and Subcontractors will be responsible for the implementation all of the issues outlined in this CIMP,

2.1 Project Manager

- Has overall responsibility for Construction Impact Management issues of the LOT-1 construction works,

2.2 Construction Manager

- Will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with the FERNAS CIMP,
- Will support Environmental and Social Team for activities of the plan.

2.3 Environmental Manager

- Will be responsible for the overall management of all of the activities related with environmental,
- Will update the Plan in conjunction with EPCM if required,

- Will be responsible for preparing environmental procedures, method statements and work instructions as required and implementing amendments to the system identified by audits,
- Will provide monthly report to EPCM
- Supervise Environmental Inspectors and Biologist.

2.5 Environmental Inspector(s)

- Will monitor the biologist for his/her performance in the implementation of CIMP, ESIA and BAP,
- Will monitor construction activities and their compliance with environmental plans, procedures and instructions,
- Will ensure that all remedial action identified by inspections are closed out,
- Will conduct all environmental monitoring on the project ensuring that all records are fully completed correctly,
- Will ensure that the Environmental Manager is fully informed on any environmental issues,
- Will implement the environmental management system on site and provide as necessary toolbox talks on impact mitigation method.
- Will give training to all FERNAS personnel regarding with environmental issues. The whole personnel of the Subcontractor will also be responsible about this training subject.

2.6 Biologist

- Will be responsible for ecological monitoring during pre-construction and construction period,
- Will be responsible for seed and bulb collection,
- Will be responsible for ecological training of all workers,
- Will monitor that the construction activities are in compliance with the BAP
- Will conduct BAP training for all employees.

3. GENERAL INFORMATION ABOUT THE SPECIES AND SENSITIVE AREAS

3.1 General

The species that could be highly affected from the project activities were identified in ESIA Report and BAP.

These threatened species are referred to as SCC. According to IFC 2012 (PS6), IUCN Red List (2013) and local expert opinion, who conducted the baseline surveys of ESIA, the species considered as threatened are endemic, restricted-range, CR and EN species.

FERNAS's biologist will carry out ecological surveys to identify the existing ecological conditions at the site, prior to the starting of land clearance activities. The ecological surveys will be carried in advance or just before construction depending on the level of sensitivity levels as identified in BAP; such as critical habitats, freshwater critical habitats and seasonal constraints. Ecological surveys will identify the important environmental issues that need to take an action. FERNAS's biologist will conduct ecological surveys.

3.2 Pre-Construction

3.2.1 Pre-Construction Preparation

Prior to the starting of land clearance activities, FERNAS's ecologists will carry out ecological surveys to identify the existing ecological conditions at the site. They can be carried in advance or just before construction depending on the level of sensitivity as identified in BAP: such as critical habitats, freshwater critical habitats, seasonal constraints (see also Annex 2-BAP KP Table and Ecological Actions). Ecological surveys will identify the important environmental issues that need action. FERNAS's ecologists will conduct ecological surveys by referencing BAP.

Before Construction starts FERNAS will;

- Identify ecological resources and dynamics that may be affected by construction work in the RoW , access roads to be opened or at the facility sites,
- Compile a comprehensive photographic record including key habitats or topographical features of ecological significance (e.g. river crossings, wetlands, woodlands, forests, meadows, gullies, slopes, outcrops, eroded terrain) prior to vegetation clearance, topsoil stripping, grading, cutting and other major earthworks,
- Confirm the presence of flora or fauna species that may require translocation and any protection status (e.g. endemics, endangered species etc.),
- Confirm or identify seasonal constraints on work activities,
- Facilitate the reinstatement of a similar plant community to that existing prior to construction,
- Revise the site specific commitments or propose additional mitigation measures when necessary,

Before construction starts FERNAS will also;

- mark all sensitive areas to be cleared, and the areas to be used as storage areas
- mark the limits of all areas to be cleared to ensure that clearance does not take place outside designated areas. Clearance of areas outside of the project footprint
- will mark and flag any sensitive plant species situated immediately adjacent to or on the edge of the RoW before vegetation clearing and tree felling, topsoil strip and other earthmoving activities, mark and flag any sensitive plant species situated immediately adjacent to or on the edge of the RoW before vegetation clearing and tree felling, topsoil strip and other earthmoving activities so that plant cover and

other habitat elements (such as rocks) are not disturbed outside of approved work areas by clearing and grading.

- place signs with environmental protection information in areas immediately adjacent to the RoW where sensitive flora and fauna has been identified during the Ecological Survey,
- mark existing sensitive receptors that need to be avoided during construction (e.g. cultural heritage sites, or specific trees that are to be retained) by appropriate signs (such as flags, labels etc.),
- indicate high wildlife use areas with signage along main access roads where potential exists for vehicle/wildlife collision,
- provide appropriate fencing where necessary to prevent access by grazing animals and vehicles. Fences will be fitted with signs in Turkish and English indicating the purpose, i.e. the enclosure is a TANAP bio-restoration project area and fencing is required for protection
- supplement boundary fencing by internal area fencing to give double protection to particular areas if required,
- train personnel involved in clearing and grading activities in order to protect sensitive plant species.

3.2.2 Protected and Conservation Areas

Along the LOT-1 section of the project, there are 6 protected and conservation areas (see Table 3.1) are determined according to ESIA Report (Section 7.3.2.2 of Chapter 7 – section 7.3.2.2.1 Methodology)

Table 3.1 Protected and Conservation Areas

KP	Protected and Conservation Area	National and International Statute	Location
0+000 - 33+200	Posof WDA (Posof Forest) including Posof PBA	WDA, KBA, PBA	Ardahan
57+400 - 80+500	Ardahan Forests	IBA, KBA	Ardahan
70+300 - 77+300	Putka Gölbaşı Wetland	Wetland	Ardahan
107+700 - 150+200	Allahuekber Mountains	KBA	Erzurum, Kars
175+600 - 182+800	Sarıkamış National Park (Sarıkamış Forest) including Sarıkamış	National Park Wildlife Protection Area,IBA, KBA, PBA	Kars, Erzurum

303+500 - 322+800	Erzurum Marsh Wetland	Wetland, KBA	Erzurum

3.2.3 Habitats with High Conservation Importance

Along the LOT-1 section of the project habitats with high conservation importance are available (see Table 3.2) are determined according to ESIA Report (Section 7.3.2.2 of Chapter 7 – section 7.3.2.2.1 Methodology)

Table 3.1 Habitats with High Conservation Importance

KP	**Sensitive and Conservation Habitats**		**Location**
	EUNIS Code (*)	**EUNIS Name**	
221+600 222+000 223+300 224+800 230+800 236+100 268+700 283+500 284+300 284+700 291+800	E2.5	Meadows of the Steppe Zone	Erzurum
20+800 21+100 - 23+000 62+400 - 62+500 64+900 - 65+500	G1.9	Non-riverine woodland with Betula, Populus tremula, sorbus aucupania or Corylus avellana	Ardahan
0+000 2+100 2+400 2+900 - 3+700 4+000 7+500 - 9+100 9+300 - 9+400 9+700 - 9+800 10+200 - 10+300 11+200 12+000 - 12+100 12+300 - 12+600 13+400	G1.A	Meso-and eutrophic Quercus, Carpinus, Fraxinus, Acer, Tilia, Ulmus and related woodland	Ardahan
18+600 - 19+100 62+800 63+100	G3.4	Pinus Sylvestris woodland south of Taigia	Ardahan
173+500 173+800 - 175+600 175+900 190+400 - 192+900 193+500 - 194+200 194+700	G3.4	Pinus Sylvestris woodland south of Taigia	Kars

(*) : EUNIS (European Nature Information System) habitat classification, European Environment Agency"

3.2.4 Terresterial Flora

As it is mentioned in the ESIA Report (Part 7.3.2.3 of Chapter 7 – Section 7.3.2.3.3 – Ardahan, Erzurum, Kars), and also in BAP (Section 2.1.1), 87 SCC are present or potentially present along the pipeline route considering terrestrial vegetation. In addition to this data some of species may duplicate among LOT-1 provinces. They are present as described below:

- in Ardahan: 3 species
- in Erzurum: 15 speices
- in Kars: 11 species

3.2.5 Terresterial Fauna

Mammalia

As it is mentioned in ESIA Report (Part 7.3.2.5 of Chapter 7 – Section 7.3.2.5.2 – Ardahan, Erzurum, Kars), and also in BAP (Section 2.1.2.1), 1 SCC are present or potentially present along the pipeline route considering mammal species. They are present as described below:

- in Ardahan: no species
- in Erzurum: 1 species
- in Kars: no species

Birds

As it is mentioned in ESIA Report (Part 7.3.2.6 of Chapter 7 – Section 7.3.2.6.2 – Ardahan, Erzurum, Kars), and also in BAP (Section 2.1.2.2), 11 SCC are present or potentially present along the pipeline route considering bird species. None of these species were identified between KPs of LOT-1 section of the project.

Reptiles

As it is mentioned in ESIA Report (Part 7.3.2.7 of Chapter 7 – Section 7.3.2.7.2 – Ardahan, Erzurum, Kars), and also in BAP (Section 5.2.3), 3 SCC are present or potentially present along the pipeline route considering reptile species. They are present as described below:

- in Ardahan: 1 species
- in Erzurum: 1 species
- in Kars: 1 species

Amphibians

As it is mentioned in ESIA Report (Part 7.3.2.8 of Chapter 7 – Section 7.3.2.8.2 – Ardahan, Erzurum, Kars), and in BAP (Section 2.1.2.3), 1 SCC are present or potentially present along the pipeline route considering amphibian species. None of these species were identified between KPs of LOT-1 section of the project.

Invertebrates

As it is mentioned in ESIA Report (Part 7.3.2.9 of Chapter 7 – Section 7.3.2.9.2 – Ardahan, Erzurum, Kars), and also in BAP (Section 2.2.3), 34 SCC are present or potentially present along the pipeline route considering invertebrate species. Among these species, 2 species was identified between KPs of LOT-1 section of the project. They are present as described below:

- in Ardahan: 2 species
- in Erzurum: no species
- in Kars: no species

3.2.6 Freshwater and Aquatic Vegetation

As it is mentioned in ESIA Report (Part 7.3.2.9 of Chapter 7 – Section 7.3.2.9.2 – Ardahan, Erzurum, Kars), and in BAP (Section 2.2.), 13 freshwater fish SCC are present or potentially present along the pipeline route. None of these species were identified between KPs of LOT-1 section of the project.

3.3 Marking out Sensitive Receptors for Avoidance

FERNAS will identify sensitive and conservation areas with reference to BAP and ESIA;

- During ecological surveys, sensitive flora areas and mature trees will be demarcated by FERNAS in agreement and collaboration with the local forestry department for avoidance as agreed with EPCM. This will done by using appropriate signboards/strips in the normal working width of the pipeline RoW is 36 meters.
- FERNAS will at a minimum comply with working widths as specified in the BAP to reduce ecological impacts.
- FERNAS will plan facilities and work areas to minimise the area to be cleared to that strictly necessary for the safe construction and operation of the Project. In sensitive areas,
- FERNAS will consider the extent to which the working width/area and the width of any necessary access roads can be reduced without compromising safety.
- To facilitate the physical avoidance of sensitive areas, FERNAS will clearly delineate the RoW, access roads and facility boundaries in accordance with the precise route alignment and site plans.
- Notices and signs will be erected and maintained by FERNAS to indicate the location of sensitive areas within the approved footprint (e.g. watercourses, ecologically sensitive and protected areas).
- Workers will be made aware of the location of sensitive habitat and species in the vicinity of work camps or the RoW and facility construction sites. Workers will not be accessing any areas outside of the RoW regardless if they are sensitive or not.
- Entire RoW boundaries will be delineated. Agricultural, pasture land and meadows will be delineated via stakes/pegs. Forested and scrub areas will be delineated via flagging.
- Any required additional access routes or additional project areas will be done via the Permitting

3.4 Seeds and Bulbs Collection

The collection of seeds and bulbs will be carried out between the dates specified in BAP (CIN-REP-ENV-GEN-017):

The preferred method for seed collection for herbs is collecting the ripe seeds by hand from existing herbs.

Seeds Collection;

- FERNAS's ecologists will collect the seeds and bulbs in cloth bags and will take the camp site, defined storage area in the camp daily. A method statement will be prepared prior to the start of the clear and grade activities, for the collection, storage and transportation of seeds and bulbs.

- The collected seeds will be placed in 10 x 25 cm canvas bags and stored in a ventilated, cool place.

- The collected seeds then will be sent to Ministry of Agriculture's seed gene banks in Ankara and vegetative propagules will be used in order to start an ex situ cultivation for the reintroduction of populations in suitable habitats within the species range. Seed transportation and providing the records will be responsibility of FERNAS's ecologist.

Bulbs Collection;

- SCC bulb collection will be done manually prior to top soil stripping as the heavy machinery will damage the bulbs and the bulbs will lose their ability to germinate.

- The ideal time for bulbs to be collected is August, as they would have stored the necessary nutrients for the germination in the spring. There is no defined period for bulb collection or any defined bulbous SCC. Expert opinion of field ecologist will be used for determining suitability of state of bulbs in any encountering on the RoW

- The body will be cut off from the bulb and the bulbs will be stored in the shade. These will not be stored in bags as they will rot. The preferred replantation time is autumn for bulbs. The trees will be felled along the pipeline RoW direction after agreement and collaboration of local forestry department and after obtaining permits, while shrubs and grass species will be removed by scraping.

The time and KPs of the species of which seeds and bulbs collected are given in the BAP (CIN-REP-ENV-GEN-017).

3.5 Watercourse Crossing

There will be 79 watercourse crossings as mentioned in Appendix 1.2.B3 of ESIA and Appendix-4 of this document in LOT-1 section of the project and these crossings will be open cut. 13 of them are major river crossings and list of them are given in Appendix-7 for Lot 1.The method statement will be prepared before the construction starts concerning the watercourse crossings and these documents will be submitted for approval to EPCM by FERNAS. Site specific working method statements will be developed for each medium (5-30m width) and major (>30m width) water crossing. A general working method statement will be prepared for minor watercourse (less than 5m width) crossings.

These method statements will include procedures for protecting watercourses against pollution, minimising sedimentation, minimising impacts on bank side vegetation and ensuring reinstatement of watercourses to their pre-construction state.

Watercourse crossings will affect the spawning period of fish. The spawning period is between April and June. Construction planning will be done by considering this period to minimize the impacts. If watercourse crossings are necessary in this period, FERNAS will obtain the approval of EPCM.

FERNAS will minimize negative impacts by taking the following measures along watercourse crossings;

- Construction activities at watercourse crossings will occur over a limited period of time and with the minimum equipment required for safe and efficient working,
- Vegetation clearance along river/stream banks will be minimised and mature trees will be left in place wherever possible,
- Watercourse crossings will be done as per the application drawings,
- Ambient downstream flow rates will be maintained,
- Raised sediment loadings in the river will be minimised. Where there are down-stream fisheries farmed or otherwise used by local communities, particular attention to sediment control will be required and an increased level of inspection and monitoring will be implemented,
- Appropriate diversion measures will be installed to ensure fish can pass up and downstream at all times,

- All construction material and structures will be removed from all watercourses once construction has been completed,
- River channels, river beds and banks will be restored to their original state and enhancement measures will be undertaken wherever appropriate,
- River banks and adjacent upland areas will be stabilised immediately after final grading,
- The right of way will be inspected on a regular basis during and after construction and any erosion control measures will be repaired and/or restored as needed,

If the crossing during spawning period is necessary,

- Related surveys and assessments will be made to determine the current situation,
- In this assessment, habitat in 25 m upstream and 150 m downstream of the crossing points, will be evaluated,
- This assessment will be prepared at least one month before the crossings and evaluation results will be submitted to EPCM for approval,

4. AVOIDANCE AND MITIGATION

Mitigation measures will be taken to minimize and avoid of potential effects that can occur during construction on wildlife, terrestrial species, aquatic environment, topsoil and crossings, will be announced.

4.1 Wildlife and Terrestrial species

- Pipes which are stored at site must be kept capped to prevent animals entry into them,
- Topsoil storage and pipe strings will be designed to allow the passage of wild animals,
- The Project staff will not be permitted to hunt and gather wild plants,
- Breeding period of animals will be considered during construction planning (blasting will not be allowed between 15 March and 16 June (migration and breeding season of migrant birds),
- In order to minimize the noise impact, vehicle maintenance will be regular and vehicles will not be used unnecessarily. While working near sensitive areas, noise barriers utilization is required,

- If there is a wildlife area near the access roads , subject area will be marked to eliminate the possibility of an accident,
- If there is a wildlife crossing in project ROW, bumps and speed limit signs will be placed before the crossing,
- Dust suppression will be done by watering during the construction activities.
- To prevent falling of wild and domestic fauna on open trenches, working time will be kept as short as possible in these areas,
- Biologist and Environmental Inspectors will inspect the trench daily for trapped fauna

4.2 Aquatic Environment

- FERNAS will preserve aquatic habitats, minimise diversions, maintain uninterrupted water flow and preserve the landscape in river crossing areas.
- Construction works will be conducted during the time when flow is low, if possible and will be conducted in a limited timeframe. Where possible,
- FERNAS will construct small river crossings when streams are dry; and where this is not possible,
- FERNAS will maintain downstream water flow while the crossing is constructed. If techniques using dams and pumps are used to maintain the water flow,
- FERNAS will install meshes upstream and downstream of the works area to prevent the pump from harming fish, larva (fry) and other aquatic organisms.
- FERNAS will monitor the turbidity during the construction activities as described in FERNAS's Pollution Prevention Plan.
- Wetlands and rivers feeding ecologically sensitive areas won't be used as the vehicles and construction equipments are being washed, are parked or stand-by. The 30m buffer zone at watercrossings will be considered at every construction activity.
- FERNAS will minimize riparian vegetation removals. If removal is necessary it is recommended to use proper clearing techniques and protect retained vegetation.

4.3 Topsoil

- FERNAS ecologist will determine the depth of topsoil that will be stripped before construction, Topsoil will be stripped to a depth of between 10 cm and up to a

maximum 30 cm. Areas with a topsoil depth less than 10 cm will be identified in the site by FERNAS's project ecologists.

- Topsoil will be carefully stripped and stored separate during the construction period,
- Topsoil storage will be in compliance with the ESIA Report, BAP
- Topsoil will be stored in construction corridor where slope is max 5%,
- Topsoil will be stored in a stockpile not more than 2 m high with side slopes <45°, drained with open ditches and 1 m high in critical habitats according to BAP,
- In areas of very limited working space, topsoil stockpiles of up to 3 m high and <45° slope may be permitted with EPCM's approval, but the pile will be turned every 2 months,
- In critical habitats topsoil will be replaced within 3 months after the removal,
- Topsoil will be stored where it will not be compacted or contaminated by vehicles and will be stored in a manner that will minimize its loss and/or degradation,
- Topsoil will not be mixed with subsoil and will be stored on the opposite side of the TANAP-RoW to subsoil; other than in restricted areas where mixing will be prevented by physical means, e.g. geotextile sheeting.
- The surface of the stockpile will be lightly compacted, as necessary, to restrict rainfall penetration, maintain aerobic conditions, and will be protected from flooding by placing berms around the outside,
- Topsoil will never be used as padding material,
- Erosion control measures will be installed as necessary to prevent loss of topsoil from the storage area and surface water contamination (e.g. temporary seeding, silt fence),
- Topsoil and subsoil piles will be free draining and gaps will be left in linear topsoil piles,
- Soil handling under wet conditions is to be avoided other than in areas having obviously sandy soils,
- Topsoil stockpiles will be weekly inspected.

4.3.1 Prevention of the build-up of alien invasive species

Alien species can have several negative effects on the natural flora, fauna and ecosystems components through mechanisms like competition, predation and parasitism and in some case have negative effects on local economic activities (agriculture, fishing, forestry, tourism) and ecosystem services.

Once stripped, topsoil stacks could become colonised by semi-ruderal species. If left untreated, these species could build up in the seedbank and limit the success of biorestoration. FERNAS will;

- Prevent the build-up of alien invasive species on topsoil stacks.

- Should invasive weeds prove to be a problem in sensitive areas and sites where rare plants are located or show signs of invading adjacent areas, FERNAS will use appropriate control methods to suppress their growth and expansion. Treatment may include hand-pulling, spot-treatment or weedwiping with a herbicide.

- Herbicides will be considered as a secondary option, and even then not in the vicinity of relocated rare plants, and only in accordance with the following Word Bank Pest Management criteria:
  *They must have negligible adverse human health effects;
  *They must be shown to be effective against the target species;
  *They must have minimal effect on non-target species and the natural environment.

  The methods, timing, and frequency of pesticide application are aimed to minimise damage to natural enemies; and their use must take into account the need to prevent the development of resistance in pests.

4.4 Tree Felling

The removal of natural vegetation is related to the site preparation phase prior to construction, and it is expected to be complete along the work strip in the RoW and in the areas of construction of the AGIs.

Typically trees are felled along the pipeline RoW direction, while shrubs and grass species are removed by scraping. Prior to the felling of any trees, the trees which are to be removed and which are to be protected will be agreed by FERNAS and local authorities. FERNAS and the local forestry department will suitably mark the trees accordingly and will ensure that no damage is caused throughout duration of the Work.

- Removal and storing of timber and roots after felling will be conducted according to the requirements of local authorities,
- It will be one tree replaced for one tree cut.
- FERNAS will get required agreements from Local Authorities before cutting trees, which are under protection,
- Cut the tree will be kept registers as in indicated in the register in Appendix

5. REINSTATEMENT AND BIORESTORATION

Reinstatement will comply with Erosion, Reinstatement and Landscaping Plan (FRN-PLN-ENV-PL1-008).

Seeding of the RoW is crucial for successful bio restoration. It is expected that revegetation from the *in situ* topsoil seed bank, along with augmented seed stock, will allow most areas to recover without additional intervention. Where recovery is not observed, supplemental seeding, planting, and soil replacement will be undertaken. Seeding onto the RoW and work areas will only occur where it is required for erosion control or where it is part of mitigation for the restoration of sensitive habitats. The sensitive areas will be re-seeded as per the BAP.

Biorestoration is the restoration of flora and fauna and the establishment of vegetation cover (post Seeding) to meet the following long term target (taking account of EPCM/TANAP restrictions on planting adjacent to pipelines and the need for vehicular access for pipeline security and maintenance activities) on non-agricultural, temporary areas.

In scope of biorestoration, live specimens of the rare plants (where possible) will be either removed from the ROW and be translocated to nearby botanical conservation centres for propagation and ultimate reintroduction into their original habitat (ex situ conservation), or will be replanted (in situ). Seeds will also be collected and stored under controlled conditions.

On completion of construction works the seeds will be sown in areas most suitable to their growth and reproduction.

6. TRAINING

Training on environmental issues will be given by Environmental Inspector(s) , whereas training about BAP will be given by Biologist.

The subjects of the training to be given by the Biologist are given below;

- General definitions such as flora-fauna, BAP, endemic species, conservation and protection areas.
- Potential project impacts, mitigation measures and applications of these methods,
- Flora and fauna species on RoW,
- Wildlife that can be encountered on row,
- Dead / injured fauna reporting,
- Working within the project footprint,
- Hunting ban,
- Speed limits in ROW,
- Avoid damage to the wood,
- Impacts on river crossings and mitigation methods.
- Topsoil management,
- Seeds and bulbs collection

Training register form is given in Appendix 1 of this CIMP.

7. MONITORING

FERNAS Biologist;

- Will ensure the compliance with BAP and this management plan requirements,
- Will ensure the implementation of mitigation measures,
- Will ensure the implementation of corrective actions,
- Will ensure required marking of sensitive areas,
- Will ensure sedimentation control methods on river crossings,
- Will ensure topsoil stripping and storage applications,
- Will ensure success of translocation of plants,
- Will monitor the success of the Biorestoration,

8. REPORTING

FERNAS's Environmental Manager will submit a monthly reports to EPCM with details of the ecological protection and biorestoration measures that have been implemented and the monitoring inspections that have been carried out, as per the format provided by EPCM given in Appendix-1.

APPENDIX-1 REGISTER

TRAINING REGISTER LOT-1
Reporting Period

Date	Subject	Duration (min)	Location	Attendees (who)	Number of Attendees	Total Manhours

APPENDIX-2

FAUNA REGISTER
SPREAD 1

	Relocated	Injured	Dead
Total this month:			
Total to date:			

Date	Species (Scientific name)	Count	Location of fauna	Relocated count	Injured count	Death count	Relocation Area	Comments

FAUNA REGISTER
SPREAD 2

	Relocated	Injured	Dead
Total this month:			
Total to date:			

Date	Species (Scientific name)	Count	Location of fauna	Relocated count	Injured count	Death count	Relocation Area	Comments

APPENDIX-3

SENSITIVE AREA REGISTER

LOT 1

TERRESTRIAL CRITICAL HABITATS

KP Start (Rev J)	KP End	ID	Was the no-construction time frame enforced? (if required)	Which seeds where collected?	Date seeds where collected	Amount of seeds collected	Seeds storage location	Date seeds where planted on RoW	Location where seeds were replanted	Which plants/bulbs were collected	Date plants/bulbs were collected	How many plants/bulbs were collected	Plants/bulbs storage location	Date plants/bulbs replanted on RoW During restoration	How many plants/bulbs replanted on RoW Durin	Location where plants/bulbs were replanted	Date Herbaceous planted where on RoW	Storage location of herbaceous plants collected	Date when herbaceous plants were laid on RoW durig restoration	Date topsoil was stripped	Date topsoil was reinstated	Date when rock were collected (30cm or larger)	Rock storage location	Date rocks were relocated on RoW	Invasive flora species control	Terracing during reinstatement to prevent erosion
003+186	003+921	CH1																								
004+126	004+237	CH2																								
20+977	23+277	CH3																								
23+947	27+358	CH4																								
63+303	64+123	CH5																								
85+741	87+983	CH6																								
116+376	116+983	CH7																								
117+052	117+620	CH8																								
165+360	165+581	CH9																								
168+015	168+169	CH10																								
170+015	175+015	CH11																								
175+427	177+015	CH12																								
188+572	194+015	CH13																								
203+945	204+724	CH14																								
215+900	220+656	CH15																								
233+187	233+802	CH16																								
307+380	313+386	CH17																								
371+311	371+400	CH18																								

FRESHWATER CRITICAL HABITATS													
KP Start Rev J	**KP End**	**ID**	**Was the no-construction time frame enforced? (if required)**	**Started date of crossing (when banks are being topsoiled/graded)**	**End of crossing (when final reinstatement completed)**	**Control of sediment release**	**Minimize erosion, sedimentation and impact to riparian vegetation**	**Avoid impact and removal of gravel**	**Date erosion and sediment controls in place**	**Restoration of channel bottom**	**Restoration of riparian area (contours and vegetation)**	**Water protection zone marked/flagged? (30cm buffer zone on either side of crossing)**	**Water sample taken upstream/downstream? Prior/during/ post construction**
72+666	72+711	**FCH1**											
167+465	167+586	**FCH2**											
221+192	221+226	**FCH3**											
270+699	270+715	**FCH4**											
281+421	281+434	**FCH5**											
333+917	333+932	**FCH6**											
355+704	355+733	**FCH7**											

APPENDIX-4

WATERCOURSE CROSSING REGISTER
SPREAD 1

KP	Location	Crossing Start Date	Crossing Finish Date	Reinstatement Start Date	Reinstatement Finish Date	Remarks	Method of Watercourse Crossing

WATERCOURSE CROSSING REGISTER
SPREAD 2

KP	Location	Crossing Start Date	Crossing Finish Date	Reinstatement Start Date	Reinstatement Finish Date	Remarks	

APPENDIX-5

REINSTATEMENT REGISTER
SPREAD 1

KP Start	KP End	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

REINSTATEMENT REGISTER
SPREAD 2

KP Start	KP End	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

APPENDIX-6

TREE/SHRUB CUT & RELOCATED REGISTER		
SPREAD 1		
KP	Number of Trees Cut	Type of Trees Cut*

* Please include a photo

APPENDIX - 7

MAJOR RIVER CROSSINGS
LOT- 1

Crossing Class	**Crossing ID**		**REV H LOCATIONS**				
	Code	**No.**	**KM Chainage (Route REV H)**			**Object Identification**	**Crossing Method**
	type + class.	**(three digit)**	**KP [km]**	**Easting [m]**	**Northing [m]**	**Name**	
Major	**RVX1**	**0001**	**14+042**	**565600,79**	**4597878,29**	**POSOF RIVER**	**Open cut**
Major	**RVX1**	**0003**	**50+905**	**573498,32**	**4569802,52**	**HAROSMAN RIVER**	**Open cut**
Major	**RVX1**	**0004**	**58+198**	**570330,73**	**4563910,27**	**COTSUYU RIVER**	**Open cut**
Major	**RVX1**	**0005**	**71+703**	**561976,06**	**4556124,04**	**KURA RIVER**	**Open cut**
Major	**RVX2**	**0001**	**143+451**	**567828,18**	**4494124,93**	**BELÇAM RIVER**	**Open cut**
Major	**RVX2**	**0002**	**157+007**	**562000,29**	**4482484,00**	**BÖLÜKBASI RIVER**	**Open cut**
Major	**RVX2**	**0003**	**220+190**	**521555,14**	**4443300,61**	**SÜNGÜTASI RIVER**	**Open cut**

Major	**RVX2**	**0004**	**232+952**	**510493,23**	**4438249,06**	**DALBASI RIVER**	**Open cut**
Major	**RVX2**	**0005**	**269+694**	**477878,24**	**4431518,22**	**KIZILLARARKI RIVER**	**Open cut**
Major	**RVX2**	**0006**	**322+190**	**430242,88**	**4430043,81**	**ÇAYBASI RIVER**	**Open cut**
Major	**RVX2**	**0007**	**353+609**	**400129,28**	**4426170,50**	**BAS RIVER**	**Open cut**
Major	**RVX2**	**0008**	**365+707**	**389178,69**	**4424246,57**	**KAYISLIPINAR RIVER**	**Open cut**
Major	**RVX1**	**0006**	**372+851**	**383035,80**	**4422864,32**	**KARASU RIVER**	**Open cut**

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc.No.	**TKF-PLN-ENV-PL3-008**	**Rev**	**Status**
		P4-0	**IAAC**
Document Title :	**TEKFEN ECOLOGICAL MANAGEMENT PLAN**		
Tag Nos.			
Contractor:	**Tekfen Construction and Installation Co., Inc.**		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

TEKFEN CONSTRUCTION	TEKFEN ECOLOGICAL MANAGEMENT PLAN	TANAP

TEKFEN ECOLOGICAL MANAGEMENT PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP Approval
P4-A	DIC	16.01.2015	Discipline Internal Check	ZDEM	ASON	MKOP	
P4-B	IDC	20.01.2015	Inter-Discipline Check	ZDEM	ASON	MKOP	
P4-C	IFR	20.05.2015	Issued for Review	İTAŞ	ASON	MKOP	
P4-0	IAAC	01.06.2015	Issued As Approved for Construction	İTAŞ	ASON	MKOP	

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REV.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	16.01.2015	First issue
P4-B	IDC	20.01.2015	Issued for IDC incorporating DIC comments
P4-C	IFR	20.05.2015	Issued for Review
P4-0	IAAC	01.06.2015	Issued As Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1. INTRODUCTION

TEKFEN has developed this Ecological Management Plan to provide the framework for managing ecological dynamics that will be affected by the pipeline installation and construction works during preconstruction, construction, and pre-commissioning phases of LOT3.

1.1 PURPOSE

TEKFEN is committed to protect and eliminate any avoidable impact on ecology during operations.

The overall objective of this Plan will be the management of ecological aspects of the project components in all the areas influenced by the construction activities.

This includes:

- Early and systematic identification of potentially sensitive areas and issues and areas of exposure.
- Carrying out the construction works by following an integrated approach based on ESIA, BAP.
- Preassement of complex ecological structure and natural components; including flora, fauna, wildlife and habitat distribution in the worksite and Area of Influence (AoI), and use of the evaluations in following phases of implementation.
- The implementation of actions to mitigate damage and risks to identified ecology; conserve local biodiversity as far as possible and give no net damage to flora, fauna or habitats.
- Providing a baseline for Erosion and Reinstatement Plan.
- Preparing the timetable for all the pipeline installation and construction works during preconstruction, construction, and precommissioning phases of the TANAP Project in order to prevent irreversible damage that may occur on the wildlife components during construction activities.

1.2 SCOPE

This Ecological Management Plan is applicable to the management of all ecological resources and natural habitats disturbed by pipeline installation and related activities. This includes the Right of Way (RoW), facility construction worksite and all other Project area and AoI with the LOT 3.

The scope of this Management Plan relates specifically to the following Ecological Management issues:

- Minimising habitat disturbance
- Ecological surveys and translocation of flora and fauna
- Habitat and species protection
- Ecology, biodiversity and ecosystem services
- Biorestoration and reinstatement
- Seeding
- Terrestrial and freshwater flora and fauna
- Terrestrial and freshwater habitats and ecosystems (no marine habitat in the worksite)
- Special and Ecologically Sensitive/Priority Areas (ESA)
- Training personnel
- Erosion and drainage control

1.3 RELATIONSHIP TO OTHER PLANS AND DOCUMENTS

This Ecological Management Plan (EMP) is a part of TEKFEN Environmental and Social Management Plan (TKF-PLN-ENV-PL3-001) that specifies requirements for environmental and social management including training, inspection, monitoring, reporting and review and is in conjunction with the following plans

TKF-PLN-ENV-PL3-007	Erosion and Reinstatement Plan
TKF-PLN-ENV-PL3-009	Waste Management Plan
TKF-PLN-ENV-PL3-010	Pollution Prevention Plan
TKF-PLN-ENV-PL3-003	E&S Training Plan

1.4 ABBREVIATIONS

AoI	Area of Influence
BAP	Biodiversity Action Plan
CH	Critical Habitat
ESA	Ecologically Sensitive Areas
EPCM	Engineering, Procurement and Construction Management
ESIA	Environmental and Social Impact Assessment
FCH	Fresh Water Critical Habitat
NCR	Non Complience Registers
RDB	Red Data Book
RoW	Right of Way
SCC	Species of Conservation Concern

1.5 REFERENCE

- Environmental & Social Management Plan (ILF-PLN-ENV-GEN-001)
- Environmental & Social Monitoring Procedure (ILF-PCD-ENV-GEN- 001)
- Environmental Requirements for Contractors and suppliers (ILF-SPC-ENV-GEN-001)
- ESIA Report-Turkish (TNP-REP-ENV-GEN-001)
- ESIA Report-Engish (TNP-REP-ENV-GEN-002)
- Preliminary Environmental and Social Management Plan (BCH-REP-ENV-GEN-008)
- Biodiversity Action Plan (CIN-REP-ENV-GEN-017-P3-1)

1.6 DEFINITIONS

Alien species: Species that are transported beyond their natural range and become established in a new area.

Area of Influence: The Project Area of Influence (AoI) includes the areas likely to be affected by the physical facilities constituting the Pipeline system that will be directly owned, operated or managed by TANAP and its contractors.

Biological Diversity: The variability among living organisms from all sources including, *inter alia,* terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Biorestoration: Reinstatement of the biotic, or living, component of the environment, achieved through habitat recreation. In this report biorestoration is the third phase of the 3-phased reinstatement process.

Ecological Management and Monitoring: A phrase used in this Plan to cover the topics of ecology, biodiversity, reinstatement and landscape.

Ecosystem: Systems that consists of living and non-living parts in nature interacting to form a stable system. Dynamic complex of plant, animal, and microorganism communities and their nonliving environment interacting as a functional unit.

Ecologically Sensitive Areas: The areas that have a national or international conservation status, habitats of high conservation values and river crossings.

Fauna: All the animal species of a region or geological period.

Flora: All the plant species that make up the vegetation of a given area from a particular geological time.

Habitat: Terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the nonliving environment.

Red Data Book: The state document established for documenting rare and endangered species of animals, plants and fungi as well as some local sub-species that exist within the territory of the state or country.

Topsoil: The top, fertile layer of material on the land surface, which is capable of supporting plant growth.

Vegetation: Disregarding the regions in the classification of the plants, the plant cover of a region.

Wetlands: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

2. METHOD

TEKFEN will comply with any existing official Environmental Management Plans for all the areas that construction activities will have an impact.

TEKFEN will consider construction method statement for the sensitive areas such as Important River Crossings; Critical Habitats; Key Biodiversity Areas and Protected Areas which have certain associated seasonal constraints.

In this section, preconstruction planning, construction and reinstatement phases are described in terms of ecological management and monitoring; moreover, the approach that will be used to ensure that the impact avoidance and mitigation measures are explained.

2.1 PRECONSTRUCTION PLANNING

Prior to the starting of land clearance activities, TEKFEN's ecologists will carry out ecological surveys to identify the existing ecological conditions at the site. They can be carried in advance or just before construction depending on the level of sensitivity as identified in BAP: such as critical habitats, freshwater critical habitats, seasonal constraints (see also Annex 2-BAP KP Table and Ecological Actions). Ecological surveys will identify the important environmental issues that need action. Tekfen's ecologists will conduct ecological surveys by referencing BAP.

2.1.1 Planning and worksite preparation

This section describes the actions that will be taken by TEKFEN in the planning stage to avoid or mitigate potential ecological impacts. These actions are required because the RoW passes through some habitats that are especially sensitive to impacts, and there are some important wildlife components that occur on the route and in the surrounding habitats that could be affected by works.

A total of 67 terrestrial critical habitat (CH) and 27 freshwater critical habitat (FCH) are defined throughout the TANAP project route as a result of the field surveys of ESIA and BAP, while a total of 9 (%13.4) terrestial critical habitat and 6 (%22.2) freshwater critical habitat are present in Lot 3.

The major terrestrial habitats that Lot 3 passes through are moist or wet eutrophic and mesotrophic grassland; Mediterranean riparian woodland; thermophilous deciduous woodland; sparsely-vegetated habitats; permanent mesotrophic lakes, ponds and pools; temporary lakes and ponds; permanent non-tidal, fast, turbulent watercourses; permanent non-tidal, smooth-flowing watercourses; temporary running waters; sparsely- or un-vegetated rivers, streams and lakeshores; marl steppe and Irano-Anatolian steppes.

The key ecological sensitivities potentially encountered on the LOT 3 RoW are as below as per ESIA Section 7.3, Table 7.3.2.2-1, Table 7.3.2.2-2 and Table 7.3.2.2-3 in addition to BAP.

Endangered species groups	Endangered plants Endangered amphibians, Endangered reptiles, Endangered birds, Endangered mammals Endangered terrestrial invertebrates Endangered aquatic flora Endangered fish Endangered aquatic invertebrates
Endangered species defined in BAP for Spread 5	Plants: *Astragalus physodes* ssp. *acikirensis* *Cousinia halysensis* *Thymus leucostomus*
	Invertabrates/Artrophods *Dioctria n. sp. 2* *Dysmachus safranboluticus*
	Fish *Cobitis simplicispinna*

Endangered species defined in BAP for Spread 6	Plant: *Achillea ketenoglui* *Alyssum niveum* *Astragalus densifolius* ssp. *ayashensis* *Astragalus kochakii* *Astragalus physodes* ssp. *acikirensis* *Cephalaria aytachii* *Cousinia halysensis* *Cyathobasis fruticulosa* *Gypsophila osmangaziensis* *Lepidium caespitosum* *Minuartia corymbulosa* var. *gypsophiloides* *Onobrychis paucijuga* *Salvia tchihatcheffii* *Scabiosa hololeuca* *Scutellaria yildirimli* *Thymus leucostomus*
	Invertabrates/artrophods *Neolycaena soezen* *Polyommatus actis*
	Fish: *Chondrostoma angorense* *Cobitis simplicispinna* *Gobio obtusirostris*
Protected and Sensitive Areas	Key Biodiversity Areas (KBAs); Important Bird Areas (IBAs) Important Plant Areas (IPAs)
Habitats with High Conservation Importance	Anatolian Gypsum Steppes; Serpentine steppes; Meadows of the steppe zone; ; *Pinus sylvestris* woodland south of the taiga *Pinus nigra* woodland
Rivers Crossings	6 major river crossings all of which also defined ad Fresh Water Critical Habitat (FCH) are present for Lot 3 in BAP FCH 13: Delice Stream KP 983+388-KP 983+432 FCH 14 Kılıçözü River KP1035+368- KP 1035+377 FCH15 Kızılırmak River KP 1087+890+KP 1087+980 FCH 16 Sakarya River KP 1214+260- KP 1214+290 FCH 17 Seydi Stream KP 1315+643- KP 1315+665 FCH 18 Seydi Stream KP 1323+ 270- KP 1323+300

TEKFEN will undertake staged, progressive ecological surveys at all Sensitive Areas identified in the Biodiversity Action Plan (BAP), taking account of seasonal constraints (e.g. migration patterns, breeding seasons and spawning seasons) to:

- Identify ecological resources and dynamics that may be affected by construction work in the RoW or access roads or at the facility sites.
- Compile a comprehensive photographic record including key habitats or topographical features of ecological significance (e.g. river crossings, wetlands, woodlands, forests, meadows, gullies, slopes, outcrops, eroded terrain) prior to vegetation clearance, topsoil stripping, grading, cutting and other major earthworks.
- Confirm the presence of flora or fauna species that may require translocation and any protection status (e.g. endemics, endangered species etc.).
- Confirm or identify seasonal constraints on work activities.
- Facilitate the reinstatement of a similar plant community to that existing prior to construction.
- Revise the site specific commitments or propose additional mitigation measures when necessary.

Before construction starts TEKFEN will:

- Mark all sensitive areas to be cleared and the areas to be used as storage areas.
- Mark the limits of all areas to be cleared to ensure that clearance does not take place outside designated areas. Clearance of areas outside of the project footprint will result in a non-compliance.
- Mark and flag any sensitive plant species situated immediately adjacent to or on the edge of the RoW before vegetation clearing and tree felling, topsoil strip and other earthmoving activities so that plant cover and other habitat elements (such as rocks) are not disturbed outside of approved work areas by clearing and grading.
- Place signs with environmental protection information in areas immediately adjacent to the RoW where sensitive flora has been identified during the Ecological Survey.
- Mark existing sensitive receptors that need to be avoided during construction (e.g. cultural heritage sites, or specific trees that are to be retained) by appropriate signs(such as flags, labels etc.)
- High wildlife use areas will be indicated with signage along main access roads where potential exists for vehicle/wildlife collision).
- Where necessary, TEKFEN will provide appropriate fencing to prevent access by grazing animals and vehicles. Fences will be fitted with signs in Turkish and English indicating the purpose, i.e. the enclosure is a TANAP bio-restoration project area and fencing is required for protection
- Supplement boundary fencing by internal area fencing to give double protection to particular areas if required;
- Train personnel involved in clearing and grading activities about the need to protect sensitive plant species

2.1.2 Marking out sensitive receptors for avoidance

TEKFEN will identify sensitive areas and protected areas (by reference to the BAP and accompanying constraints maps). Sensitive Areas may be further defined during the ecological surveys.

During ecological surveys, sensitive flora areas and mature trees will be demarcated by TEKFEN in agreement and collaboration with the local forestry department for avoidance where possible as agreed with EPCM. This will done by using appropriate signboards/strips in the field. TEKFEN will achieve approval and obtain permits as required by any affected authority.

The normal working width of the pipeline RoW is 36 meters.TEKFEN will at a minimum comply with working widths as specified in the BAP to reduce ecological impacts.

TEKFEN will plan facilities and work areas to minimise the area to be cleared to that strictly necessary for the safe construction and operation of the Project. In sensitive areas, TEKFEN will consider the extent to which the working width/area and the width of any necessary access roads can be reduced without compromising safety.

To facilitate the physical avoidance of sensitive areas, TEKFEN will clearly delineate the RoW, access roads and facility boundaries in accordance with the precise route alignment and site plans. Notices and signs will be erected and maintained by TEKFEN to indicate the location of sensitive areas within the approved footprint (e.g. watercourses, ecologically sensitive and protected areas).

Workers will be made aware of the location of sensitive habitat and species in the vicinity of work camps or the RoW and facility construction sites. Workers will not be accessing any areas outside of the RoW regardless if they are sensitive or not.

Entire RoW boundaries will be delineated. Agricultural, pasture land and meadows will be delineated via stakes/pegs. Forested and scrub areas will be delineated via flagging.

Any required additional access routes or additional project areas will be done via the Permitting Procedure (TKF-TCD-PAL-PL3-001) so that the environmental and social aspects are assessed.

2.1.3 Preclearance Works

TEKFEN will conduct preclearance works according to the methods specified in BAP and ESIA. Species of Conservation Concern (SCC) is defined in BAP. Seed and bulb collection will be conducted especially for these species.

If present, a sufficient amount of seeds of SCC will be collected during the ecological surveys. The preferred method for seed collection for herbs is collecting the ripe seeds by hand from existing herbs.

TEKFEN's ecologists will collect the seeds and bulbs in cloth bags and will take the camp site, defined storage area in the camp daily. A method statement will be prepared prior to the start of the clear and grade activities, for the collection, storage and transportation of seeds and bulbs.

The collected seeds will be placed in 10 x 25 cm canvas bags and stored in a ventilated, cool place. The collected seeds then will be sent to Ministry of Agriculture's seed gene banks in Ankara and vegetative propagules will be used in order to start an *ex situ* cultivation for the reintroduction of populations in suitable habitats within the species range. Seed transportation and providing the records will be responsibility of TEKFEN's ecologist.

SCC bulb collection will be done manually prior to top soil stripping as the heavy machinery will damage the bulbs and the bulbs will lose their ability to germinate.

The ideal time for bulbs to be collected is August, as they would have stored the necessary nutrients for the germination in the spring. There are 16 plant species defined in BAP as species of Conservation concern and the time restrictions for seed collections for these species are given (see App). There is no defined period for bulb collection or any defined bulbous SCC. Expert opinion of field ecologist will be used for determining suitability of state of bulbs in any encountering on the RoW .

The body will be cut off from the bulb and the bulbs will be stored in the shade. These will not be stored in bags as they will rot. The preferred replantation time is autumn for bulbs.The trees will be felled along the pipeline RoW direction after agreement and collaboration of local forestry department and after obtaining permits, while shrubs and grass species will be removed by scraping.

The route is potentially used by a range of animal species that may nest or forage on or across it. This includes some RDB/endangered/endemic species that could be breeding on the route. Animals using the route are more vulnerable in the breeding season, when they are less able to move away from sources of disturbance. They are most likely to be encountered in the natural habitats where the soils have not recently been ploughed. These sites are important for animals as they use them for hiding from predators, egg laying (for butterflies), feeding and so on. Therefore, animals using the soils which have not recently been ploughed needs to be considered on un-cultivated sections of the route that will be worked on during the breeding season.

TEKFEN will conduct faunal preclearance surveys (inspection and translocation if required) within areas with sensitive species and habitats (as identified by the Ecological Survey) not more than 48 hours before entry to each section, to verify that animals belonging to protected species are absent from the construction area.

TEKFEN's ecologists will notify EPCM site environmental inspector 48 hours minimum in advance of its intent to enter each sensitive area for clearance.

All necessary precautions will be taken to prevent damage to trees and shrubs outside the RoW and temporary workspace. TEKFEN will also avoid damage to nearby crop cultivations, orchards, or plantations that are not cleared or impacted by construction activities.

2.1.4 Timing of works – river crossings

Some ecological receptors are more sensitive at certain times of the year, therefore construction works will need to be planned and timed when they are least likely to have a negative impact. This applies specifically to 5 rivers (and 6 river crossings) that will be open-cut and which potentially support protected and endangered fish species according to IUCN Red List during the spawning season: Delice Stream (KP 983), Kılıçgözü River (KP 1035), Kızılırmak River (KP 1087), Sakarya River (KP 1214), and Seydi River where RoW crosses it in two locations (KP 1315 and KP 1323) (Ref. CIN-REP-ENV-GEN-017-P3-1).

It is particularly important to avoid direct impacts (i.e. habitat disturbance in the channel or increases in suspended sediments in the water) on these rivers during the spawning season.

The fish-spawning season typically occurs between April and June. Spawning activity is likely to tail off towards the end of the season, as water levels drop and the rivers begin to dry up.

TEKFEN will programme works to avoid construction of these rivers during April to June. Works at the named river crossings will be planned to avoid being coincident with the fish spawning season.

TEKFEN will take prior approval of EPCM if constructing a river crossing during the spawning season cannot be avoided. TEKFEN will prepare all necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority. TEKFEN will undertake an assessment of:

- The flow and weather conditions to determine if spawning is likely to be occurring at the precise timing of the crossing; and
- The habitat at the river crossing and a stretch of the river 25m upstream and 150 m downstream.

TEKFEN will do these assessments at most 1 month earlier for the named water crossing activities and ask EPCM to review the change proposal prior to making a decision and for approval. TEKFEN's ecologists will inform EPCM site environmental inspector at least one month earlier before river crossing. This assessment will be applicable only after the evaluation and approval by the EPCM.

This may determine that fish spawning is unlikely to occur at the crossing point during the construction period, for example if the timing is late in the season and the river is dry, or if the timing is early in the season and the weather has been particularly unfavourable. In which case the TEKFEN's Ecologist can recommend that construction may proceed. TEKFEN will have to wait for EPCM approval to start river crossing activities during spawning season. No construction will take place prior to the EPCM approval.

2.2 CONSTRUCTION

This section describes the actions required to avoid and minimise potential impacts on wildlife during construction in relation to topsoil treatments, terrestrial species protection, and aquatic environment protection and river crossings.

2.2.1 Treating Topsoil

Topsoil is defined as the top, fertile layer of material on the land surface that is capable of supporting plant growth. It contains the seed bank and is therefore an essential component of the re-vegetation program. Ecological management of topsoil contains maintenance of topsoil quality, particularly its structure and the integrity of its seed bank, which is also vital to both bio-restoration work and erosion control.

2.2.1.1 Topsoil Stripping

TEKFEN's ecologists will determine the depth of topsoil prior to construction. TEKFEN's ecologist will be on site, instructing the clear and grade crew about the required soil depth. Topsoil will be stripped to a depth of between 10 cm and up to a maximum 30 cm. Areas with a topsoil depth less than 10 cm will be identified in the site by TEKFEN's project ecologists. The topsoil will be carefully stripped and stored separately during construction. The environmental inspector will inspect the topsoil piles for height, slope, erosion and sediment controls.

Where the ROW passes through areas of agricultural land, grassland or any ecologically sensitive areas, TEKFEN will strip the topsoil over the full working width excluding the area that will be used to store topsoil or as stated in the preentry agreement, leaving only those areas designated for topsoil storage.

In all critical habitats, except otherwise provided for in the species and habitat action plans, top soil should be scraped to a depth of 10-15 cm and should be stored nearby the trenches. The height of the stored top soil should not be higher than 1 m. The storage time of the top soil should be as short as possible, and especially in summer storage should not exceed 3 months.

2.2.1.2 Topsoil Storage

The following requirements will apply to topsoil storage:

- Topsoil storage will be in compliance with the ESIA Report and BAP.
- Stripped topsoil will be stored in construction corridor where slope is max 5%
- Topsoil will be stored in a stockpile not more than 2m high with side slopes <45°, drained with open ditches, and 1 m high in critical habitats according to BAP.
- In areas of very limited working space, topsoil stockpiles of up to 3m high and <45° slope may be permitted with EPCM's approval, but the pile will be turned every 2 months.
- In critical habitats topsoil will be replaced within 3 months after the removal
- Topsoil will be stored where it will not be compacted or contaminated by vehicles and will be stored in a manner that will minimize its loss and/or degradation.
- Topsoil will not be mixed with subsoil and will be stored on the opposite side of the TANAP-RoW to subsoil; other than in restricted areas where mixing will be prevented by physical means, e.g. geotextile sheeting.
- The surface of the stockpile will be lightly compacted, as necessary, to restrict rainfall penetration, maintain aerobic conditions, and will be protected from flooding by placing berms around the outside. Under no circumstances will topsoil be used as padding material.
- Erosion control measures (e.g., temporary seeding, silt fence) will be installed as necessary to prevent loss of topsoil from the storage area and surface water contamination.
- Topsoil and subsoil piles will be free draining and gaps will be left in linear topsoil piles to permit access and prevent canalization of water that may be held against the stack.
- During handling, damage to soil structure will be avoided. Soil handling under wet conditions is to be avoided other than in areas having obviously sandy soils. Construction is to be delayed 24 hours following a 24-hour rainfall of 10 mm or more during the preceding day, after which soil condition will be reassessed.
- Topsoil stockpiles will be weekly inspected for compliance with storage specifications.

2.2.1.3 Prevention of the build-up of alien invasive species

Alien species can have several negative effects on the natural flora, fauna and ecosystems components through mechanisms like competition, predation and parasitism, and in some case have negative effects on local economic activities (agriculture, fishing, forestry, tourism) and ecosystem services.

Once stripped, topsoil stacks could become colonised by semi-ruderal species. If left untreated, these species could build up in the seedbank and limit the success of biorestoration. TEKFEN will prevent the build-up of alien invasive species on topsoil stacks.

Should invasive weeds prove to be a problem in sensitive areas and sites where rare plants are located or show signs of invading adjacent areas, TEKFEN will use appropriate control methods to suppress their growth and expansion. Treatment may include hand-pulling, spot-treatment or weed-wiping with a herbicide.

Herbicides will be considered as a secondary option, and even then not in the vicinity of relocated rare plants, and only in accordance with the following Word Bank Pest Management criteria:

- They must have negligible adverse human health effects;
- They must be shown to be effective against the target species;

- They must have minimal effect on non-target species and the natural environment. The methods, timing, and frequency of pesticide application are aimed to minimise damage to natural enemies; and
- Their use must take into account the need to prevent the development of resistance in pests.

2.2.1.4 Tree felling

The removal of natural vegetation is related to the site preparation phase prior to construction, and it is expected to be complete along the work strip in the RoW and in the areas of construction of the AGIs. Typically trees are felled along the pipeline RoW direction, while shrubs and grass species are removed by scraping.

Prior to the felling of any trees, the trees which are to be removed and which are to be protected will be agreed by TEKFEN and local authorities. TEKFEN and the local forestry department will suitably mark the trees accordingly and will ensure that no damage is caused throughout duration of the Work.

All trees within the RoW and temporary work space, required to be removed in performance of the Work, will be felled parallel to the centreline of the right-of-way, where possible. Clearing operations will be, insofar as practicable, carried out so as to cause the least possible damage to growth outside these limits.

All usable timber will be piled on and near the edge of the working side of the right-of-way, or otherwise disposed of, as directed by TEKFEN and / or in accordance with the requirement of the related authority. Marketable timber will be given to the landowner and/or forestry authority, while non-marketable material (branches, roots) is either stockpiled at designated sites or disposed as inert or recyclable waste.

The number of felled trees and the tree species will be recorded. In reforestation, the composition of tree species will be considered. Not all trees will be able to be replaced in the same location from which they are removed, as trees will not be able to be replanted above the pipeline.

TEKFEN will comply with restrictions right-of-way agreements and environmental restrictions of the BAP, prohibiting the cutting or damaging of certain trees and other vegetation.

2.2.2 Terrestrial species protection

TEKFEN will implement the following commitments that will minimise disturbance or loss of wildlife:

- There is a risk that animals could enter un-sealed pipe strings and become trapped. This will be avoided by ensuring that welded pipe strings are capped to prevent animals getting inside.
- Topsoil stacks and pipe strings could prevent a barrier to the movement of animals, so gaps will be left in every 500 m to allow animals to pass. TEKFEN will take steps to ensure that the RoW does not constitute a barrier or risk to terrestrial animals during construction.
- Hunting, fishing or capturing wild animals or collecting wild plants by staff have potential to impact animal, fish, bird and plant populations and hence the region's biodiversity. TEKFEN will prohibit Project personnel from hunting and carrying of firearms, buying or selling live wild animals, collection of bird's eggs and destroying nests, obtaining or keeping pets at work areas or camp sites and buying wild plants or

their products from local communities. TEKFEN will also report third-party hunters found on site to the appropriate authorities.

- In order to minimise the habitat loss and nuisances, temporary working areas will be minimized as much as possible and the construction activities (especially blasting activites) will be timed to avoid the peak breeding and migratory periods for birds to reduce the chances of disturbances and chick mortalities.
- Disturbances due to noise from machinery (engine cover will be kept closed when the equipment is in operation in order to minimize the noise; engines will not be left in operating mode when they are not used) will be minimised.
- Provision of temporary noise barriers will be considered while working near sensitive areas
- Blasting will not be performed between 15 March-16 June (migration and breeding season of migrant birds).
- Vegetated buffers will be maintained wherever possible along known wildlife travel corridors (i.e., watercourses). High wildlife use areas will be indicated with signage along main access roads where potential exists for vehicle/wildlife collision.
- Fauna observation programme will be implemented throughout Project works:

-Presence of mammalian fauna will be checked by animal tracks, feces and any other signs prior to vegetation clearance and also Project staff will be informed via toolbox talks about the ecological sensitivities of the area.

-Ecological checks for bird nests and bat roosts, where felling of trees is necessary, will be performed.

-Bird nests will be checked by TEKFEN ecologists prior to vegetation clearance and also Project staff will be informed about the ecological sensitivities of the area.-Animals and nests, that are found within AoI (after the execution of preclearance surveys), will be translocated by the project ecologists, in a safe manner (using suitable, secure and appropriate containers) to a suitable habitat which will be identified at least 50 m away from the working areas.

- Wildlife crossing of RoW will be facilitated during construction by providing trench and windrow breaks, particularly at identified intersections with movement corridors.
- Special attention will be paid on the dust lifting during construction activities by irrigation procedures, since dust emission could originate reduction in the visibility and disturbance to the lepidopters' flight.
- Consequential damage to remaining trees will be minimized by fencing off construction areas and ensuring that access for large / heavy machinery avoids damage to tree roots and branches.
- Tree felling will be controlled to limit damage to vegetation outside construction strip.
- The working personnel will be trained on habitats of importance to pay attention.

2.2.2.1 Protection of Fauna from Trenches

TEKFEN will ensure that only short sections of pipeline trench are open (maximum 10 km in any one spread) and that the open trench will contain fauna ramps to allow fauna to get out of the trench. Spacing of fauna ramps will be 500 m or less.

2.2.2.2 Minimise time between welding and ditching

An open trench presents a risk to wildlife that could fall in and become trapped, and it also creates a potential barrier to the movement of terrestrial animals. TEKFEN will keep the time between pipe stringing and backfill at most 3 months in order to reduce the temporary barrier effect on wild and

domestic fauna and any risk of injury caused by falling into the trench. End caps will be used and the 500 m spacing will be left between pipe strings.

2.2.2.3 Checking the trench for wildlife

TEKFEN's ecologists and environmental inspectors will inspect the open trenches daily to check whether animals have fallen in and will rescue them, if it can be done safely and relocate to a suitable habitat.

TEKFEN ecologists will ensure that there are sufficient trench crossings to allow the passage of wild animals (particularly in sensitive locations).

2.2.2.4 Protection of Fauna in Camps

TEKFEN will take steps to ensure that construction camps do not have a negative impact on wildlife in the surrounding area. There is a risk that feral cats and dogs will be attracted to camps, which can have negative impact on local wildlife as they may kill small mammals, birds and reptiles and disturb birds nests.

If any reptile or mammal is found within camp and yard areas where they are at risk or pose a nuisance or hazard, TEKFEN's ecologist will be informed and will determine the appropriate actions to be taken for relocation.

2.2.3 Aquatic environment protection

TEKFEN will preserve aquatic habitats, minimise diversions, maintain uninterrupted water flow and preserve the landscape in river crossing areas.
Construction works will be conducted during the time when flow is low, if possible and will be conducted in a limited timeframe. Where possible, TEKFEN will construct small river crossings when streams are dry; and where this is not possible, TEKFEN will maintain downstream water flow while the crossing is constructed. If techniques using dams and pumps are used to maintain the water flow, TEKFEN will install meshes upstream and downstream of the works area to prevent the pump from harming fish, larva (fry) and other aquatic organisms. TEKFEN will monitor the turbidity during the construction activities as described in Tekfen's Pollution Prevention Plan.

Any bed reinforcement and water extraction will be planned outside the fish spawning season. If work must be undertaken within the fish spawning season (of any IUCN/ Red Data Book species present nominally April to June, the exact timing of which will be determined following a ecological study), it will only be done so, following a site assessment and approval by the EPCM as explained in Section 2.1.1.3 of this plan

Wetlands and rivers feeding ecologically sensitive areas won't be used as the vehicles and construction equipments are being washed, are parked or stand-by. The 30m buffer zone at watercrossings will be considered at every construction activity.

TEKFEN will minimize riparian vegetation removals. If removal is necessary it is recommended to use proper clearing techniques and protect retained vegetation.

2.2.3.1 Storage of bed and bank materials

Bed and bank materials excavated at river crossings have various ecological properties, and it is important that they are stored and replaced separately.

At watercourses, bank and bed material will be stored separately, away from the active channels and will not be placed where flow or drainage will be obstructed.

2.2.3.2 Fish catching and transfer around dams

Where dams are installed during river crossings, they could prevent fish from moving along the watercourse. Fish will be caught and transferred around dams by TEKFEN ecologists/consultants - when required by using appropriate field equipments. TEKFEN will construct river crossings during dry period where possible. On wet season however, TEKFEN will construct culverts to maintain continues water flow during the construction period of the water crossings

If pumps are used to maintain the water flow, TEKFEN will install meshes upstream and downstream of the works area to prevent the pump from harming fish, fry and other aquatic organisms.

No fishing will be permitted within the project footprint.

2.3 REINSTATEMENT AND OPERATIONS

2.3.1 Seeding

Seeding of the RoW is crucial for successful bio restoration. It is expected that revegetation from the *in situ* topsoil seed bank, along with augmented seed stock, will allow most areas to recover without additional intervention. Where recovery is not observed, supplemental seeding, planting, and soil replacement will be undertaken. Seeding onto the RoW and work areas will only occur where it is required for erosion control or where it is part of mitigation for the restoration of sensitive habitats. The sensitive areas will be re-seeded as per the BAP.

TEKFEN will produce a Method Statement which specifies the seed mix to be used during seeding. The choice of species to be used for Seeding will be based on the ecological survey records. This will include a consideration of both seed collection and any seeds which are commercially available.

TEKFEN will specify the appropriate seed mix to be used that allow the variety and distribution pattern of the original plant species to be replicated with the aim of meeting both the erosion control and the long term objectives to restore vegetative cover and species diversity as part of biorestoration.

TEKFEN will consider alternative sources of local seeds, such as locally grown hay cut at the seed stage to allow for the eventuality that non-domesticated native plant species are not commercially available. All seeding alternatives will be approved by EPCM before use. The seeding alternatives allow for the use of species originally found in each route section or Project area and/or rapid growth species that have a dense, fibrous horizontal root structure close to the surface and are resistant to damage by run-off or trampling in areas where erosion control is important. Alternatives will be consistent with planting restrictions along the pipeline centre line.

The Seeding method statement will include the following:

- Species mix
- Seed source
- Quality control (including checking for alien and/or invasive species)
- Seeding rates

- Seeding methods
- Soil additives selection and use
- Watering requirements
- Seeding schedule (allowing for growing season and site specific meteorological conditions)
- Use of pesticides.

In areas where rapid vegetative growth is necessary to control erosion, the TEKFEN's Method Statements may propose the application of low motility fertilisers (e.g. ammonium sulphate nitrate or calcium ammonium nitrate) so that the natural nutrient balances in the adjacent ecosystems are not altered. TEKFEN will consult local universities, ministries and landowners for advice on rates of application for fertilisers.

TEKFEN will ensure that the seed mix does not include invasive plant species. No invasive species will be used in seed mixes for erosion control or biorestoration.

2.3.2 Biorestoration

Biorestoration is the restoration of flora and fauna and the establishment of vegetation cover (post Seeding) to meet the following long term target (taking account of EPCM/TANAP restrictions on planting adjacent to pipelines and the need for vehicular access for pipeline security and maintenance activities) on non-agricultural, temporary areas.

In scope of biorestoration, live specimens of the rare plants (where possible) will be either removed from the ROW and be translocated to nearby botanical conservation centres for propagation and ultimate reintroduction into their original habitat (*ex situ* conservation), or will be replanted (*in situ*). Seeds will also be collected and stored under controlled conditions. On completion of construction works the seeds will be sown in areas most suitable to their growth and reproduction.

TEKFEN will register and inform EPCM on translocation of rare/endemic/endangered plants that will be removed from LOT3 areas.

Not all trees will be able to be replaced in the same location from which they were removed as trees will not be able to be replanted along an 8m wide strip above the pipeline. The revegetation strategy in all sections of the right-of-way will be to reinstate the pre-construction vegetation in terms of both composition and density. Besides, all cut trees will be counted but that the trees that are not replaced on the ROW will be replanted in another location in accordance with the local authority.

TEKFEN will refer to the ecological surveys and BAP when deciding where translocated plants should be re-introduced as part of bio-restoration.

2.4 IMPACT AVOIDANCE AND MITIGATION

TEKFEN will implement the commitments as outlined below.

Ecological impacts will be minimised by keeping the work area width as 30m or less in Environmentally Sensitive Areas (i.e forest locations).

TEKFEN will comply with any instructions, including time of year restrictions, issued by the related authorities and the BAP as approved by the EPCM for the protection of any / all

environmentally sensitive areas such as Important River Crossings; Critical Habitats; Key Biodiversity Areas and Protected Areas which have certain associated seasonal constraints.

TEKFEN will apply the requirements about topsoil stripping, storage, maintenance of topsoil quality, structure and the integrity of its seed bank and will prevent build-up of alien invasive species.

TEKFEN will preserve aquatic habitats, minimise diversions, maintain uninterrupted water flow and preserve the landscape in river crossing areas.

Ecologists of TEKFEN will keep a record of any plants or animals translocated and all cut trees. Injured and dead animals will also be recorded.

TEKFEN will backfill and re-instate within 3 months after installation of the pipeline in ecologically sensitive areas, along water courses and in locations prone to erosion. Also TEKFEN will fully re-instate in accordance with the specifications in these areas.

Speed limits will be enforced along main access roads and along the ROW. traffic will be minimized to prevent vehicle-wildlife collisions.

TEKFEN will provide temporary barriers (i.e. fencing) to prevent wildlife from crossing heavily used working areas and from accessing to waste disposal areas

A no weapons/no hunting policy will be implemented for Project personnel, including subcontractors, both on site and while travelling to and from Project work areas

TEKFEN will implement wildlife protection educations for enhancing the awareness of staff.

TEKFEN will increase awareness of workers of the ecological sensitivities of the areas.

TEKFEN will implement dust control measures on access roads and the RoW

Habitat loss; habitat fragmentation; habitat alteration will be minimized in particularly roosting, nesting and foraging areas of animals.

TEKFEN will have an expert ecologist present in each spread during the vegetation clearance at ecologically sensitive areas to ensure that necessary precautions are taken if species in concern are met.

3. TRAINING

With respect to ecology, by regular tool box talks, inductions and trainings given by TEKFEN ecologists, TEKFEN will ensure that all personnel understand:

- The ecological sensitivities of the pipeline sections, facility sites and access roads.
- The potential ecological impacts of the Project, the mitigation measures that have been adopted to address those impacts and how and where to apply these measures.
- Identification of the main sensitive species that could be encountered in the work areas (especially for the personnel involved in clearing and grading activities about the need to protect sensitive plant species).
- The sensitivity of wildlife to physical disturbance and noise.

- The prohibition of trespassing outside of the project approved footprint.
- The need to protect mature trees from physical damage to their trunks, roots or crown.
- The need to report any incident involving the accidental injury or death of fauna.
- The possibilities of human wildlife conflict, i.e. attack from animals that present a threat to human safety.
- Protection, necessity and importance of reinstatement.
- TEKFEN's rules and regulations with regard to ecological protection: protection of flora and fauna,
- Prohibitions during project: hunting, fishing, plant and animal gathering, egg collection, or harassment of animals, disturbing nests, den, or destruction of habitat and etc.

4. MONITORING

TEKFEN's verification and monitoring activity related to the provisions of this plan will be in accordance with the requirements of the TEKFEN E&S Management Plan (TKF-PLN-ENV-PL3-001).

As outlined in this plan, TEKFEN will be responsible for documenting the ecological studies, for the implementation of mitigation actions, and for monitoring the success of the mitigation measures implemented under its own quality system.

The principal objective of monitoring and verification during the operations is to provide documented assurance that TEKFEN, and any third parties engaged by TEKFEN during the operations of the project, are adhering to the requirements of this Plan.

The specific objectives of the monitoring program can be summarised as follows:

- Monitor the timely completion of actions and commitments described in this Plan;
- Collect relevant and representative data to provide assurance, or otherwise, that the operations is compliant with requirements of BAP;
- Measure the success of the mitigation measures;
- Monitor the implementation of corrective actions;

TEKFEN will monitor the following ecological management issues but not limited to:

- The implementation of the ecological assessment mitigation actions as they relate to TEKFEN's activities
- Training Personnel by toolbox talks and training activities; and increasing their awareness on TEKFEN's rules and regulations with regard to ecological protection
- Erection of the required signs and notices
- Effectiveness of sedimentation control works at river crossings.
- Works are not encroaching outside the designated works areas or on any sensitive habitats.
- Translocation and adaptation success of rare species

4.1. MONITORING THE EFFECTIVENESS OF SPECIES TRANSLOCATION

TEKFEN ecologists will monitor the success of translocation of plants and inspect the translocation sites monthly to check the survival rate.

TEKFEN will regularly inspect the safe zones in which animals of limited mobility have been translocated to assess whether they are thriving at the new location.

4.2. MONITORING THE EFFECTIVENESS OF SEEDING

Bio-restoration involve seeding of species to provide new growth or planting bulbs, shrubs or trees.

TEKFEN ecologist will check the condition of stored turfs and topsoil weekly and immediately after any rain events. TEKFEN will apply suitable corrective actions (re-seeding/replanting etc.) in areas where objectives have not been achieved.

5. REPORTING

TEKFEN will submit a monthly reports to EPCM with details of the ecological protection and bio-restoration measures that have been implemented, and the monitoring inspections that have been carried out, as per the format provided by EPCM given in Annex 1. TEKFEN will report the dates, locations, species and quantities of seeding/hydroseeding and planting undertaken and fertiliser used the following on a monthly basis. The report will include measures taken to control noxious/invasive alien species and other environmental aspects relating to air quality, noise, water quality, waste management and soil and erosion control and which are directly or indirectly linked to bio-restoration management.

WILDLIFE INCIDENTS
On receiving an incident report regarding the accidental injury or death of fauna, TEKFEN's Environmental Advisors and/or ecologists will record the, time/date of event, name of species, size measurements and habitat type (see Annex 1). These data will be used to determine the appropriate actions to be taken. TEKFEN will present wildlife incidents reports monthly to EPCM (see Annex 1).

6. RESPONSIBILITIES

Project Manager

- To provide necessary resources for the Ecological management.
- To ensure the application of all the commitments, verifications, and mitigations of

Project HS&ES Manager

- To satisfy the need for all ecological survey, biorestoration, seeding, reinstatement activities.
- To ensure that appropriate permitted/licensed subcontractors are selected for Ecological consultancy

Environmental Manager:

- Supervision of Environmental team.
- Determining appropriate corrective action for non-compliance;
- To ensure that the actions stated in this Plan are carried out
- To send monthly progress reports to EPCM

- To consult with local experts, specialist organisations and government authorities in order to ensure the Reinstatement works are appropriate to the local, worksite-specific conditions

Environmental Advisor/Ecologists

- To implement the requirements given on this Plan.
- To coordinate training program with Training and Learning Development Department;
- To carry out site inspections related to the environmental precautions,
- To develop and implement site specific method statements,
- To be responsible for application of mitigation measures in the field activities
- To implement seeding using an approved seed mix.
- To be responsible for conducting ecological surveys, determine the needs for protecting wildlife and sensitive habitats
- To conduct all the ecological monitoring including reinstatement (biorestoration and seeding), species translocations, erosion control, pollution prevention and waste management.
- Planning of reinstatement activities, giving ecological expertise on site during all relevant activities within ESAs (e.g. route clearance, re-vegetation) to provide advice and supervision.To implement the environmental monitoring program.

Environmental Inspectors/ Environmental Engineer

- Inspection, and ensuring maintenance, and repair of drainage and erosion control devices;
- To ensure biorestoration aftercare;
- To ensure RoW reinstatement aftercare and maintenance;
- To ensure liaison with land owners to facilitate maintenance of stock-proof fencing to restrict access to seeded and planted areas;
- To ensure inspection, maintenance and repair of reinstatement works with special care at watercourses, steep slopes and ESAs;

Construction Manager

- To follow-up actions associated with the implementation of this Plan each in his work area.

Supervisors and Foremen

- To ensure that their work areas are clean and tidy and they obey the requirements of this plan
- Report observations of reinstatement problems along RoW to Environmental Advisors and assist with response;
- Report observations of fencing erected to restrict access of wild animals to seeded and planted areas;
- Report observations of areas damaged by vehicular access or by emergency use along the RoW;

- Awareness raising among the operations workforce of the damaging effects of alien invasive species on endemic species;
- Restoration of areas damaged by vehicular access or by emergency use along the RoW.

7. RECORDS

- Site inspection records for ecological state, construction period and reinstatement activities
- Comprehensive photographic record including key habitats or topographical features of ecological significance (e.g. river crossings, wetlands, woodlands, forests, meadows, gullies, slopes, outcrops, eroded terrain) prior to vegetation clearance, Topsoil stripping, grading, cutting and other major earthworks
- Records of wildlife incidents (Annex 1)
- Records of translocated animals (Annex 1)
- Terrestrial critical habitat registers including seed, plant bulb and herbaceous plant collection, storage and repantation (Annex 1)
- Records of translocated plants (Annex 1)
- Records of revegetated areas: Sensitive areas registers (Annex 1)
- Records of biorestoration results during the construction period.
- Records of of natural vegetation alterations; introduction of non-native species;
- Water crossing registers (Annex 1)
- Freshwater Critical Habitats registers including enforcement of no-construction time frame, crossing details, sediment control, water protection applications and samplings (Annex 1)
- Training registers (Annex 1)
- NCR register and Incident register

ANNEX 1 – ECOLOGICAL REGISTERS

FAUNA REGISTER

SPREAD 5

	Relocated	Injured	Dead
Total this month:			
Total to date:			

Date	Species (Scientific name)	Count	Location of fauna	Relocated count	Injured count	Death count	Relocation Area	Comments

FAUNA REGISTER

SPREAD 6

	Relocated	Injured	Dead
Total this month:			
Total to date:			

Date	Species (Scientific name)	Count	Location of fauna	Relocated count	Injured count	Death count	Relocation Area	Comments

SENSITIVE AREAS REGISTER

LOT 3

TERRESTRIAL CRITICAL HABITATS

KP Start REV J	KP End REV J	ID	Was the no-construction time frame enforced? (if required)	Which seeds were collected?	Date seeds were collected	Amount of seed collected	Seed storage location	Date seeds were planted on ROW	Location where seeds were replanted	Which plants/bulbs were collected?	Date plants/bulbs were collected	How many plants/bulbs were collected	Plants/bulbs Storage location	Date plants/bulbs replanted on ROW during restoration	How many plants/bulbs were replanted on ROW during restoration	Location where plants/bulbs were replanted	Date Herbaceous plants were on ROW	Storage location of herbaceous plants collected.	Date when herbaceous plants were laid on ROW duringrestoration	Date topsoil was stripped	Date topsoil was reinstated	Date when rocks were collected? (30cm or larger)	Rock storage location	Date rocks were relocated on ROW	Invasive flora species control	Terracing during reinstatement to prevent erosion
849+409	849+612	CH49																							
948+615	949+002	CH50																							
996+630	997+352	CH51																							
1034+862	1035+061	CH52																							
1035+348	1035+567	CH53																							
1144+988	1145+800	CH54																							
1155+228	1155+398	CH55																							
		CH56																							
1229+052	1229+504	CH57																							

FRESHWATER CRITICAL HABITATS													
KP Start REV J	KP End REV J	ID	Was the no-construction time frame enforced? (if required)	Start date of crossing (when banks are being topsoiled/ graded)	End date of crossing (when final reinstatement completed)	Control of sediment release	Minimize erosion, sedimentation and impact to riparian vegetation	Avoid impact and removal of gravel	Date Erosion and sediment controls in place	Restoration of channel bottom	Restoration of riparian area (contours and vegetation)	Water protection zone marked/ flagged? (30m buffer zone on either side of crossing)	Water sample taken upstream/down stream? Prior/during/post construction
986+945	986+432	FCH13											
1040+654	1040+663	FCH14											
1093+394	1093+484	FCH15											
1222+948	1222+983	FCH16											
1321+758	1321+780	FCH17											
1329+399	1329+429	FCH18											

WATERCOURSE CROSSINGS REGISTER							
SPREAD 5							
KP Location of watercourse	Name	Crossing Start Date	Crossing Finish date	Reinstatement Start Date	Reinstatement Finish date	Date erosion and sediment control devices were installed	Comments

WATERCOURSE CROSSINGS REGISTER							
SPREAD 6							
KP Location of watercourse	Name	Crossing Start Date	Crossing Finish date	Reinstatement Start Date	Reinstatement Finish date	Date erosion and sediment control devices were installed	Comments

REINSTATEMENT REGISTER						
SPREAD 5						
KP Start	KP End	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

REINSTATEMENT REGISTER						
SPREAD 6						
KP Start	KP End	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

Trees that were Relocated or Cut during Construction SPREAD 5								
Description of Site	**Tree/Shrub Species (Latin/English)**	**Number of Trees**	**Height of Trees**	**Photo Reference**	**Cutting or Relocation Date (C for cutting RL for relocating)**	**Reforestation Place**	**Reforestation or Relocation Date (C for cutting RL for relocating)**	**Verifier Name**

Trees that were Relocated or Cut during Construction SPREAD 6								
Description of Site	**Tree/Shrub Species (Latin/English)**	**Number of Trees**	**Height of Trees**	**Photo Reference**	**Cutting or Relocation Date (C for cutting RL for relocating)**	**Reforestation Place**	**Reforestation or Relocation Date (C for cutting RL for relocating)**	**Verifier Name**

TRAINING REGISTER - LOT 3						
Reporting Period:						
Date	Subject	Duration (min)	Location	Attendees (who)	Number of attendees	Total Manhours

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ANNEX 2. BAP KP TABLE AND ECOLOGICAL ACTIONS

OH	KP	Length (km)	Province	EUNIS Code	Ideal Soil Irrigation Time	Sensitive Construction Period	Allowance Condition	Priority	Related Species	Does the habitat have the potential to be sustainable, restorable or expandable?	The Status of the Part of the Habitat that Intersects with the Project	Recommended Actions Before Construction	Recommended Actions After Construction	Monitoring	Pre-construction mitigation measures if constructions start at May-June	Post-construction mitigation measures if constructions start at May-June	Pre-construction mitigation measures if constructions start at June-August	Post-construction mitigation measures if constructions start at June-August	Pre-construction mitigation measures if constructions start at September-November
OH49	846+021-846+224	0,203	Yozgat	G1.7 (Thermophilous deciduous woodland)	July-March	No restriction	None	High	*Dioctria* e. sp. 2 *Dysmachus saffronbolaticus*	*This critical habitat cannot be restored since the growth of woody species on the ROW is not desired. *Since the SCC species prefer habitats hosting herbaceous species, they will easily come back to the area after the construction.	*In ROW, the G1.7 habitat covers 0.60 ha area. *The habitat preserves its natural status.	*The top soil should be scraped at a depth of 10-15 cm and should be stored near the ROW. *Herbaceous plants should be harvested where should be stored near the ROW.the KP's are given in Table 10.1 and should be stored near the ROW.	*The stored top soil should be laid back in 3 months at the latest. *The harvested plants, containing eggs should be transferred to the area and spread on the soil. *Invasive flora species control should be done.	*It should be observed whether in the first May-June following the spread of the top soil, the vegetative cover of the area has recovered by 30% and the diversity by 20%.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of Dysmachus saffranbolaticus, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of Dysmachus saffranbolaticus, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.
OH50	945+058-945+445	0,387	Yozgat	E1.2E (Irano-Anatolian steppes)	July-March	1 May - 1 June	Removal of topsoil prior to 1 May	Medium	*Cousinia halysensis*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*In ROW, the E1.2E habitat covers 1.39 ha area. *Grazing and land clearing are the factors that threatened this habitat. The habitat preserves its natural status.	*The top soil should be scraped at a depth of 10-15 cm and should be stored near the ROW.	*The stored top soil should be laid back in 3 months at the latest.	*It should be observed whether in the first May-June following the spread of the top soil, the vegetative cover of the area has recovered by 30% and the diversity by 30%.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of Cousinia halysensis species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Cousinia halysensis species shall be planted according to the methodology and to the (36 S 663165.43-4391184.04 36 S 663018.07-4391201.63 36 S 662922.53-4391149.88) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Cousinia halysensis species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Cousinia halysensis species shall be planted according to the methodology and to the (36 S 663165.43-4391184.04 36 S 663018.07-4391201.63 36 S 662922.53-4391149.88) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Cousinia halysensis species shall becollected between 15 June-15 July.
OH51	993+073-993+795	0,722	Yozgat	E1.2E (Irano-Anatolian steppes)	July-March	1 May - 1 June	Removal of topsoil prior to 1 May	Medium	*Cousinia halysensis*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*In ROW, the E1.2E habitat covers 2.65 ha area. *Grazing and land clearing are the factors that threatened this habitat. The habitat preserves its natural status.	*The top soil should be scraped at a depth of 10-15 cm and should be stored near the ROW.	*The stored top soil should be laid back in 3 months at the latest.	*It should be observed whether in the first May-June following the spread of the top soil, the vegetative cover of the area has recovered by 30% and the diversity by 30%.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of Cousinia halysensis species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Cousinia halysensis species shall be planted according to the methodology and to the (36 S 617215.12- 4393683.66 36 S 616926.44-4393808.19 36 S 616741.98-4393948.53) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Cousinia halysensis species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Cousinia halysensis species shall be planted according to the methodology and to the (36 S 617215.12- 4393683.66 36 S 616926.44-4393808.19 36 S 616741.98-4393948.53) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Cousinia halysensis species shall be collected between 15 June-15 July.
OH52	1029+605-1029+804	0,199	Yozgat	E1.00 (Anatolian gypsum steppes)	July-March	1 May - 1 June	Removal of topsoil prior to 1 May	Medium	*Cousinia halysensis* *Thymus leucostomus*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*In ROW, the E1.00 habitat covers 0.71 ha area. *Grazing and land clearing are the factors that threatened this habitat. The habitat preserves its natural status.	*The top soil should be scraped at a depth of 10-15 cm and should be stored near the ROW.	*The stored top soil should be laid back in 3 months at the latest.	*It should be observed whether in the first May-June following the spread of the top soil, the vegetative cover of the area has recovered by 30% and the diversity by 30%.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of Thymus leucostomus and Cousinia halysensis species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Thymus leucostomus and Cousinia halysensis species shall be planted according to the methodology and to the (36 S 584017.01-4395503.88 36 S 583929.05-4395490.21) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Thymus leucostomus and Cousinia halysensis species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Thymus leucostomus and Cousinia halysensis species shall be planted according to the methodology and to the (36 S 584017.01-4395503.88 36 S 583929.05-4395490.21) coordinates between epternber-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Thymus leucostomus and Cousinia halysensis species shall be collected between 15 June-15 July.
OH53	1030+091-1030+310	0,219	Yozgat	E1.00 (Anatolian gypsum steppes)	July-March	1 May - 1 June	Removal of topsoil prior to 1 May	Medium	*Cousinia halysensis* *Thymus leucostomus*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*In ROW, the E1.00 habitat covers 0.79 ha area. *Grazing and land clearing are the factors that threatened this habitat. The habitat preserves its natural status.	*The top soil should be scraped at a depth of 10-15 cm and should be stored near the ROW.	*The stored top soil should be laid back in 3 months at the latest.	*It should be observed whether in the first May-June following the spread of the top soil, the vegetative cover of the area has recovered by 30% and the diversity by 30%.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of Thymus leucostomus and Cousinia halysensis species shall be collected near the ROW between 15 June-15July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Thymus leucostomus and Cousinia halysensis species shall be planted according to the methodology and to the (36 S 583553.69-4395479.62 36 S 583442.02-4395487.31) coordinates between September-November.	* The top soil shall be scraped at a depth of 10- 15 cm and shall be stored near the ROW. * The seeds of Thymus leucostomus and Cousinia halysensis species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Thymus leucostomus and Cousinia halysensis species shall be planted according to the methodology and to the (36 S 583553.69-4395479.62 36 S 583442.02-4395487.31) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Thymus leucostomus and Cousinia halysensis species shall be collected between 15 June-15 July.
OH54	1139+460-1140+100	0,81	Ankara	E1.2E (Irano-Anatolian steppes)	July-March	1 May - 1 June	Removal of topsoil prior to 1 May	Medium	*Cousinia halysensis*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*In ROW, the E1.2E habitat covers 2.96 ha area. *Grazing and land clearing are the factors that threatened this habitat. The habitat preserves its natural status.	*The top soil should be scraped at a depth of 10-15 cm and should be stored near the ROW.	*The stored top soil should be laid back in 3 months at the latest.	*It should be observed whether in the first May-June following the spread of the top soil, the vegetative cover of the area has recovered by 30% and the diversity by 30%.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of Cousinia halysensis species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Cousinia halysensis species shall be planted according to the methodology and to the (36 S 484883.24-4376744.59 36 S 484666.23-4376765.52 36 S 484422.25-4376788.47) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Cousinia halysensis species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Cousinia halysensis species shall be planted according to the methodology and to the (36 S 484883.24-4376744.59 36 S 484666.23-4376765.52 36 S 484422.25-4376788.47) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Cousinia halysensis species shall be collected between 15 June-15 July.
OH55	1169+730-1169+900	0,17	Ankara	E1.01 (Marl Steppe)	July-March	1 May - 1 June	Removal of topsoil prior to 1 May	Medium	*Cousinia halysensis* *Thymus leucostomus*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*In ROW, the E1.2E habitat covers 0.62 ha area. *Grazing and land clearing are the factors that threatened this habitat. The habitat preserves its natural status.	*The top soil should be scraped at a depth of 10-15 cm and should be stored near the ROW.	*The stored top soil should be laid back in 3 months at the latest.	*It should be observed whether in the first May-June following the spread of the top soil, the vegetative cover of the area has recovered by 30% and the diversity by 30%.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of Thymus leucostomus and Cousinia halysensis species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Thymus leucostomus and Cousinia halysensis species shall be planted according to the methodology and to the (36 S 475038.74-4376991.91 36 S 474951.33-4376999.24) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Thymus leucostomus and Cousinia halysensis species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Thymus leucostomus and Cousinia halysensis species shall be planted according to the methodology and to the (36 S 475038.74-4376991.91 36 S474951.33-4376999.24) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Thymus leucostomus and Cousinia halysensis species shall be collected between 15 June-15 July.
OH56	1208+945-1209+108	0,163	Ankara	E1.01 (Marl Steppe)	July-March	1 May - 1 June	Removal of topsoil prior to 1 May	Medium	*Thymus leucostomus*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*In ROW, the E1.01 habitat covers 0.60 ha area. *Grazing and land clearing are the factors that threatened this habitat. The habitat preserves its natural status.	*The top soil should be scraped at a depth of 10-15 cm and should be stored near the ROW.	*The stored top soil should be laid back in 3 months at the latest.	*It should be observed whether in the first May-June following the spread of the top soil, the vegetative cover of the area has recovered by 30% and the diversity by 30%.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of Thymus leucostomus species shall be collected near the ROW between 15 June- 15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Thymus leucostomus species shall be planted according to the methodology and to the (36 S 418710.48-4367644.42 36 S 418619.59-4367673.73) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Thymus leucostomus species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Thymus leucostomus species shall be planted according to the methodology and to the (36 S 418710.48-4367644.42 36 S 418619.59-4367673.73) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Thymus leucostomus species shall be collected between 15 June-15 July.
OH57	1223+54-1223+506	0,452	Eskişehir	E1.01 (Marl Steppe)	July-March	1 May - 30 June	Construction prohibited from 01 May-30 June	High	*Acsik* Steppe (KBA, (PA) *Neolyceana soezeni*, *Scutellaria yildirimii*, *Achillea ketenoglui*, *Astragalus physodes* ssp. *acikrensis*, *Minuartia corymbulosa* var. *gypsophiloides*, *Astragalus kochaki*, *Cyathobasis fruticulosa*, *Onobrychis paucijuga*, *Thymus leucostomus*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*In ROW, the E1.01 habitat covers 0.85 ha area. *Pesticide utilization, grazing and land clearing are the factors that threatened this habitat. The habitat preserves its natural status at a significant level.	*The top soil should be scraped at a depth of 10-15 cm and should be stored near the ROW.	*The stored top soil should be laid back in 3 months at the latest. *Invasive flora species control should be done.	*It should be observed whether in the first May-June following the spread of the top soil, the vegetative cover of the area has recovered by 30% and the diversity by 20%.	*The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the Caragana grandiflora speciesshall be planted on the ROW to the coordinates. * The seeds of the Caragana grandiflora species which is a food plant of Neolyceana soezeni, shall be collected. * Caragana grandiflora individuals shall be collected with their soils and planted near the ROW at the (36 S 405664.19-4363111.56) coordinates * If the construction works start in March 2015; the seeds of Scutellaria yildirimii, Achillea ketenoglui , Astragalus kochaki, Onobrychis paucijuga species shall be collected near the ROW between 1 June- 1 July; the seeds of Astragalus physodes ssp. acikrensis species shall be collected near the ROW between 15 May-15 June; the seeds of Thymus leucostomus species shall be collected near the ROW between 15 June-15 July; the seeds of Minuartia corymbulosa var. gypsophiloides species shall be collected near the ROW between 15 July-15 August; the seeds of Cyathobasis fruticulosa species shall be collected near the ROW between 1 July-1 August. * Some of the collected seeds of Achillea ketenoglui, Astragalus physodes ssp.acikrensis, Minuartia corymbulosa var.gypsophiloides, Astragalus kochaki, Cyathobasis fruticulosa, Onobrychis paucijuga species must be given to the seed gene bank.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Caragana grandiflora species shall be planted on the ROW to the coordinates. (36 S 405549.00-4363042.00 36 S 405621.85-4363058.29 36S 405679.83-4363074.44 36 S 405784.91-4363093.32 36 S 405844.76-4363108.21 36 S405912.62-4363121.76) * Caragana grandiflora species removed individuals shall be transferred on the ROW. * The area shall be surrounded by a wire mesh or fence to protect the area from grazing and other pressures. * The collected seeds of Scutellaria yildirimii ,Achillea ketenoglui ,Astragalus physodes ssp.acikrensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochaki, Cyathobasis fruticulosa, Onobrychis paucijuga, Thymus leucostomus species shall be planted according to the methodology and to the coordinates between September-November.	*The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The collected seeds of the Caragana grandiflora species which is a food plant of Neolyceana soezeni, shall be collected. * Caragana grandiflora individuals shall be collected with their soils and planted near the ROW at the (36 S 405664.19-4363111.56) coordinates * The seeds of Scutellaria yildirimii, Achillea ketenoglui ,Astragalus physodes ssp.acikrensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochaki, Cyathobasis fruticulosa, Onobrychis paucijuga, Thymus leucostomus species shall be collected near the ROW between 15 May-15 June; the seeds of Thymus leucostomus species shall be collected near the ROW between 15 June-15 July; the seeds of Minuartia corymbulosa var. gypsophiloides species shall be collected near the ROW between 15 July-15 August; the seeds of Cyathobasis fruticulosa species shall be collected near the ROW between 1 July-1 August. * Some of the collected seeds of Achillea ketenoglui, Astragalus physodes ssp.acikrensis, Minuartia corymbulosa var.gypsophiloides, Astragalus kochaki, Cyathobasis fruticulosa, Onobrychis paucijuga species must be given to the seed gene bank.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of Caragana grandiflora species shall be planted on the ROW to the coordinates. (36 S 405549.00-4363042.00 36 S 405621.85-4363058.29 36S 405679.83-4363074.44 36 S 405784.91-4363093.32 36 S 405844.76-4363108.21 36 S405912.62-4363121.76) * Caragana grandiflora species removed individuals shall be transferred on the ROW. * The area shall be surrounded by a wire mesh or fence to protect the area from grazing and other pressures. * The collected seeds of Scutellaria yildirimii, Achillea ketenoglui ,Astragalus physodes ssp.acikrensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochaki, Cyathobasis fruticulosa, Onobrychis paucijuga, Thymus leucostomus species shall be planted according to the methodology and to the coordinates between September-November.	*The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the Caragana grandiflora species which is a food plant of Neolyceana soezeni, shall be collected. * Caragana grandiflora individuals shall be collected with their soils and planted near the ROW at the (36 S 405664.19-4363111.56) coordinates * The seeds of Scutellaria yildirimii, Achillea ketenoglui ,Astragalus kochaki, Onobrychis paucijuga species shall be collected near the ROW between 1 June- 1 July; the seeds of Astragalus physodes ssp. acikrensis species shall be collected near the ROW between 15 May-15 June; the seeds of Thymus leucostomus species shall be collected near the ROW between 15 June-15 July; the seeds of Minuartia corymbulosa var. gypsophiloides species shall be collected near the ROW between 15 July-15 August; the seeds of Cyathobasis fruticulosa species shall be collected near the ROW between 1 July-1 August. * Some of the collected seeds of Achillea ketenoglui, Astragalus physodes ssp.acikrensis, Minuartia corymbulosa var.gypsophiloides, Astragalus kochaki, Cyathobasis fruticulosa, Onobrychis paucijuga species must be given to the seed gene bank.

CH	KP	Province	EUNIS Code	Sensitive Construction Period	Priority	Related Species	Does the habitat have the potential to be sustainable, restorable or expandable?	The Status of the Part of the Habitat that Intersects with the Project	Recommended Actions Before Construction	Recommended Actions After Construction	Monitoring	Pre-construction mitigation measures if constructions start at May-June	Post-construction mitigation measures if constructions start at May-June	Pre-construction mitigation measures if constructions start at June-August	Post-construction mitigation measures if constructions start at June-August
FCH13 - DELİCE STREAM	983+388-983+432	Yozgat	C2.3 (Permanent non-tidal, smooth-flowing watercourses)	April-June	Medium	*Cobitis simplicispinna*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*The bottom structure of this area consists of sandy areas with pebbles and occasionally big stones.	*Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along stream banks) to baseline conditions present prior to construction.	*Periodic annual monitoring studies after the construction concerning the species which this habitat hosts and the state of their populations is recommended.	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.	-	-
FCH14 - KILIÇÖZÜ RIVER	1035+368-1035+377	Kırıkkale	C2.3 (Permanent non-tidal, smooth-flowing watercourses)	April-June	Low	*Cobitis simplicispinna*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*The bottom structure of this area consists of sandy areas and ooze.	*Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.	*Restore channel bottom (materials and topography) and riparian vegetation (along stream banks) to baseline conditions present prior to construction.	*Periodic annual monitoring studies after the construction concerning the species which this habitat hosts and the state of their populations is recommended.	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.	-	-
FCH15 - KIZILIRMAK RIVER	1087+890+1087+980	Kırıkkale	C2.2 (Permanent non-tidal, fast, turbulent watercourses)	April-June	Medium	-	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*The bottom structure of this area consists of sandy areas with pebbles *The riparian zone in this area is covered with aquatic plants that are very important for the reproduction and hiding of fish.	*Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along stream banks) to baseline conditions present prior to construction.	*Periodic annual monitoring studies after the construction concerning the species which this habitat hosts and the state of their populations is recommended.	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.	-	-
FCH16 - SAKARYA RIVER	1214+260-1214+290	Eskişehir	C2.3 (Permanent non-tidal, smooth-flowing watercourses)	April-June	Medium	-	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*The bottom structure of this area consists of sandy and muddy areas *The riparian zone in this area is covered with aquatic plants that are very important for the reproduction and hiding of fish.	*Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along stream banks) to baseline conditions present prior to construction.	*Periodic annual monitoring studies after the construction concerning the species which this habitat hosts and the state of their populations is recommended.	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.	-	-
FCH17 - SEYDİ STREAM	1315+643-1315+665	Eskişehir	C2.3 (Permanent non-tidal, smooth-flowing watercourses)	April-June	Low	*Cobitis simplicispinna Gobio obtusirostris*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*The bottom structure of this area consists of sandy and stony areas. Occasionally muddy areas are observed.	*Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along stream banks) to baseline conditions present prior to construction.	*Periodic annual monitoring studies after the construction concerning the species which this habitat hosts and the state of their populations is recommended.	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.	-	-
FCH18 - SEYDİ STREAM	1323+270-1323+300	Eskişehir	C2.3 (Permanent non-tidal, smooth-flowing watercourses)	April-June	Low	*Cobitis simplicispinna Gobio obtusirostris Chondrostoma angorae*	*The sustainability and restorability potential of this habitat is high, provided that the following measures are taken.	*The bottom structure of this area consists of sandy and stony areas. Occasionally muddy areas are observed.	*Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along stream banks) to baseline conditions present prior to construction.	*Periodic annual monitoring studies after the construction concerning the species which this habitat hosts and the state of their populations is recommended.	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.	-	-

ANNEX 3: SPECIES OF CONSERVATION CONCERN AND DETAILS

Number	Group	Species	Province	Flowering Time	Fructifying Period	Fruit Type	Flower Colour	Priority	IUCN	Pop. Status	Critical Habitat	Recommended Action Before Construction	Recommended Action After Construction	Monitoring	Achievement Criteria
1	Plant	*Achillea ketenoglui*	Ankara	May	June	Achene	White	High	EN	Medium	not in any defined critical habitat	The seeds of the species should be collected between 1 June-1 July.	The collected seeds of the species should be planted on the ROW at the coordinates given in BAP Table 10.1 between September-November, in accordance with the methodology.	The germination success of the planted seeds should be monitoring in the first May-June following the plantation.	The species forming a healthy population on the ROW.
			Eskişehir								CH57				
2	Plant	*Alyssum niveum*	Eskişehir	May	June	Siliqula	Yellow	High	EN	Low	not in any defined critical habitat	The seeds of the species should be collected between 15 July-15 August.	The collected seeds of the species should be planted on the ROW at the coordinates given in Table 10.1 between September-November, in accordance with the methodology.	The germination success of the planted seeds should be monitoring in the first May-June following the plantation.	The species forming a healthy population on the ROW.
3	Plant	*Astragalus densifolius ssp. ayashensis*	Ankara	June-July	June-July	Legume	White to pink, light purple or violet	Medium	VU	Medium	not in any defined critical habitat	The seeds of the species should be collected between 1 June-1 July.	The collected seeds of the species should be planted on the ROW at the coordinates given in Table 10.1 between September-November, in accordance with the methodology.	The germination success of the planted seeds should be monitoring in the first May-June following the plantation.	The species forming a healthy population on the ROW.
4	Plant	*Astragalus kochakii*	Ankara	June-July	July-August	Legume	Purple	Medium	VU	Low	not in any defined critical habitat	The seeds of the species should be collected between 1 June-1 July.	The collected seeds of the species should be planted on the ROW at the coordinates given in Table 10.1 between September-November, in accordance with the methodology.	The germination success of the planted seeds should be monitoring in the first May-June following the plantation.	The species forming a healthy population on the ROW.
			Eskişehir								CH57				
5	Plant	*Astragalus physodes ssp. acikirensis*	Ankara	May-June	June-July	Legume	Purple	High	VU	Low	not in any defined critical habitat	The seeds of the species should be collected between 15 May-15 June	The collected seeds of the species should be planted on the ROW at the coordinates given in Table 10.1 between September-November, in accordance with the methodology.	The germination success of the planted seeds should be monitoring in the first May-June following the plantation.	The species forming a healthy population on the ROW.
			Eskişehir								CH57				
			Kırıkkale								not in any defined critical habitat				
6	Plant	*Cephalaria aytachii*	Eskişehir	June-September	September	Achene	Yellow or light yellow	High	CR	Medium	not in any defined critical habitat	The seeds of the species should be collected between 1 July-1 August.	The collected seeds of the species should be planted on the ROW at the coordinates given in Table 10.1 between September-November, in accordance with the methodology.	The germination success of the planted seeds should be monitoring in the first May-June following the plantation.	The species forming a healthy population on the ROW.
7	Plant	*Cousinia halysensis*	Sivas	June-August	July-September	Achene	Yellow	Medium	VU	Medium	not in any defined critical habitat	The seeds of the species should be collected between 15 June-15 July.	The collected seeds of the species should be planted on the ROW at the coordinates given in Table 10.1 between September-November, in accordance with the methodology.	The germination success of the planted seeds should be monitoring in the first May-June following the plantation.	The species forming a healthy population on the ROW.
			Ankara								CH54 and CH55				
			Kırşehir								not in any defined critical habitat				
			Kırıkkale								not in any defined critical habitat				
			Yozgat								CH50, CH51, CH52, CH53				

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TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Document No.	**PLK-PLN-ENV-PL4-007**	Rev	Status
		P4-2	**Re-IAA**
Document Title	**ENVIROMENTAL EMERGENCY RESPONSE PLAN**		
Tag No's			
Contractor	**PUNJ LLOYD – LİMAK - KALYON JV**		
Contractor Document No.	**PLK-PLN-ENV-PL4-007**	Contractor Rev.	**P4-2**

Tick Box	Descriptions	Signature & Date
☐	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
☐	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

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TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
Comment Reponse Sheet

TANAP

Document Title	ENVIROMENTAL EMERGENCY RESPONSE PLAN	Originator	PLK
Document Number	PLK-PLN-ENV-PL4-007	Rev	P4-1

Except for the following identified comments, all other comments on this document have been resolved or incorporated.

* O - Open, C - Closed

No.	Section/ Page	Comment	By	Response	By	Date	O/C *	Remarks
1	1.3 / pg6	delete: of the forest service	TANAP	Deleted	YOGD	03.07.2016	C	
2	1.3 / pg6	add: Spills or discoveries of hazardous materials, and wild land fires, and etc.	TANAP	Added	YOGD	03.07.2016	C	
3	2.3 / pg 9	add: Investigate and complete the process for close out of all Incident / accident Investigation Reports together with HS Manager.	TANAP	Added	YOGD	03.07.2016	C	
4	3 / pg 12	Please also define severe weather conditions such as heavy rainstorm, flood etc	TANAP	Added	YOGD	03.07.2016	C	
5	3.1 / pg 12	Add: E&S Management Plan	TANAP	Added	YOGD	03.07.2016	C	
6	3.1 / pg 12	soil / water: delete permit emission, delete acceptable, add related project criteria	TANAP	Deleted	YOGD	03.07.2016	C	
7	3.1 / pg 13	add: drains and subsoil.	TANAP	Added	YOGD	03.07.2016	C	
8	3.2 pg 15	Please check the "kg" unit for gas.	TANAP	Revised	YOGD	03.07.2016	C	
9	3.2 pg 15	delete: No immediate threat or limited harm to environment, requiring minor corrective action.	TANAP	Deleted	YOGD	03.07.2016	C	
10	3.2 pg 15	delete: 1 ton (m3) add: 100 liters or chemical spills less than 25 kg	TANAP	Revised	YOGD	03.07.2016	C	
11	3.2 pg 15	1000kg gas' check the "kg" unit for gas	TANAP	Revised	YOGD	03.07.2016	C	
12	3.2 pg 15	Delete: Any irreversible damage/degradation to the quality/availability of habitats and Socio Economic conditions at international level.	TANAP	Deleted	YOGD	03.07.2016	C	
13	3.3 pg 15	add subsection number 3.3	TANAP	Added	YOGD	03.07.2016	C	
14	4.1 pg 16	last paragraph: Please define the preventive measures here not only referral to Plan.	TANAP	Added	YOGD	03.07.2016	C	
15	section 4	second subsection numbers need to be changed and content page	TANAP	Revised	YOGD	03.07.2016	C	
16	4.2.4 / pg 23	delete: Other issues that are not mentioned in this EERP; concerning the hazardous materials storage and loading / unloading, storage areas refueling, equipment and vehicle maintenance; will comply with project requirements and CONTRACTOR's Pollution Prevention Plan and Waste Management Plan.	TANAP	Deleted	YOGD	03.07.2016	C	
17	4.2.4 / pg 24	All contaminated material will be disposed in accordance with related legislations, project requirements, and CONTRACTOR Waste Management Plan (PLK-PLN-ENV-PL4-006).	TANAP	Revised	YOGD	03.07.2016	C	
18	4.2.4 / pg 24	Delete: All contaminated material will be disposed in accordance with related legislations, project requirements, and CONTRACTOR Waste Management Plan (PLK-PLN-ENV-PL4-006).	TANAP	Deleted	YOGD	03.07.2016	C	
19	4.3.1 / pg 24	replace with: Liaison with the Client / EPCM Construction Manager,	TANAP	Revised	YOGD	03.07.2016	C	
20	4.4 / pg 27	add: EPCM Constrcution manager	TANAP	Revised	YOGD	03.07.2016	C	
21	4.5 / 28	change to: to waste handling area outside CWAA	TANAP	Revised	YOGD	03.07.2016	C	

Additional Notes (if any)	
Distribution	

Punj Lloyd / Limak / kalyon	**TANAP** **TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT** **48" ONSHORE PIPELINE CONSTRUCTION LOT 4**	TANAP / WorleyParsons resources & energy

ENVIRONMENTAL EMERGENCY RESPONSE PLAN

Rev.	Status	Date	Status Description	Issued by	Checked by	Approved by
P4-A	DIC	11/3/2016	Discipline Internal Check	BABD	ASOV	DHAG
P4-B	IDC	16/3/2016	Inter-Discipline Check	RICS	BHAG	DHAG
P4-C	IFR	22/3/2016	Issued for Review	DHAG	SDUT	KKSA
P4-0	IAA	14/6/2016	Issued as Approved	YOGD	KALF	MALB
P4-1	Re-IAA	14/6/2016	Re-Issued as Approved	YOGD	KALF	MALB
P4-2	Re-IAA	12/7/2016	Re-Issued as Approved	YOGD	KALF	MALB

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P4-A	DIC	11/3/2016	Discipline Internal Check
P4-B	IDC	16/3/2016	Inter-Discipline Check
P4-C	IFR	22/3/2016	Issued for Review
P4-0	IAA	22/3/2016	Issued as Approved
P4-1	Re-IAA	22/3/2016	Re-Issued as Approved
P4-2	Re-IAA	12/7/2016	Re-Issued as Approved

HOLDS

No	Section	Description	Input from	Planned Date

Table of Contents

1 INTRODUCTION

1.1 Background

The Trans Anatolian Natural Gas Pipeline will be built to transport natural gas emanating from the South Caucasus Pipeline Company Pipeline in Georgia to the Trans-Adriatic Pipeline in Greece. In addition to the mainline termination, dedicated off-takes will be provided to BOTAŞ at strategic points in the Republic of Turkey. Contract of Lot 4 of this project is awarded to PUNJ LLOYD – LİMAK Joint Venture and consists mainly of a 48" Onshore Pipeline Construction and also other Above Ground Installations.

1.2 Scope

This Environmental Emergency Response Plan (EERP) is prepared to provide guidance on setting up criteria on emergency organization preparation and response and keeping effective operation so to prevent the emergencies and / or minimizing / mitigating environmental impacts as to ensure quick and effective measures in case of emergency. This plan will expand, evolve and be refined continually improved during the development of the project through both formal and informal audits, inspections and from lessons learnt from incident investigations.

1.3 Purpose

This plan applies to emergency situations that could have significant environmental impacts to resources found on the applicable administrative units. Spills or discoveries of hazardous materials, and wild land fires, and etc. are emergencies for which employees may lessen, mitigate, or prevent undesired environmental effects by taking prompt action as described in this plan. This Plan has been synchronized with the plans and procedures of the CONTRACTOR's HS plans that are created to focus on human safety and health. This plan covers all activities at TANAP Project by CONTRACTOR, regardless whether the job is being executed directly by CONTRACTOR employees or by Subcontractors' employees.

1.4 Definitions

CLIENT	TANAP DOĞALGAZ İLETİM A.Ş.
PROJECT	Trans Anatolian Natural Gas Pipeline Project (TANAP)
EPCM	WorleyParsons Proje Yönetimi ve Mühendislik Limited Şirketi
CONTRACTOR	PUNJ LLOYD – LİMAK Joint Venture
CONTRACT	48" Onshore Pipeline Construction Contract for Trans-Anatolian Natural Gas Pipeline Lot 4
ACCIDENT	An accident is any unplanned event that results in personal injury, property damage or environmental damage
INCIDENT	An event or chain of events which has caused, or could have caused injury, illness and /or damage (loss) to assets, the environment or Contractor reputation
NEAR MISS(NM)	An undesired event that, under slightly different circumstances, could have resulted in harm to people, damage to assets or environmental harm. A near miss is an incident involving the unintentional transfer of energy but has no negative consequence.
GROUND POLLUTION	Any spillage on or contamination of the ground in the construction work area.
WATER POLLUTION	Caused by allowing poisonous, noxious or polluting matter into waterways or ground water.
DISPOSAL	Segregating, storing, labelling and disposing of hazardous chemicals and materials safely following the plans.

HAZARDOUS WASTE	Waste materials that has dangerous characteristics such as high flammability, reactivity, corrosivity and toxicity
UNCONTROLLED RELLEASE/EVENT	Any uncontrolled event where fluids that are flammable, corrosive or toxic fluids; or inert gases that could deplete oxygen levels; or otherwise inert fluids by nature of their temperature or pressure are considered dangerous to people, are released intentionally for a purpose (maintenance etc.) from primary containment but results in the need for immediate corrective action (e.g. shutdown, evacuation or isolation) because of inability to control to mitigate the effects of loss of containment. Fugitive emissions and minor flange, hose joint or seal liquid leaks which can be contained by capturing the fluid for safe disposal should not be included.

1.5 **Abbreviations**

TANAP	Trans Anatolian Gas Pipeline Project
EPCM	Engineering, Procurement and Construction Management
ROW	Right of Way
H&S	Health and Safety
E&S	Environment and Social
QA/QC	Quality Assurance / Quality Control
ESIA	Environmental and Social Impact Assessment
EERP	Environmental Emergency Response Plan
EERT	Environmental Emergency Response Team
HSE	Health, Safety and Environmental
PPE	Personal Protective Equipment
MSDS	Material Safety Data Sheet
PPP	Pollution Prevention Plan
WHA	Waste Handling Area
WMP	Waste Management Plan

1.6 References

	Document Number	Document Title
1.	TNP-REP-ENV-GEN- Turkish and TNP-REP-ENV-GEN-002 – English	ESIA Report
2.	Chapter 11	ESIA Report
3.	Chapter 4	ESIA Report
4.	ESIA Appendix 5.2	Community Safety Plan
5.	ESIA Appendix 5.3	Community Relations Plan
6.	ESIA Appendix 5.4	Employment and Training Plan
7.	ESIA Appendix 5.10	Pollution Prevention Plan
8.	ESIA Appendix 5.11	Waste Management Plan
9.	ESIA Appendix 5.12	Emergency Response Plan
10.	ESIA Appendix 4.7	Commitment Registers
11.	TNP-PCD-HSM-GEN-029	Incident Investigation and Reporting Procedure
12.	PLK-PLN-ENV-PL4-001	Environmental and Social Management Plan
13.	PLK-PLN-ENV-PL4-005	Contractor Pollution Prevention Plan
14.	PLK-PLN-ENV-PL4-006	Contractor Waste Management Plan
15.	PLK-PLN-ENV-PL4-004	Contractor Construction Impact Management Plan
16.	PLK-PLN-HSM-PL4-006	Project HS Plan

2 RESPONSIBILITIES

2.1 Project Manager

- Has overall responsibility for implementation of Environmental Emergency Response Plan by fulfilling project requirements.
- Will ensure that trained and exercised Emergency Response Organization is established and maintained
- Will ensure to provide suitable resources and expertise to respond an emergency situation.

2.2 Construction Manager

- Responsible for the execution of environmental emergency response plan in coordination with Environmental Manager and HS Manager. Will ensure that this procedure will be applied during all the works on Site
- Will ensure that all sub-contractors will comply with requirements of Environmental Emergency Response Plan
- Will ensure that all members of workforce received required training
- Will ensure the Project is suitably equipped with emergency equipment and systems to address all likely emergency scenarios.

2.3 Environmental Manager

- Is overall responsible for implementation of this Plan within PFL engineering and construction and its subcontractors,
- Will implement this plan and the relevant environmental ESMPs Ensure that ESIA requirements are fully met with respect to this plan,
- Will implement all associated Environmental plans,
- Has responsibility for ensuring that this plan is carried out in the event of an Environmental emergency or incident,
- Will report environmental risks to the Project Manager,
- Will report the environmental incidents to the Project Manager and EPCM,
- Will ensure that all environmental incidents/accident and non-conformances are reported and dealt with effectively,
- Investigate and complete the process for close out of all Incident / accident Investigation Reports together with HS Manager,
- Will provide all necessary reporting to EPCM within project times frames.
- Is responsible for forming and training (including general awareness material e.g. toolbox talks) the Environmental Emergency Response Team, in collaboration with the construction and environmental staff on site,
- Is responsible for notifying Third Party response where required,
- Responsible for updating this document and for keeping informed all relevant personnel,
- Will ensure that Emergency Response Team Members understand their role and responsibilities,
- Will develop, implement and maintain a project specific Environmental Emergency Response Plan and procedures
- Assure the quality of the investigation reports.
- Will review the Environmental Emergency Response Plan and Procedures regularly to ensure their effectiveness in the containment of an emergency.

2.4 Environmental Inspector

- Coordinates EERT team on site in the event of an emergency,
- Is responsible for tool box talks, inspection and monitoring of spill management plan in the site,
- Leads the Environmental Emergency Response Team if necessary,
- Will be ensured that all necessary actions are taken to clean up spills and that spill report is completed and communicated,
- Ensures that all contaminated material is delivered to WHA,
- Will routinely monitor the implementation of the plan (daily inspections) and will continuously review operations for additional situations that could result in spills of potential contaminants and

take appropriate preventative measures,

- Assists the environmental emergency response team concerning the below issues;
    - ✓ Transportation,
    - ✓ Supplies, equipment, materials and other goods as required.

2.5 Environmental Emergency Response Team

- Environmental Emergency Response Team will be formed by the workers of CONTRACTOR working in the site in accordance with their ability and experience. Environmental Emergency Response Team members will be chosen by Environmental Manager, in coordination with construction and environmental representatives, according to above explanations. They will be trained about Environmental Emergency Response and Spill Response and Environmental Emergency Response Drill. They will be contacted in the case of environmental emergency cases in reference to the list given in Appendix-A,
- In the event of an emergency, the EERT will act under the direction of the Environmental Inspector,
- Attend environmental quarterly emergency response team trainings and meetings where/when relevant,
- Will be responsible for isolating the area, protecting the emergency site maintaining the order and dispersing the traffic,
- Proceed to deal with portable fire extinguishers, first aid kits,
- Isolate the electrical supply through the switches,
- Assist the Environmental Manager, HS Manager and Spread Construction,
- Manager to stabilize and make safe the area around any incident to the best of their ability while awaiting the arrival of the local authority, emergency services, fire services, ambulance, police, etc.
- Respond the incident by following the instruction given by Environmental Inspector and or scene commander,
- Clean up the affected area due to spill and or other reasons and collect all contaminated materials and deliver to CWAA at main camp area

2.6 HS Manager

- Support the EERT with planning and implementing of effective response to any Environmental Emergency cases together with Environmental Inspector.
- Support the EERT in all aspects of safety, occupational health and safety issues and related trainings.
- Investigated and completed the process for close out of all Incident/Accident Investigation Reports together with Environmental Manager.
- Assure the quality of the investigation reports
- Will implement the responses indicated in HS Emergency Response Plan in coordination with Environmental Manager and Construction Manager

2.7 Site Supervisor

- Will cease the dust generation activities with Environmental Inspector under the adverse conditions,
- Recording any dust complaints received from the community, promptly investigated and addressed with environmental inspector,
- Will control release of water /wastewater discharge limit and take corrective /preventive actions with environmental inspector,
- Will take action in oil and fuel spill ceasing is safe to do so with environmental inspector,
- Will take the necessary actions together with environmental inspector for erosion and sediment control,
- Will be responsible for disposing wastes to authorized facilities with Environmental Manager and Environmental Inspector,
- Will investigate the reason of heavy rainstorm and flood and prepare incident report

3 EMERGENCY TERMS DESCRIPTIONS

The descriptions of environmental emergency terms are given below:

Traffic incident is a traffic collision, also known as a motor vehicle collision (MVC) among others, occurs when a vehicle collides with another vehicle, pedestrian, animal, road debris, or other stationary obstruction, such as a tree or utility pole

Fire is a chemical reaction in which a substance combines with an oxidizer and releases energy and Explosion is rapid expansion of gases resulting in a rapid moving pressure or shock wave.

Earthquake is a sudden violent shaking of the ground, typically causing great destruction, as a result of movements within the earth's crust or volcanic action.

Heavy rainstorm is a severe weather condition occurring storm with heavy rain.

Flood is a great flowing or overflowing of water, especially over land not usually submerged.

3.1 Environmental Incident Response

Potential environmental incidents and associated responses and responsibilities are listed in below tables. Mitigation measures from the Contractor's E&S Management Plan, Pollution Prevention Plan, Waste Management Plan and associated plans will be implemented to counter the occurrence of such events.

- **DUST**

Incident	Response	Responsibility
Dust event due to a particular Construction activity	Dust generating activities will cease under the direction of Environmental Inspector and/or Site Supervisor until the adverse conditions diminish.	Environmental Inspector Site Supervisor CLO

Community complaint relating to dust	Any dust complaint received from the community will be recorded, promptly investigated and addressed.	Environmental Inspector Site Supervisor CLO

- **SOIL / WATER**

Incident	Response	Responsibility
Uncontrolled release of water/wastewater that exceeds the related limit/condition/standard	Discharge will cease. Water/wastewater will be treated to meet related Project criteria prior to release. Corrective/preventive action to be implemented.	Environmental Inspector Site Supervisor
Oil or fuel spill	Machinery or activity to cease, if safe to do so. Spill kit to be used to contain and clean up spill. Machinery or process not to start operation until an inspection and necessary repairs/corrective action has been implemented.	Environmental Inspector Site Supervisor
Release/spill of other hazardous material/waste	Activity will cease or source of the release will be stopped, if safe to do so. Material Safety Data Sheet (MSDS) will be referred to evaluate the hazards of the material. The spill will be contained and cleaned up to prevent run-off into storm water Drains and subsoils.	Environmental Inspector Site Supervisor
Temporary erosion and sediment controls are damaged or ineffective	Controls are to be repaired /replaced as soon as possible in accordance with Erosion, Reinstatement and Landscaping Plan	Environmental Inspector Site Supervisor
Waste subcontractor Illegally disposing waste	Immediate contact with the sub-contractor to establish reasons,	Environmental Inspector

in an unauthorized facility	request transfer forms for authorized facility and hold all payments to subcontractor until corrective actions are taken. And evaluate other companies who can manage such waste in accordance with Project requirements.	Environmental Manager Site Supervisor
Heavy rainstorm and flood beyond the capacity of drainage system and/or camp WWTPs	Investigate the reasons for failure and prepare an incident report including details of rainfall. Rain waters to be collected from the camp site separate from the wastewaters via drainage ditches will be connected at the same point and will be discharged from that point again without mixing with wastewaters.	Construction Manager

- **NOISE**

Incident	Response	Responsibility
Noise levels that exceeds a permit limit/condition		Environmental Inspector Site Supervisor
Community complaint relating to noise	Any noise complaint received from the community will be recorded, promptly investigated and addressed.	Environmental Inspector Site Supervisor CLO

- **WILDLIFE**

Incident	**Response**	**Responsibility**
Human-wildlife conflict	Excluding the incidents resulted in harm to workers, establish reasons for incident and corrective/preventive action to be implemented for reoccurring. Related information will be given to workers during ecological trainings concerning their acts during facing with wildlife animals.	Environmental Inspector Site Supervisor
Community complaint relating to wildlife	Any wildlife related complaint received from the community will be recorded,	Environmental Inspector Site Supervisor

injury	promptly investigated and addressed.	CLO

- **EARTHQUAKE**

Incident	Response	Responsibility
An earthquake event	In case of an earthquake event, precautions/responses to control contaminant release to the environment mentioned in Contractor HS Emergency Response Plan (PLK-PCD-HSM-PL4-002) will be taken.	HS Manager

Discovery of contaminated material on-site (e.g. underground fuel storage tanks or buried agricultural pesticides or insecticides) should not be considered as CONTRACTOR related incidents. The area of concern will be fenced-off as "no-go" zone and the Construction Manager will be immediately informed for further action.

3.2 Incident Levels

Incident levels and appropriate response (land based):

• Minor Incidents: Releases to the atmosphere less than 25 m3 gas and spills to land between 1 - 10 liters): To be resolved by Environmental Emergency Response Team;

• Medium Incident: Releases to the atmosphere less than 100 m3 gas and spills to land between 10 liters - 100 liters or chemical spills less than 25 kg. To be resolved by Environmental Emergency Response Team with the support of construction. Limited harm to the environment, but could result in damage to an important resource. Poses no danger to the public and is reversible.

• Major Incidents: Releases to the atmosphere more than 1000 m3 gas, and spills to land more than 100 liters or chemical spills more than 25 kg: To be resolved initially by Emergency Response Team until external emergency services arrive at the scene. Release of a quantity of hazardous substances, pollutants or contaminants that poses a threat to public health or welfare or the environment or results in public concern. Emergency Response Organization.

Any water based spill is major incident regardless of its amount.

Environmental Manager is responsible for the execution of the environmental emergency response plan in coordination with HS Manager, EERT, construction and environmental staff on site. The Environmental Inspector is in charge on site in the case of an environmental emergency. He/she will manage all the emergency cases at site and report to Environmental Manager. Environmental Manager and HS Manager are responsible for safety and occupational health of human being and protection of environmental components due to incident. Environmental Manager will ensure quality of the report and inform the Client/EPCM within 48 hours with relevant documentations and information. The form indicating the Environmental Emergency Team Contact List is written in Appendix A and will be updated according to the construction process.

3.3 Emergency Response Organization

Environmental Manager is responsible for the execution of the environmental emergency response plan in coordination with HS Manager, EERT, construction and environmental staff on site. The Environmental Inspector is in charge on site in the case of an environmental emergency. He/she will manage all the emergency cases at site and report to Environmental Manager. Environmental Manager and HS Manager are responsible for safety and occupational health of human being and protection of environmental components due to incident. Environmental Manager will ensure quality of the report and inform the Client/EPCM within 48 hours with relevant documentations and information. The form indicating the Environmental Emergency Team Contact List is written in Appendix A and will be updated according to the construction process.

4 EMERGENCY TERMS DESCRIPTIONS

The process is designed to prevent environmental incidents and to reduce the impact of events.

4.1 Prevention

Spill kits will be readily available near by the petroleum products and hazardous chemical materials. If any of hazardous chemical materials and petroleum products and other special products stored and used at different and multiple locations, the required spill kits will be ready at each location.

Drip tray will be located under hazardous chemical materials, petroleum products and other equipment and units like generators, or else which may leak and cause to spills.

All temporary oil storage and hazardous materials tanks and containers onsite will be designed and constructed for compatibility with the materials to be stored within them and clearly labelled and will be adequate secondary containment (110% volume requirement for secondary containment). Contractor will ensure 110% requirements of secondary containment at all times by protecting from rain, snow, and etc. via covering fuel tanks and secondary containment with roof.

Mobile and or portable oil and petroleum storage tanks will be positioned and located at least 50 m away from the water course to prevent spills to reach surface waters (lake, stream, river, and etc.).

The floor of fuel/oil tanks and hazardous material containers will be covered with an impermeable layer. Tanks and containers will be controlled regularly. Corroded and damaged tanks and containers will be repaired and replaced. Integrity of tanks, containers and etc. will be routinely monitored.

Bin bags containing contaminated material will be transported to the CWAA for proper storage, labelling, and classification prior to off-site disposal and handled according to project requirements, relevant legislations, and the CONTRACTOR WMP. Periodic control and monitoring will be exercised to prevent potential environmental emergencies.

All the warning signs of hazardous, chemical materials and petroleum products and etc. will be located and posted according to project requirements and related legislation.

MSDS and other safety documentation of hazardous, chemical materials and other relevant products will be readily available where they are stored and handled.

Contractor will take the necessary preventive measures other than spills such as dust, soil/water, noise and wildlife in compliance with Appendix. 4.7 of ESIA Report and Contractors Pollution Prevention Plan (PLK-PLN-ENV-PL4-005).

Following measures will be applied to prevent/minimize dust pollution:

- CONTRACTOR will only use project approved travel routes. At roads used, CONTRACTOR will employ appropriate measures, such as speed limit, water dust suppression like spreading water and, etc. to control the generation of dust clouds along project roads and at the work sites. Water will not be taken from surface waters and shall not have contaminants and before usage local communities or landowners probable complaints must be minimized. These measures will be implemented as often as required to provide safe driving conditions, protect the health of all nearby persons, employees, local habitats, sustain the integrity of adjacent flora and fauna, and control community complaints. In addition to dust control measures implemented on the CONTRACTOR's own initiative,
- Air emissions from vehicles and construction equipment will be kept to a minimum,
- CONTRACTOR will use low emission vehicles
- CONTRACTOR will use vehicles that were checked legally for their exhaust emissions,
- CONTRACTOR will restrict third party vehicle access to project related activities,
- CONTRACTOR will implement regular maintenance programs for vehicles and equipment,
- CONTRACTOR will restrict excessive idling of vehicles or equipment,
- CONTRACTOR will enforce speed limits along access roads at camp site and ROW,
- Types of prohibited cooling refrigerants by law will not be used in the air conditioning system of the camp (compliance with national legislation),
- Chemicals, construction materials and other possible materials that may have fugitive release will be organized, managed, and stored according to MSDS forms and vendors or producers' guidance.

Following measures will be applied to prevent/minimize noise pollution:

- CONTRACTOR will adopt a "Best Practicable Means" policy for the minimization of the effects of noise and vibration during construction,
- Scheduling of inherently noisy operations to minimize/avoid disturbance to residents or users of facilities, unless where unavoidable if a construction activity cannot be stopped once started,
- CONTRACTOR construction activities will be undertaken during daylight hours,
- Screening or enclosing fixed equipment, such as compressors ("silent" running type),
- Providing and maintaining effective silencing to all motorized equipment,
- Installing mufflers and dampers wherever possible,
- Using inherently quieter techniques (as far as is practicable) for example using hydraulics instead of hammering actions,
- Avoiding idling or revving of vehicle and equipment engines (i.e., all engines will be switched off when not in use),
- Choosing transport routes that have the least impact to the sensitive receptors,
- Performing induction training and toolbox talks on noise prevention,
- Maintaining equipment on a regular basis,

- Local communities that may be affected by dust or noise will be informed of the construction activities,
- Speed limits will be controlled via posted signs on ROW and access roads,
- Replacing or repairing parts generating excessive noise,
- Night works will be avoided. if it is needed, it will be subject to EPCMs approval,
- Night-time activities will be kept to a minimum to reduce disturbance to local communities due to noise and vibration emissions; if night-time construction activities are necessary, local authorities and local communities will be informed with 48 hours' notice,
- CONTRACTOR will reduce noise associated with vibration and vehicle noise by selecting equipment and methods that limit the generation of unnecessary noise/vibration and by making the maintenance of the equipment and vehicles properly.,
- Blasting works will be subject to EPCMs approval,
- Temporary noise barriers will be deployed near sensitive areas or receivers,
- The exact locations at which piling and blasting activities will be done will agreed with EPCM prior to the commencement of the blasting or piling activities,
- Prior to the commencement of any underground works, a dilapidation survey of properties that may be affected by the works will be carried out. The survey will be carried out prior to the works commencing. Properties or services that are deemed to be at risk will be assessed for structural stability, photographed and the legal owner identified. This will include;
    - ✓ Impacts at properties that are considered to be potentially under the risk from either blast induced vibration damage or fly rock,
    - ✓ Impacts at properties that are liable to settling,
    - ✓ Effects on surface and subsurface water supplies, and
    - ✓ Effects on public utilities
- Inhabitants will be trained about blasting and piling activities according to a programme,
- Blasting will be performed at the suitable times concerning the local characteristics,

Following measures will be applied to prevent/minimize soil /water pollution:

<u>Water:</u>

- Avoiding vehicle crossings to the extent practicable across the watercourse,
- Ensuring the requirements of each water protection zone,
- Ensuring all equipment working in or near watercourses is clean and free of fluid leaks,
- Obtaining applicable water abstraction permits,
- Restricting fueling/refilling, chemical handling activities in close vicinity of the watercourses,
- Strictly prohibiting fishing by project personnel at watercourses,

- Groundwater quality and sustainability will be monitored periodically to confirm that the supply meets the needs of the project and does not impact adversely on water conservation initiatives will be undertaken with the aim to limit the potable water consumption (drinking water standards are given in Appendix-5);
- Use appropriate sediment and erosion control techniques (e.g., silt fences) during construction of the Project;
- Monitor watercourse turbidity during river crossings of the construction works and take corrective actions where required,
- Prevent turbid water from re-entering the watercourse to the extent practicable using natural or mechanized filtration processes,
- Record all volumes of water withdrawal from natural resources for project related activities for demonstration of no exceed of the allowance,
- Install temporary vehicle crossings/bridges,
- Measures to minimize scour and reduce sediment load will be implemented at locations where hydrotest water is discharged to watercourses and discharge velocities have the potential to create erosion (e.g. controlled rate of discharge and use of energy dissipaters, displacement of geotextile mats or other physical erosion prevention measures),
- The following mitigating measures will be followed in the camp areas,
    - Water used for washing vehicles will be subject to an oil and water separator before discharge,
    - No refueling or fuel storage will be allowed within 50 meters of a watercourse
    - Where required, bunds, grips and other measures will be implemented adjacent to watercourses to prevent silt ingress from the construction site,
    - No drainage water from run-off will be sent to WWTP,
    - Upstream and downstream water quality will be checked regularly.

<u>Soil:</u>

- CONTRACTOR will comply with relevant Government regulations and the Project's technical specifications and requirements,
- Chemicals and other hazardous/dangerous/toxic substances (e.g., fuels, lubricants, solvents, etc.) will be stored in sealed and clearly labeled containers or vessels,
- Sufficient fire protection systems will exist at storage facilities in order to control fires and/or the release of hazardous materials to the environment in case of an accident or emergency,
- Sufficient trained personnel, with proper equipment, will be on hand to deal with the possible release of toxic or ignitable gases to the environment,
- All flammable liquids will be stored in storage areas that are a suitable distance to be identified according to risk assessment and legal requirements from living quarters,

- All hazardous and non-hazardous wastes generated during construction activities will be stored and transported as per the requirements outlined in the Contractor's approved Waste Management Plan (PLK-PLN-ENV-PL4-006) by fulfilling project requirements and relevant regulatory requirements,
- The hazardous wastes would be stored temporarily in sealed and clearly labeled containers within the camp site separate from other wastes in a closed environment preventing any chemical reaction. They will be labeled in English and Turkish. MSDS forms will be located where they are stored. After that, these wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the Ministry of Environment and Urbanization,
- All the measures will be taken for the health and safety of the employees responsible for the collection, transportation and temporary storage of the waste within the facility,
- Discharge of wastewater to surface water resources after treatment will be in compliance with the applicable regulatory requirements and Project Standards,
- Will avoid vehicle crossings to the extent practicable across the watercourse,
- Limit construction activities to periods of low flow where practicable, when sediments are minimal,
- CONTRACTOR will not disturb any other soils except ROW, working strip and additional work areas, and new access roads,
- Prevent vehicle travel on the pipeline ROW as much as practical during reclamation and operation to allow vegetation to establish,
- There will be containment bunds and spill trays for the storage of the hazardous material,
- All the fuel, grease and chemical storages will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir,
- Fuels, grease, oils, and other chemicals will be stored in containers that fulfill relevant legislations,
- No plastic bottle or any other unauthorized containers will be used for fueling, re-fueling or storages,
- Drip trays will be located under generators and other equipment that consumes fuels and such equipment will not be located on bare soil,
- Spill response material will be located nearby generators and other equipment that consumes fuels at camp sites and RoWs,
- Maintenance of vehicles on RoW will be limited and avoided. But in case of such situation, all relevant precautions will be taken to prevent spills,
- All vehicles, equipment and installations will be checked for any fuel and grease leakage before use and will be regularly monitored for leaks,

- Maintenance procedures in line with available manufacturing requirements will be in place for all machinery and equipment,
- Adequate amount of appropriate absorbents/spill kits will be in place in "designated maintenance area" in order to handle with minor leakages,
- Taps and valves will be checked regularly for signs of wearing; and be securely closed and locked when they are not in use,
- All the equipment and storage areas will be secured properly with safety fences, and gateways will be locked in order to prevent pollution,
- All containers of fuel, lubricant oil and chemicals will be sited on containment bund. The bund will be of sufficient capacity to contain at least the 110% of the volume of the largest tank,
- Containers of fuel and fuel storage tanks and secondary containment bund or pool must be protected from rain, snow and any other water sources like by building roof covering secondary containment or etc.,
- If the containment bund is not practical than dip trays will be used stored chemicals and fuels,
- Any soil contamination during the construction activities will be addressed in strict compliance of Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources,
- Contaminated soil due to spills or etc. will be cleaned up promptly by taken required actions,
- Contaminated soil will be stored temporarily in sealed and clearly labelled containers within a bounded area at the site. It will be labelled in English and Turkish,
- The top soil shall be stored along the RoW or in an appropriate area
- The area where the top soil would be stored shall not have more than 5% inclination
- Natural drainage patterns shall be maintained to the extent possible
- Double handling of top soil shall be minimized
- Soil handling activities shall be minimized during high wind conditions
- Necessary protection measures shall be taken to prevent top soil from being scattered by wind or water streams or other factors, from being mixed with foreign materials/subsoil and from being polluted and/or deteriorating with respect to soil quality.
- Necessary protection measures shall be taken to minimize erosion and sediment load as per the project requirements and Erosion Control, Reinstatement & Landscaping Plan (including use of geotextile where required e.g. at restricted spaces, grading, contouring and the maintenance of slope lengths and slope gradient, use of slope breakers, etc.)
- The excavation soil that will be taken out during the pipeline construction shall at first be accumulated throughout the route in order to be used for bedding, padding and backfilling. The excavation material remaining after bedding, padding and backfilling process shall be used for reinstatement of roads and land preparation. Remaining excavation soil shall be stored on permitted sites.

- Waste excavation material (soil, rock) shall be handled as per the project requirements and Waste Management Plan
- Any soil contamination identified shall be immediately addressed in strict compliance with the Regulation on Control of Soil Contamination and Contaminated Lands by Point
- Sources dated 08.06.2010 and numbered 27605.
- Special attention shall be paid in the areas where there is high contamination risk and heavy metal contamination potential (as per the ESIA Report, Appendix 4.5 and Chapter 8.1, Table 8.1.2.8).
- Hygienic, usable Mobile and Portable Toilets will be available at where construction activities take place on RoW, pipe stockyards, and etc.

Wildlife:

- Related information to suffer from and not to damage to wildlife will be given to workers during ecological trainings, concerning their acts during facing with wildlife animals

4.2 Preparedness

To minimize the impact from emergency incidents when they occur it is essential that a number of arrangements be established prior to an event such as;

- training of site personnel and managers in emergency preparedness and response requirements,
- provision of emergency response equipment,
- communication and co-ordination with external emergency assistance providers.
- arrangement of environmental emergency response team
- emergency drill will be exercised and response time to a few locations on ROW from Camp site noted,
- MSDS and other safety documentation of hazardous, chemical materials and other relevant products will be readily available where they are stored and handled.
- Emergency evacuation routes will be defined,
- Distribution of wallet size cards with EERT contact numbers to the workforce

4.3 Emergency Response

Response is the reaction necessary to react to an emergency situation. Environmental Emergency Response team must have the capacity to react promptly to an emergency situation by following pre-determined procedures for classifying an incident, planning the response, notifying the right people and mobilizing all necessary resources. An effective response reduces the duration of an emergency incident and hence its impact.

While any of the department managers and/or any Project personnel receive a call about emergency, they will inform the Environmental Inspector who will alert the EERT and external emergency services as required. He/she will also inform the Environmental Manager.

If any person observes an emergency situation (for example, a spill), he/she must behave as follows;

- Attract the attention of the people working in the area,
- Notify the Environmental Inspector with the number shown on attachment of this plan,
- While environmental emergency response team / services arrive, give brief information to let them to do the correct level of response.

Below information about the emergency case will be transferred to the Environmental Inspector:

- Name and Surname of observer
- Exact location of the emergency case
- Type and level of the fire, if there is
- Type and level of the spillage, if there is
- Type of disturbed and damaged environmental media like air, soil, water, and etc.
- Noticed duration of environmental incident.

CONTRACTOR and its all Subcontractors will undertake the following duties in the fulfilment of their emergency responsibilities:

- Proceed the predefined emergency assembly point
- Proceed the emergency assembly point
- Ensure where it is safe to do so, that all the equipment is isolated and safe
- Return to work when the “All Clear” is given

This plan aims firstly to prevent the likelihood of uncontrolled or unintended contaminant releases to the environment and if not possible, secondly to minimize and to assure availableness to respond if such an event occurs.

Contaminated wastes will be gathered in spill area and it will be determined whether the waste is hazardous, non-hazardous or inert. Afterwards, cleaning/disposal process of type of waste will be started and executed according to the project requirements and related legislations.

For the crossings and working adjacent to live oil pipelines necessary work permits will be received from the authority and their requirements will be followed including, incident management and relevant oil spill response.

Storage tanks and vehicles are only being used for their intended purposes.

Spill containment equipment is installed for the storage of all hazardous material and during all hazardous material handling.

In case of any potential hazardous material release situations occur, the Environmental Inspector will be notified. He/she will notify the Spread Manager and the Environmental Manager. The Environmental Manager will inform the HS Managers accordingly. Typical warning signs of hazardous conditions include:

- Lack of secondary containment,
- Poor container conditions such as excessive rust, dents or puncture marks
- Non-segregated, incompatible materials stored in the same area,
- Material storage areas without berms,

- Containers stored near moving or vibrating equipment,
- Containers lacking or having insecure lids,
- Materials placed in inappropriate containers,
- Improperly labelled containers,
- Inappropriate materials handling/transferring operations,
- Leaking equipment.

4.3.1 Equipment

CONTRACTOR will ensure that required spill response equipment located at the following locations given in the below table. Moreover, spill response equipment will be available at:

- Construction sites where crews are working
- Each construction camp (enough number for below table specified locations)
- Each equipment and vehicle maintenance facility
- All fuel, chemical storage facilities
- Each service vehicle

The designated EERT will proceed to the spill area with the required equipment. The following spill response equipment will be stored in the locations given below and will be clearly labelled in English and Turkish. Contents of the spill kits and the barrels (that will include other EER equipment which are not found in the spill kits) will be clearly identified. EER equipment will be controlled to ensure they are fully stocked weekly and after every use, will be replenished with new spill kit items if they are not available. Emergency response equipment will fulfil the legislative requirements.

Environmental emergency team will proceed spill area with below mentioned EER equipment. EER will be maintained by EERT and hence they can be deployed to incident scene promptly:

Table 4.1 Numbers and Locations of EER Equipment

EER Equipment	Location	Number
Absorbent Ped	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse and in the portable spill kits to be present in all vehicles that will work at site	Equipment Storage Yard: 5 sets Workshop warehouse: 5 sets Vehicles: 1 potable spill kit set
Absorbent booms	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area)	Equipment storage yard:5 sets Workshop warehouse: 5 sets

	• workshop warehouse and In the portable spill kits to be present in all vehicles that will work at site	Vehicles: 1 potable spill kit set
Drip Tray	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse • in all spill kits	Equipment storage yard:5 sets Workshop warehouse: 5 sets Spill Kit: 1 per kit
Appropriate PPE,	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse and In the portable spill kits to be present in all vehicles that will work at site	Equipment storage yard:5 sets Workshop warehouse: 5 sets Vehicles: 1 potable spill kit set
Hand operated fuel pump	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse	Equipment storage yard:5 sets Workshop warehouse: 5 sets
Chemical resistant storage drum	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse	Equipment storage yard:5 sets Workshop warehouse: 5 sets
Sandbags	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse	Equipment storage yard:5 sets Workshop warehouse: 5 sets
Dry granular absorbent	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse	Equipment storage yard:5 sets Workshop warehouse: 5 sets

Shovels made or coated with polyethylene spark-proof material)	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse and In the portable spill kits to be present in all vehicles that will work at site	Equipment storage yard:5 sets Workshop warehouse: 5 sets Vehicles: 1 potable spill kit set
Corrosion resistant pump	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse and	Equipment storage yard:5 sets Workshop warehouse: 5 sets
Warning tape or traffic cones	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse and In the portable spill kits to be present in all vehicles that will work at site	Equipment storage yard:5 sets Workshop warehouse: 5 sets Vehicles: 1 potable spill kit set
In addition, inflatable booms, pumps skimmers will be available for use in the case of larger river spill	In the spill kits located at camp sites at; • equipment storage yard (near refuelling and fuel storage area) • workshop warehouse and • with all crews working at river crossings.	Equipment storage yard:5 sets Workshop warehouse: 5 sets River crossing crews: 1-5 sets depending on the size of the river crossing
Heavy duty disposable bags for collecting contaminated materials.	In every spill kit.	Spill kit: 10 medium and 10 large bags in each kit

Spill kits at equipment maintenance, fuel storage areas, material storage areas, CWAA will also contain sufficient absorbent material to contain the quantity of the material stored in the stationary containers and equipment to clean-up and store used absorbent material. Types and number of the equipment given in the above table may subject to change in accordance with the needs during the execution of the Project.

4.3.2 Hazardous Materials Storage and Loading /Unloading

Incompatible hazardous materials will be segregated in ventilated storage areas to prevent mixing during handling or accidentally spills. All hazardous materials will be stored separately from non-hazardous materials with together their MSDS. All hazardous materials will be properly assessed before they are taken

to site in order to implement effective spill prevention and control procedures. These procedures will include a materials characterization (that will be available for review) that includes the following information and condition:

• Types, names of materials transported,

• Amount of materials transported,

• Transport location,

• Hazardous characteristics of the released substance,

• Consequences due to spill - fire – injury - illnesses,

• Damage to the environment,

• Signs will be written in Turkish and English explaining the chemical hazard (as identified in the MSDS,)

• Liquids will be stored in leak-proof containers that are in good condition and clearly labelled to identify the contents and hazard(s) and stored within secondary containment.

• Containers/Drums will be kept upright and closed at all times unless adding or removing contents.

• Containers will be labelled.

Storage areas will be:

• Impermeable layer will be found on the ground by providing ground isolation of storage space. Additionally, a free drainage system with a leak-proof pit, will be provided in storage areas.

• Located away from existing drainage paths to offsite areas to prevent accidental spills from reaching sensitive areas,

• Located a minimum of 50 m from drains, watercourses and wetlands

• Covered to keep out rainwater or snow,

• Provided with secondary containment designed to contain 110% of volume. Secondary containment will be protected from rain, snow, and etc. at all times to provide 100% volume by covering roof. In case of all taken precaution, if petroleum residue contact with rainfall or snow, contaminated water, snow will be treated as hazardous waste according to related regulation. Contaminated water will not be mixed with other water and wastewater for dilution and treatment purposes.

• Securely fenced and locked to keep unauthorized personnel and animals out of the area,

• Barriers to keep equipment and vehicles from entering,

• Sized appropriately to store anticipated waste with sufficient space between materials to permit the required visual inspection,

• Equipped with fire extinguisher(s).

4.3.3 Refueling

- Refueling of vehicles will not be performed within 50 meters of drains, river crossing, watercourses and wetlands,
- Fuel tanks will not be installed within 50 meters of drains, rivers, watercourses, wetlands and ecological sensitive areas.

- A trained refueling operator will perform and remain in contact with the nozzle at all times during refueling operation,
- A drip pan or absorbent material will be placed under the vehicle/equipment prior to refueling, and a spill kit and fire extinguisher will be kept readily available on site,
- Automatic shut-off nozzles will be installed.
- No plastic bottles or any other means will be used during refueling and or storage other than what is required portable container by the related legislation.

4.3.4 Equipment and Vehicle Maintenance

- CONTRACTOR will minimize the number of equipment maintenance areas,
- Spill kits will be provided for the areas where spill is possible,
- Stationary equipment and spill kits will be placed in secondary containment or drip tray placed under equipment and vehicle prior to commencing any maintenance,
- All maintenance personnel will be followed spill prevention measures,
- Filters will be drained into an appropriate container to remove prior to disposal.
- Hazardous materials (used drained filters, petroleum products etc.) will be properly stored in containers.
- Enough number of spill kits will be provided for the areas where maintenance exercised,
- Containers will be stored only in designated storage areas in accordance with project requirements.
- Maintenance of vehicles will be exercised at vehicle service or tool serving facility to minimize potential contaminations. In case maintenance of vehicles are executed at sites, all required cautions will be taken to avoid, if not minimize contamination,
- All contaminated material will be disposed in accordance with related legislations, project requirements, and CONTRACTOR Waste Management Plan (PLK-PLN-ENV-PL4-006).

Other issues that are not mentioned in this EERP; concerning the hazardous materials storage and loading / unloading, storage areas refueling, equipment and vehicle maintenance; will comply with project requirements and CONTRACTOR's Pollution Prevention Plan (PLK-PLN-ENV-PL4-005) and Waste Management Plan.

4.4 **Action**

- When a spillage occur, contaminated soil or water will be cleaned up or removed for appropriate disposal in accordance with ESIA Report (Turkish and English) (TNP-REP-ENV-GEN-001 and 002) (Chapter 11, Environmental Social Management and Chapter 13-Appendices; Appendix 5.10 (Pollution Prevention Plan), Appendix 5.11 (Waste Management Plan) and Appendix 5.12 (Emergency Response Plan) requirements,
- When any spill occurs or is noticed, rapidly evaluate the situation for potential danger to personnel.

4.4.1 Communication

- The person who notices the incident or emergency will inform the Environmental Inspector who will mobilize the EERT, and notify the Spread Manager and the Environmental Manager.

- The Environmental Manager will undertake:
  - ✓ Liaison with the Client / EPCM Construction Manager,
  - ✓ Liaison with the Project Management Team if necessary,
  - ✓ Liaison with the Provincial Disaster and Emergency Director if necessary,
  - ✓ Liaison with Provincial Director of Environmental and Urbanization,
- Communication to the local people will be done via CLO,

4.4.2 Safety Requirements

If the situation is dangerous, enlist help as necessary to prevent others from exposure to the impacted area, contact the Environmental Inspector and follow his/her instructions,

- If the situation is not dangerous, and the spill is ongoing, take steps to stop the spill, being careful not to spread contaminants or create a dangerous situation.
- If spilled materials are flammable, eliminate potential sources of ignition from within and near the spill area,
- Stop the source of the spill and contain the spill within as small area as possible,
- Use chemical-resistant PPE during clean-up activities,
- Gasoline and its vapours are “Highly Flammable” and may create an explosive atmosphere, remove sources of heat, sparks, flame, friction, and electricity; restrict fires or open flames from the spill area and downwind if applicable due to flammable vapour transport.
- Avoid inhalation of vapours by staying upwind or use proper respiratory protection,
- The spill will be contained with appropriate spill response equipment from the spill kits on site,

Small and medium spills will be cleaned up by responding with spill kits.

- Refer to the MSDS for special hazards associated with any spilled chemicals, especially for reactivity with other materials in the spilled area,
- For small spills; the basic steps are as follows:
  - ✓ Stop the spill, o Isolate the impact,
  - ✓ Clean up the impacted media using materials from the spill kit,
  - ✓ Dispose of any contaminated materials, such as soil, PPE, absorbents, etc.,
  - ✓ Document the spill in the incident report form,
- For medium spills, the basic steps are as follows:
  - ✓ Outside of contained areas will be diked with absorbent or soil to prevent liquids from reaching drainage, storm drains, or other bodies of water,
  - ✓ Deployment of EERT for clean-up and remediation of the contaminated area,
- For large spills, the basic steps are as follows:
  - ✓ As soon as a spill is discovered the lead person at the scene will designate a restricted area and will notify the Environmental Inspector.

- ✓ All non-essential workers will evacuate the immediate area if the spill may pose a threat to the health and wellbeing of personnel.
- ✓ Outside of contained areas will be diked with absorbent or soil to prevent liquids from reaching drainage, storm drains, or other bodies of water,
- ✓ Clean-up decisions for large amounts of spillage will be made in conjunction with the Environmental Inspector and Construction Manager,
- ✓ The Environmental Inspector will deploy the EERT to contain the situation only, and will discuss with Construction Manager whether a third party agent is required to respond or clean up.
- ✓ The Environment Manager would arrange Third Party response/clean up as required.
- ✓ According to Turkish Regulations as may be required a third party trained and licensed hazardous materials response firm may perform clean-up,

• Contaminated waste will be sent to waste handling area and will be disposed properly according to the regulations.

• Contaminated soil validation will be initialised. Results will be made available to EPCM upon request.

• Spill clean-up wastes will be placed in appropriate waste containers, properly labelled, and stored in a designated hazardous waste storage area prior to disposal,

Incident report will be prepared by the CONTRACTOR Environmental Inspector and EPCM will be informed.

If spillage into water, following actions will be taken depending on the incident levels indicated in Section 3.2 above;

Minor spills

• Deploy of a chevron type boom layout downstream of the spillage and span the entire watercourse for spills,

• Use floating absorbent and/or skimmers to remove the pollutant,

• Remove the contaminated material from soil the site.

Major spills;

• Follow the minor spill steps above,

• The Environmental Inspector will deploy the EERT to contain the situation only, and will discuss with Construction Manager whether a third party agent is required to respond or clean up,

• The Environment Manager would arrange Third Party response/clean up as required.

• According to Turkish Regulations as may be required a third party trained and licensed hazardous materials response firm may perform clean-up.

4.5 Notification, Reporting and Record Keeping

Environmental Inspector will be documenting the spill in an incident report. Spill reporting requirements apply to all releases to land and waters of petroleum products, hazardous materials and chemicals. The incident report will be forwarded to the Environmental Manager and made available to Client / EPCM.

Client/EPCM will be notified within 24 hours with all related documentations and information. Environmental Manager is responsible for quality of the report and keeping the records. Related statistics will be shared

with Client/EPCM on monthly basis.

CONTRACTOR will keep a log of all spills. The log will include the date, time, location, type of material spilled, main and root cause of dust and noise, quantity (volume) of conformance (i.e amount of illegal waste dispose, uncontrolled release of water/wastewater, KP of the non-conformed erosion and sediment control measures, corrective actions taken, and any notifications made. Additionally, the Environmental Inspector will log all spills and the actions taken in their daily report. The following information will be recorded in the spill log:

- All response actions taken or decisions made,
- Observations regarding the movement/spread of the spilled material or effectiveness of spill response,
- Date and time of the action, decision or observation,
- Volume and type of affected environmental component (air, water, soil, etc.) volume of release,

duration of release and involved personnel,

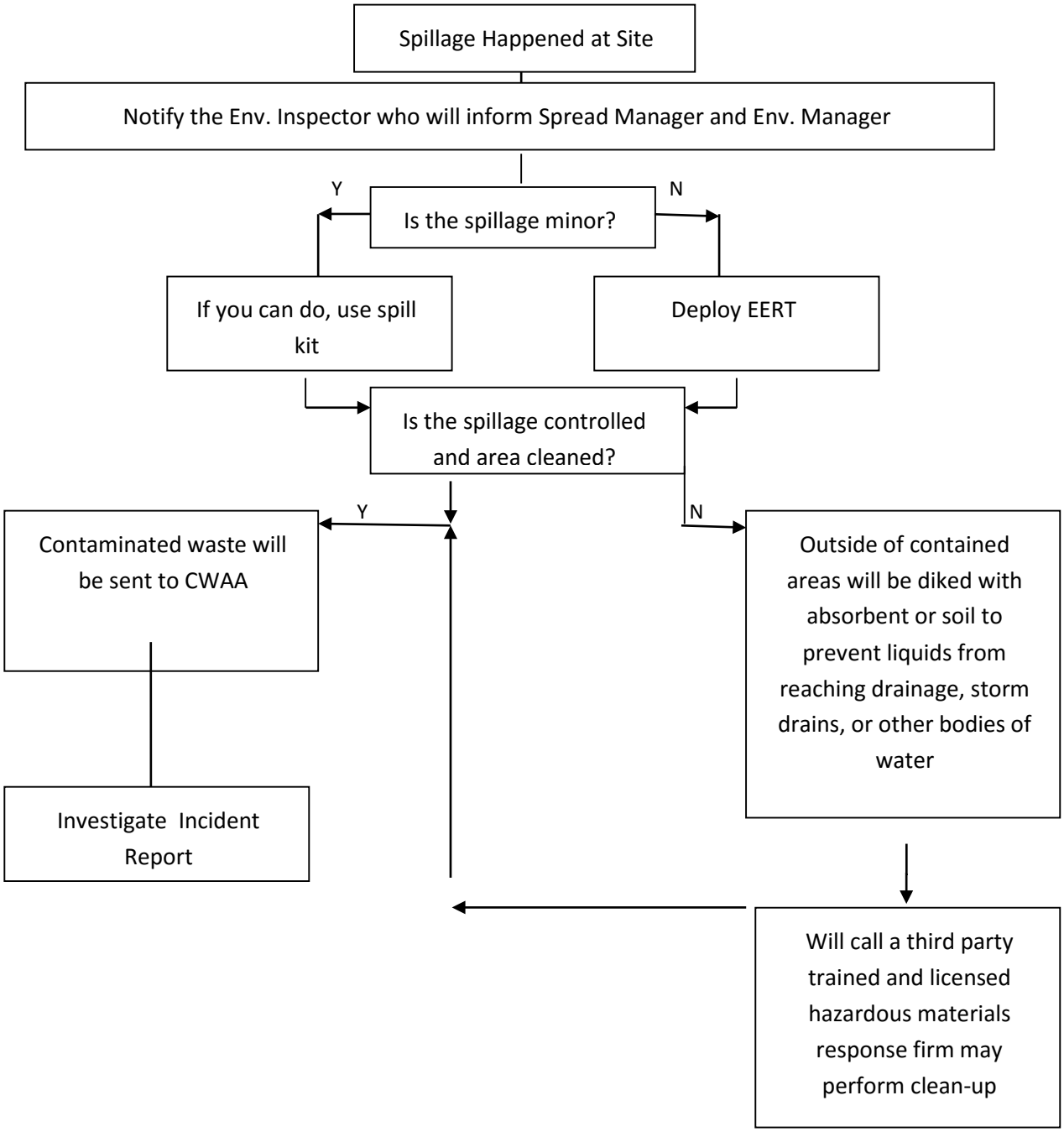
- Person(s)/parties undertaking action, decision or observation,
- Any other relevant information e.g. cost, equipment used, weather conditions,
- corrective/preventive actions and the date this actions were taken

Information about the spill area, the causing source (vehicle, equipment) and personnel. Incident notification and reporting to Client/EPCM Construction Manager will be done by using the form given in Appendix B.

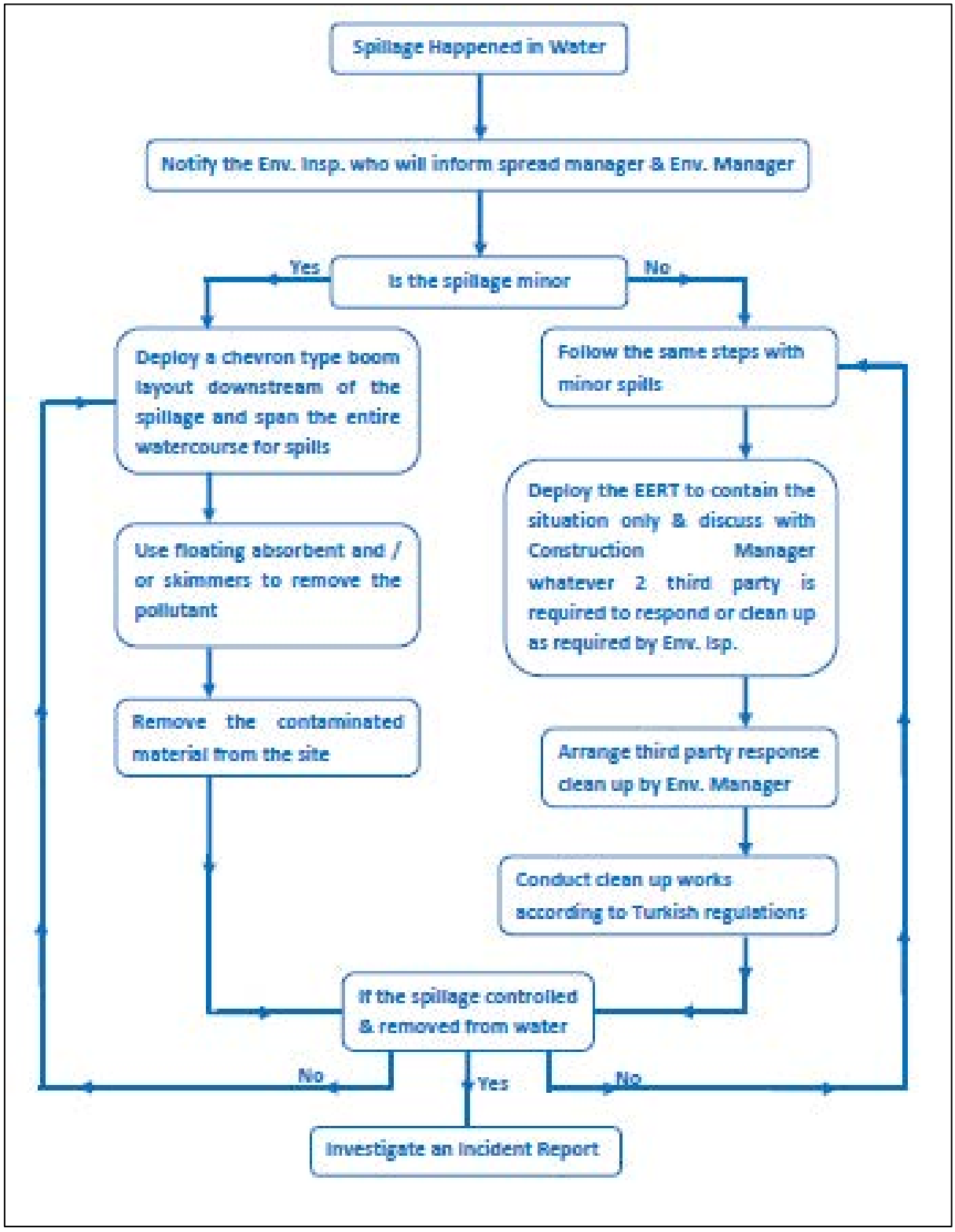
Incident Register Form in Appendix C will be reported monthly. Records of all hazardous materials releases will be maintained with the Project files. This information will be forwarded to EPCM for clarification monthly

All spills will be verbally notified to EPCM immediately and an initial report provided to EPCM within 24 hours.

4.6 **Flowchart for Spillage Response**



If spillage into water, following steps will be applied.



5 EVACUATION

The evacuation process will be activated as required by the Environment Inspector in collaboration with HS Manager. Then, all personnel will leave the area to avoid being affected by the emergency situation.

Emergency evacuation routes will be identified first and all workforce and visitors will know them.

6 TRAINING

The training program will include elements to ensure that all staff understands the procedures to be followed.

Spill response drills and environmental emergency drills will be carried out on six monthly basis. 6 months is a requirement of ESIA.

All CONTRACTOR staff and its subcontractor's staff will have training about spillage and chemicals. Training will include the subjects such as the properties of chemicals and communication points in an instant of spill. These training programs will ensure that all personnel involved in site activities:

- Fully understand the pollution prevention and control requirements of the Project and how they will be implemented on site,
- Fully understand the procedures to be followed and mitigation measures to be implemented in the event of a spill or other pollution event,
- Awareness of the respective roles of CONTRACTOR staff and its subcontractor's staff with respect to pollution prevention and control,

They will be trained to identify the following situations:

- Spill prevention and good management practices,
- How to use spill kits,
- How to remove waste,
- Emergency communication,
- Record,
- Material storage areas and the bunding requirements,
- Non-segregated, incompatible materials stored in the same area
- Materials placed in inappropriate containers,
- Containers stored near moving or vibrating equipment,
- Container conditions such as excessive rust, dents, or puncture marks
- Container labelling and their suitability and adequacy,
- Inappropriate materials handling/transferring operations,
- Leaking equipment (i.e. oil and hydraulic systems),

Environmental Emergency Response Team training includes;

- Spills on land and in water,

- Spill prevention and management practices,
- Handling small, medium, large and hazardous spills,
- Use and care of PPE;
- Basic firefighting,
- Emergency Communication with Project Management,
- Tools maintenance.

All staff will receive training from the environmental manager or environmental inspector in order to fully understand the emergency response procedure. The plans of training will be prepared and a drill will be conducted. Appendix- D includes the plans of training.

In order to be able to evaluate the performance of the Environmental Emergency Response Plan, the following indicator parameters will be reviewed by CONTRACTOR Environmental Manager;

- Reporting completed or not?
- Any complaint received or not?
- Training records on emergency response
- Number of emergency drills
- Any corrective action is successful or not?
- Good housekeeping
- Having appropriate emergency and spill response equipment at required location

The time and frequency of the trainings will be defined in CONTRACTOR's Environmental and Social Training Plan (PLK-PLN-ENV-PL4-003).

7 MEDIA COMMUNICATIONS

All employees are not to contact or discuss any proceedings associated with an emergency occurring at the Site. This rule will be discussed during the site induction.

Appendix A - Project Wastewater Discharge Standards

APPENDIX A PROJECT WASTEWATER

DISCHARGE STANDARDS

CONTRACTOR Contact Numbers			
Position	**Name**	**Phone**	**Language**
Spread Construction Manager			Turkish-English
Environmental Manager			
Environmental Inspector			
EERT Member....			
HS Manager			
Subcontractor Contact Numbers			
Position	**Name**	**Phone**	**Language**

Necessary Emergency Phone Number

Fire 110	Traffic 154	Police 155	Electricity works 186
Emergency (Ambulance) 112	Telephone works 121	Emergency Doctor 113	Health desk 184
Unknown numbers 118	Water Works 185	Gas Works 187	Cable works 126
Gendarme 156			

Appendix B - Incident Report

APPENDIX B INCIDENT REPORT

INCIDENT REPORT	
Project Name	**Project No**
Incident Number	
Date of the Report	
Classification	□ Environmental □ Lost Time Accident □ Near Miss
Date of the Incident	
Location of the Incident	
Who Reported the Incident	
Description of the Incident (Who, what, when, here, how and why Supporting photos, as relevant)	
Type of affected environmental component (soil, water, air)	
Dimension of the affected area	
Duration of incident	
Volume of release	
Type of release or source	
Amount of removed environmental component (soil, water)	
Involved personnel to incidents	
Causes	
• Immediate Cause	
• Root Cause	
Immediate Actions Taken	
Corrective Actions Taken	
Who is assigned	
Verification	
Closing Date of the Incident	
Further Information	
Information Provided by:	Punj Lloyd-Limak JV Environmental Manager

APPENDIX B INCIDENT REPORT

INCIDENT REPORT	
Project Name	**Project No**
Incident Number	
Date of the Report	
Classification	□ Environmental □ Lost Time Accident □ Near Miss
Date of the Incident	
Location of the Incident	
Who Reported the Incident	
Description of the Incident (Who, what, when, here, how and why Supporting photos, as relevant)	
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Dimension of the affected area	
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Type of release or source	
Amount of removed environmental component (soil, water)	
Involved personnel to incidents	
Causes	
• Immediate Cause	
• Root Cause	
Immediate Actions Taken	
Corrective Actions Taken	
Who is assigned	
Verification	
Closing Date of the Incident	
Further Information	
Information Provided by:	Punj Lloyd-Limak JV Environmental Manager

Appendix C - Incident Register Form

APPENDIX C INCIDENT REGISTER FORM

INCIDENT REGISTER LOT- 4								
Reporting Period:								
Total of Incidents								
To date	This Reporting Period							
Total of Incidents to date								
Open	Closed							
Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close by	Actual Close our Date	

APPENDIX C INCIDENT REGISTER FORM

INCIDENT REGISTER LOT- 4								
Reporting Period:								
Total of Incidents								
To date	This Reporting Period							
Total of Incidents to date								
Open	Closed							
Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close by	Actual Close our Date	

Appendix D - Training Plan

APPENDIX D TRAINING PLAN

	Time	All Staff and Subcontractor	Project Manager	Env. Manager	Env. Inspector	HS Manager	EERT
How to use spill kit	Beginning of Construction	x		x	x		x
How to clean up		x		x	x		x
Legislations		x		x	x	x	x
Chemicals and MSDS		x		x	x	x	x
Reporting			x	x	x	x	x
Spill Response		x		x	x	x	x
Env. Emergency Response Organisation			x	x	x	x	x
Emergency Preparedness		x		x	x	x	x
Env. Emergency Response Equipment			x	x	x	x	x

APPENDIX D TRAINING PLAN

	Time	All Staff and Subcontractor	Project Manager	Env. Manager	Env. Inspector	HS Manager	EERT
How to use spill kit	Beginning of Construction	x		x	x		x
How to clean up		x		x	x		x
Legislations		x		x	x	x	x
Chemicals and MSDS		x		x	x	x	x
Reporting			x	x	x	x	x
Spill Response		x		x	x	x	x
Env. Emergency Response Organisation			x	x	x	x	x
Emergency Preparedness		x		x	x	x	x
Env. Emergency Response Equipment			x	x	x	x	x

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TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc.No.	FRN-PLN-HSE-PL1-006	**Rev**	**Status**
		P4-0	**IAA**
Document Title :	EMERGENCY RESPONSE PLAN		
Tag Nos.			
Contractor:	FERNAS İNŞAAT A.Ş		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

FERNAS®	**TANAP** TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT (LOT-1)	TANAP WorleyParsons

EMERGENCY RESPONSE PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	APPROVED
P4-A	DIC	06.04.2015	Discipline Internal Check	KRIR	GULA	OZKE	
P4-B	IDC	10.04.2015	Inter-Discipline Check	KRIR	GULA	OZKE	
P4-C	IFR	13.04.2015	Issued for Review	KRIR	GULA	OZKE	
P4-0	IAA	07.05.2015	Issued as Approved for Construction	KRIR	GULA	OZKE	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	06.04.2015	Discipline Internal Check
P4-B	IDC	10.04.2015	Inter-Discipline Check
P4-C	IFR	13.04.2015	Issued for Review
P4-0	IAA	07.05.2015	Issued as Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date
1				

TABLE OF CONTENTS

1. INTRODUCTION

TANAP DOĞALGAZ İLETİM A.Ş., a joint stock company (hereinafter referred to as the 'TANAP') have been awarded contract for Lot-1 construction works to FERNAS A.Ş. for "Trans Anatolian Natural Gas Pipeline Project for 56" Onshore Pipeline Construction Lot 1" The project details are outlined below:

Project Title	: Trans Anatolian Natural Gas Pipeline Project
Project Section /Location	: Onshore Pipeline Construction Lot-1 / Turkey
Contract Award Date	: 23.12.2014
Mechanical Completion	: 25.12.2017
System Handover	: 30.06.2018

2. PURPOSE

The purpose of this procedure is to provide detailed guidance to all Emergency Response Members and Project personnel working at LOT1 to effectively control an emergency situation effectively throughout the project. Specific requirements, roles and responsibilities, and action plans are documented in this plan to minimize the damages of an emergency incident.

The procedure encompasses potential emergency scenarios that could impact on personnel during construction activities throughout the LOT1 borders, Selim, Pasinler Camp and fly camps and external road network (Blacktop and graded).

3. SCOPE

CONTRACTOR will ensure that this plan is observed and complied with by all personnel to ensure that the following objectives are achieved:

- Prevention / minimization of potential emergencies, Control or limitation of any impacts of an emergency.
- Facilitating emergency response and providing such assistance on site as is appropriate to the emergency.
- Ensuring communication of all vital information as soon as possible to stakeholders.

CONTRACTOR shall, provide training and conducting drills/training exercises, so that a high level of preparedness can be continually maintained.

This Plan will be reissued as site specific plan for required Contractor's spreads.

CONTRACTOR'S personnel will be trained in the relevant the Emergency Response Plan. Conduct regular drills, training exercises identify any potential improvements that can be made and provide a basis for up-date and review of Emergency Response actions and this procedure.

Emergency Preparedness and Response goals:

- To avoid the impact of any emergency to personnel and, if avoidance is not possible, to limit the impact of the emergency to personnel.
- To implement and effectively maintain an organization framework that will provide a rapid and effective response to any emergency situation.
- To provide a list of actions that must be taken in an emergency with clear instructions.
- To assign and authorize personnel responsible for taking specific emergency actions.
- To identify the communications channels essential for the co-ordination of tasks that are required to manage an emergency, both within the project and externally in conjunction with appropriate emergency services.
- To provide information on available emergency and mutual aid services.
- To provide relevant information and procedures applying to different emergencies such as:
    - Fire (Accommodation Camps, Site Offices and Construction Sites)
    - Health — any outbreak of illness or disease.
    - Personal Injury — broken limb, cuts, abrasions etc.

- Severe weather conditions (sand storms, flood, wind)
- Equipment Collapse (excavations, scaffolding, structures etc)
- Chemical spills or leaks
- Man Lost
- Road and traffic incidents
- Environmental Incidents
- Security threat
- Gas

4. REFERENCES

TNP-TPG-PLC1-CNT-003, 56" Onshore Pipeline Construction Contract, Appendix K

FRN-PLN-HSE-PL1-001 Health and Safety Management System and Plan

FRN-PCD-HSE-PL1-001- Risk Assessment Procedure

FRN-PCD-HSE-PL1-003- Incident Investigation and Reporting Procedure

FRN-PCD-HSE-PL1-005- Crisis and Emergency Management Procedure

FRN-PLN-HSE-PL1-009- H&S Training Plan

FRN-PLN-HSE-PL1-003- Medical Emergency Response Plan

MERA (Medical Emergency Risk Assessment) Services Report – provided by CLIENT

EH40/2002 Occupational Exposure Limits

5. DEFINITIONS

5.1. Emergency Incident:

An unexpected and undesirable event which must be dealt with at once. This may include any kind of event that may result in injury of personnel or equipment damage, involving fire and explosion, combustible & chemical liquid spills, flammable or toxic gas releases, traffic incidents. A civil protester' demonstrations will also be considered part of An Emergency Incident.

5.2. Major Incident

A Major Incident involves serious property damage, fatal or personnel injury, and may require assistance of external emergency response teams to control the impact of an explosion, demolition, severe or life threatening injury, or illness to one or more persons.

5.3. Minor Incident

A Minor Incident involves only internal emergency response to control the impact (such as a small fire, small flange leak, first aid injury etc.).

The following positions as defined are the part MEDEVAC Organization :

5.4. Project Manager;

- To ensure the provision of all required medical service facilities, medical staff and medical equipment,
- To ensure the medical facilities and equipment are available for 24 hours.

5.5. Site H&S Manager;

- Ensure communication system is available at all work areas,
- Ensure all personnel are trained about first and basic response in case of medical emergency,
- Identification and training of first aiders along with construction supervisors,
- Setting up the schedule for medical emergency drills.

5.6. Emergency Response Commander (ERC)

The ERC will provide immediate support to On Scene Commanders and to Emergency Response Teams, outlining strategy and acting as a communications link with 3rd parties.

- Inform CLIENT of the nature of the incident and keep them updated throughout.
- Assess the situation and classify the incident, identify and establish strategic goals and objectives
- Give clear directions to On Scene Commander
- Manage the incident organization
- Approve requisition and release of emergency response resources.
- Interface with CLIENT and CONTRACTOR Management as necessary
- Co-ordinate emergency incident activities with local agencies

5.7. On Scene Commanders (OCS)

On Scene Commanders will be responsible persons who will be at the incident scene.

- Inform Emergency Response Commander
- Assess the situation
- Give clear directions to Emergency Response Team members
- Initially contact with the Emergency Response Commander and update him about the situation

5.8. Doctor

- To identify health related hazards and assess the relevant risks,
- To be familiar with local medical conditions assessed in MERA (Medical Emergency Risk Assessment) Services Report – provided by CLIENT
- To have good communication skills and be familiar with all available local medical facilities that referred in MERA.
- To organize the First aid and rescue activities and to instruct personnel for those activities,
- To examine the injured employee and provide necessary medical treatment,
- To follow-up the condition of the patient until the patient is discharged to ensure that the patient receives the best possible care.

5.9. Site H&S Manager

- To report any incident, fatality, off site injury to HS&ES Manager, Head Office and COMPANY within 24 hours of its occurrence

5.10. First Aiders

- First aiders are responsible to make basic treatments to injured people, in direction of Site Doctor.

6. Abbreviations.

H&S-Health and Safety
HSE- Health Safety and Environment
ERT- Emergency Response Team
MEDEVAC: Medical Evacuation
MSDS-Material Safety Data Sheet
ISBL- InSide the Battery Limit
PTW-Permit to Work
PA- Public Announcement
ECC- Emergency Coordination Centre

7. INCIDENT MANAGEMENT POLICY AND PROCESS

7.1. The Process

The process is designed to prevent incidents where physically possible, and to reduce the impact of events when they occur. The total process of Emergency Response Management contains the following five elements:

- Prevention / minimization (pro-active and pre-event)
- Emergency Preparedness
- Emergency Response
- Recovery
- De-briefing

Each element is briefly described in the following sections:

7.1.1. Prevention / Minimization

All equipment and work processes, particularly those regarded as being critical, must be reviewed to identify potential risks, hazards and modes of failure. A value of risk for each activity / asset estimated and a decision made on any modifications required to prevent a failure or minimize the impact (risk) from failure. However, as a contingency, it is essential that a sound philosophy and process of Emergency Response Planning is established to address any potential emergency event.

7.1.2. Preparedness

To minimize the impact from emergency incidents, if in the unlikely event they do occur, it is essential that a number of arrangements be established prior to an event. These arrangements include:

- Development of Emergency Preparedness and Response Procedures
- Training of site personnel and managers in Emergency Preparedness and
- Response requirements through formal emergency drills, desk exercises and formal training;
- Provision of emergency response equipment
- Establishment of an emergency control centre
- Establishment of robust internal and external communication facilities
- Communication and co-ordination with EPCM emergency assistance providers
- The provision of resources to aid personnel fulfil their emergency response functions
- The establishment of routine emergency drills and desktop exercises to test the efficacy of the emergency response capability.

The above requirements are all equally critical to the establishment and execution of an effective emergency response program.

7.1.3. Response

Response is the reaction necessary to deal with emergency situation, implement any changes required and then to contain or restore the situation or process. Emergency personnel must have the capacity to react promptly to an emergency situation by following pre-determined procedures for classifying an incident, planning the response, notifying the right people and mobilizing all necessary resources. An effective response reduces the duration of an emergency and hence its impact.

7.1.4. Recovery

This is the follow-up reaction to an emergency situation and includes all the activities necessary to rehabilitate injured personnel and repair damage to plant and equipment and surrounding infrastructure and/or the environment, and to restore systems to normal. Recovery should be assessed, planned and implemented concurrently with response activities to further reduce duration and impact.

7.1.5. Debriefing

A comprehensive debrief of participants is essential after every emergency incident. The purpose is to identify what went well and to define which aspects could be

improved, to enable the process of Emergency Response Team to be continually improved.

The project HS management will evaluate ERT and the event in comparison the most favorable actions would have taken in emergencies, may provide value to the overall improvement.

7.1.6. Review

This Plan is a controlled document and shall be updated in accordance with the relevant document control procedures implemented on the Project. The H&S Manager is responsible for all revisions and shall ensure that this Plan is maintained up to date with changes in the Project. A review of the document shall be conducted after every incident or at least annually to ensure that it remains appropriate to the Project scope of work, organization and activities.

8. PRINCIPLES OF EMERGENCY MANAGEMENT

The following basic principles should be applied to all aspects of emergency management and contingency planning:

- Anticipate problems and prepare for them.
- Respond efficiently and appropriately at the outset to minimize impact.
- Take actions in parallel rather than sequentially to minimize the duration of both response and recovery.
- Focus on and guard the interest of all concerned parties.
- Learn lessons from each incident to minimize the chance of recurrence and resultant impact.
- Continually seek to do better

9. EMERGENCY RESPONSE TEAM ORGANIZATION

The site is divided into the following areas for Emergency Response Purposes. (Please See Appendix A)

Individual Roles And Responsibilities

9.1. Emergency Response Chief (Site H&S Manager)

The Emergency Response Chief (Site H&S Manager) shall have prime responsibility for the development of an Emergency Response Plan in coordination with Site H&S Manager, auditing of the effectiveness of the plan and the preparedness of members of the Emergency Response Team. He shall have the responsibility for the declaration and execution of an emergency response. In the event of a civil protest, the Emergency Response Chief (Site H&S Manager) shall communicate with the local police authorities and the EPCM's liaison officer and Worley Parsons Security Officer.

Emergency Response Chief (Site H&S Manager) shall:

- Organize and control the overall performance of all emergency response exercises.
- Transfer knowledge and experience on emergency responses/ education to the member of Emergency Response Team and also be responsible for advising CLIENTCLIENT and Contractor's Management pertaining to the activities of the Emergency Response Team.
- Be responsible for all required documentation and reporting systems.
- To maintain communication with security police
- Share information about civil protest's movement with the Chief of stationed police and CLIENTCLIENT Safety Manager.
- Liaise with all local emergency services to inform them of the exact location of the project.

9.2. Emergency Response Team Leader;

The HSE Supervisors will be assigned to act as the Leaders of Emergency lead by the HSE Manager. Response Team (See Appendix. I).

And the HSE Supervisors shall:

- Direct control of Emergency Response Team members at all times
- Access the situation in plant on daily basis and keep the Emergency solved.
- Ensure the preparedness of the ERT members to respond to any emergency.
- Coordinate the Emergency Response Team's Classroom Training and Drills.
- Ensure the operational status of emergency equipment.
- Cooperate with police in the case of civil protest.

Note: In the event of chemical spillage incident HSE Supervisor Shall provide as much detail and MSDS to the ERT and to the emergency services.

9.3. Members of the Emergency Response Team:

Shall consist of the assigned Safety Supervisors, Safety Wardens and Fire Watchmen of the Sub-Contractors who are working in an area at any given time

9.4. Medics, First Aiders and Response Team

Upon notification of any medical emergencies/injuries, the Contractor First Aider shall immediately respond to the scene with the emergency vehicle. His/her primary responsibility is to treat and stabilize injured or ill persons safely, following the steps outlined hereunder.

1. Determine the best route to the incident scene.
2. Upon arrival at the scene, take over management of patient and stabilize patient. Utilize Emergency Response Team members for any necessary assistance. First Aider will not enter a hazardous area without the advice of Emergency Response Chief (Site H&S Manager) depending on the situation. (IDLH)
3. Assess the situation for further medical assistance:
   Minor Case - Transfer patient to First-Aid Room for further treatment
   Major Case - Transfer patient to Hospital for further treatment using vehicle
4. Remain with the patient at Hospital until Emergency Room personnel take over.

The Subcontractor First Aider shall

- Ensure that all members of the First Aid Team are accounted for on a daily basis.
- Ensure all Emergency Response Equipment is ready for use at all times.
- Arrange for continuous First Aid Training for First Aid Team members.

9.5. Security

During any emergency incident within the project, security personnel roles and responsibilities are to control traffic and access to the site or to the effected area or building through the following steps.

- Call Emergency,
- Emergency over the radio and request radio silence from all other site personnel

- Facilitate the entry of emergency personnel and emergency vehicles in and out of the site.

- Guide visitors to Assembly Points
- Block plant access to unauthorized personnel or vehicles during a fire incident
- Close all gates and deny entry during a gas release: except for CONTRACTOR's members and EPCMConsultant or External Emergency Responders.
- Escort emergency equipment to the scene when requested by Contractor Emergency Response Chief(H&S Manager).
- Coordinate outside road closure if requested by Emergency Response Chief (Assist the Emergency Response Team to manage the area under the control.
- Any case of civil protester's attempt to enter jobsite, immediately report to stationed police as well as to Emergency Response Chief (Site H&S Manager) the current situation.

10. EMERGENCY ALARMS AND EVACUATION

The evacuation shall be initiated whenever any of the following incidences have occurred on the site: Major Fire, Explosions, Storm, Gas leak, Flood Incident and spill leakage

10.1. Camps (Selim, Pasinler and Fly Camps)

Initially, a manually hand held activated siren will be used until such time that a permanent system is installed. The permanent system shall be electrically operated sirens centrally positioned in each of the accommodation camps. These alarms can be activated at break glass points, automatic.

10.2. On Site

In case of emergency on site activities H&S Advisors will use hooter/megaphone and notify the supervisors using push and talk device on case. The muster point related that activity area will be designated by H&S Advisor in advance the activity start and make the personnel acknowledge. In emergency case occurs at that activity area, all personnel will meet at that muster point. Actions to be Taken on Hearing ISBL Emergency Alarm

CONTRACTOR will ensure that all personnel are aware of the correct procedures to be followed in the event of an emergency alarm. Personnel will be informed of all emergency requirements at their initial induction and at subsequent toolbox meetings.

10.3. ON HEARING ISBL EMERGENCY ALARM

Continuous Tone;

- Stop all work immediately
- Shutdown and isolate all sources of ignition
- Crane drivers are to make safe their loads
- Personnel to proceed to designated Muster Points
- Drivers to park in a safe location, ensuring that emergency vehicle access is not impeded, switch off engines, leave keys in ignition and proceed to designated Muster Point on foot.
- A check of the site by the ERT will take place to ensure that all employees have stopped work and evacuated the area.
- Permits to Work (PTW) issued will be suspended automatically in the event of an "Emergency Evacuation". PTW's will be re-issued once it is deemed safe to do so.
- Follow instructions given over PA system

Intermittent Tone

- Stop all work immediately
- Shutdown and isolate all sources of ignition
- Crane drivers are to make safe their loads
- Personnel to proceed to designated Muster Points
- Drivers to park in a safe location, ensuring that emergency vehicle access is not impeded, switch off engines, leave keys in ignition and proceed to designated Muster Point on foot.
- A check of the site by the ERT will take place to ensure that all employees have stopped work and evacuated the area.
- Permits to Work (PTW) issued will be suspended automatically in the event of an "Emergency Evacuation". PTW's will be re-issued once it is deemed safe to do so.
- Follow instructions given over Public Announcement (PA) system

10.4. Muster Points

Muster Points shall be located outside buildings/container, preferably close to main entrance gates with secondary muster points outside the emergency gate, this information will be posted on notice boards and disseminated at induction training. Details of the Muster Points will be established after consultation with EPCM and finalized at each location. Nominated Supervisors will act as Muster Checkers.

10.5. All Clear Signal

All Clear will be relayed only after instruction is given by Project H&S Manager or his authorized sub-ordinates

11. COMMUNICATION SYSTEM

A communication system shall be established between each Emergency Response Team Leader, the Emergency Response Chief (Site H&S Manager), and the First Aid Room so that a contact can be made at any time.

11.1. Hand Set Radio/Mobile Phone

Emergency Response Chief (Site H&S Manager) and Emergency Response Team Leaders shall maintain hand set radios or mobile phones to ensure availability at all times for response.

11.2. Emergency Telephone Numbers

Emergency Telephone Numbers shall be posted at all Site notice boards, Induction rooms & Assembly Points, in phone location points available to Emergency Response Teams at all times and other persons who may need to telephone for emergency services.

- Attached-App B Site Emergency Contact Chart

The contact numbers should be updated and keep current by HSE Department so that they are available whenever required.

CONTRACTOR will define Project Manager's room as Emergency Coordination Centre to co-ordinate the evacuation of ALL personnel, provide instructions and information and communicate with the EPCM an SUBCONTROCTOR's Representatives.
All communications to CONTRACTOR personnel shall be via supervisors and shall conduct all liaisons with Local Authorities, Police, Military, etc shall provide Project or Construction Manager, but to Media via EPCM's Representative with continuous updates of proceedings.
The Site HS Manager shall maintain a contact list and a copy shall be kept in the ECC. This list shall contain contact numbers for the Emergency Response Team and members of CONTRACTOR Management and EPCM and Subcontractors.

The following personnel shall attend the CONTRACTOR ECC in case of an Emergency:

- Project/Construction Manager
- Site HS Manager
- Camp Manager
- Area Manager
- CLIENT Representative
- Sub-Contract's Management Representative

12. EMERGENCY DRILL

12.1. General Evacuation Drill

General evacuation drill shall be held in all areas: These drills are to demonstrate and improve skills for safe evacuation in the event of emergency.

12.2. Emergency Response Team Drill

Emergency Response Team Drills shall be held in all areas on a monthly basis as part of a general evacuation drill. This drill is to improve the mobility and the skills of responding Emergency Response Team members.

13. ASSESSMENT MEETING

After the emergency response event, be it real or a drill, the Emergency Response Chief (Site H&S Manager) shall call for a briefing of all Emergency Response Team members to assess the effectiveness of the emergency response. The meeting shall be documented and any remedial action be assigned for action. A report shall be made to Construction Manager on the effectiveness of the response and any recommendations shall be highlighted.

14. EMERGENCY RESPONSE EQUIPMENT

The following equipment shall be kept in the safety vehicle of the assigned Emergency Response Team.

- Radio
- Megaphone
- Gas Mask & Safety Goggle
- Two (2) types of fire extinguisher (ABC, CO2)
- Warning Tape (Red/White & Yellow/Black)
- Rope for barricading & Rebar

- Safety Cones
- Flash light
- Rope for rescue
- Harness
- Shovels and tools

Each member of the Emergency Response Team is responsible for maintaining this equipment.

15. TRAINING

A training program shall be carried out as follows:

Class Room Training

All Emergency Response members shall be given classroom up-lift education to develop their skills pertaining to emergency response as needed.

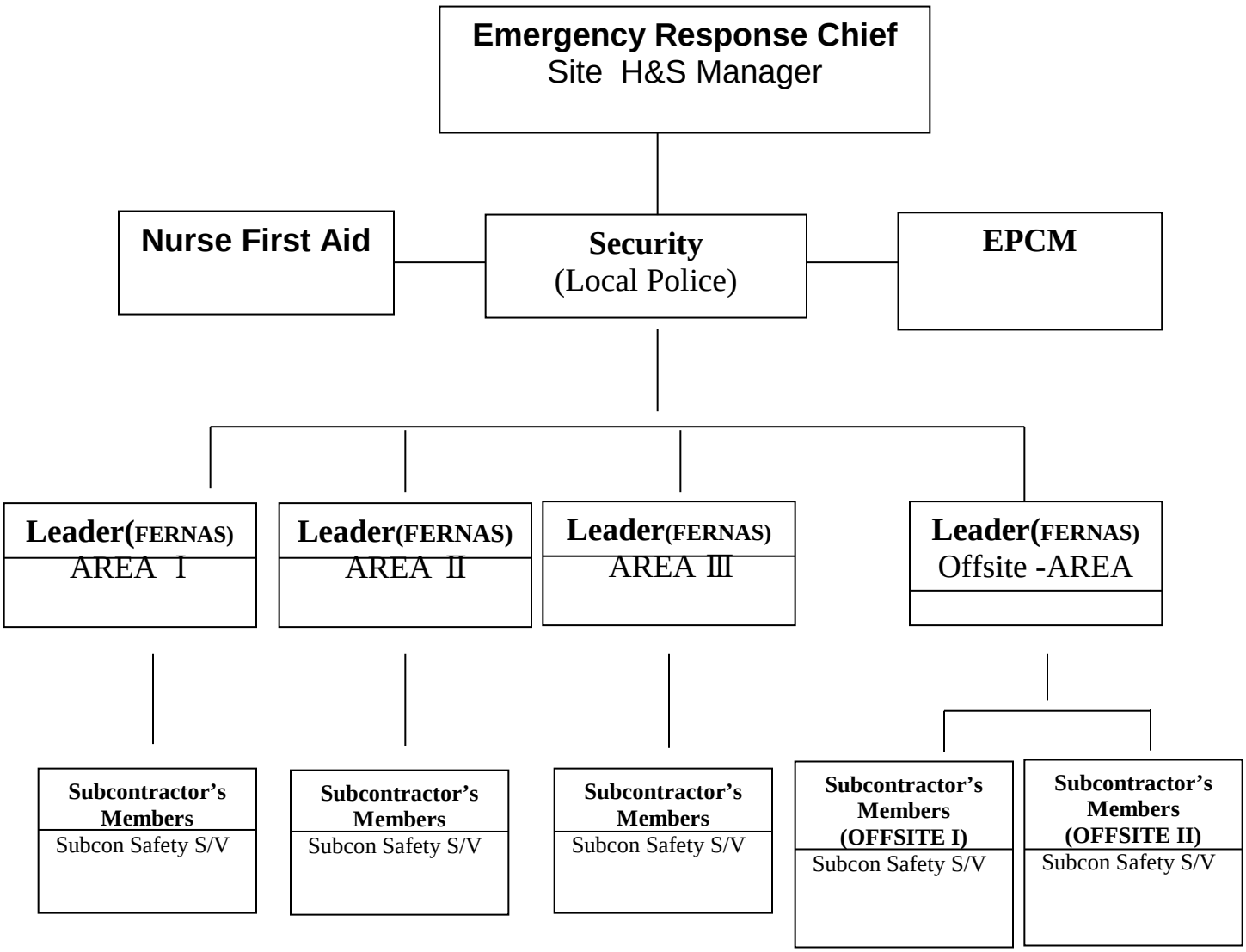
External Training

All Emergency Response members shall be given field training from an external organization to develop the special techniques pertaining to emergency response as needed.

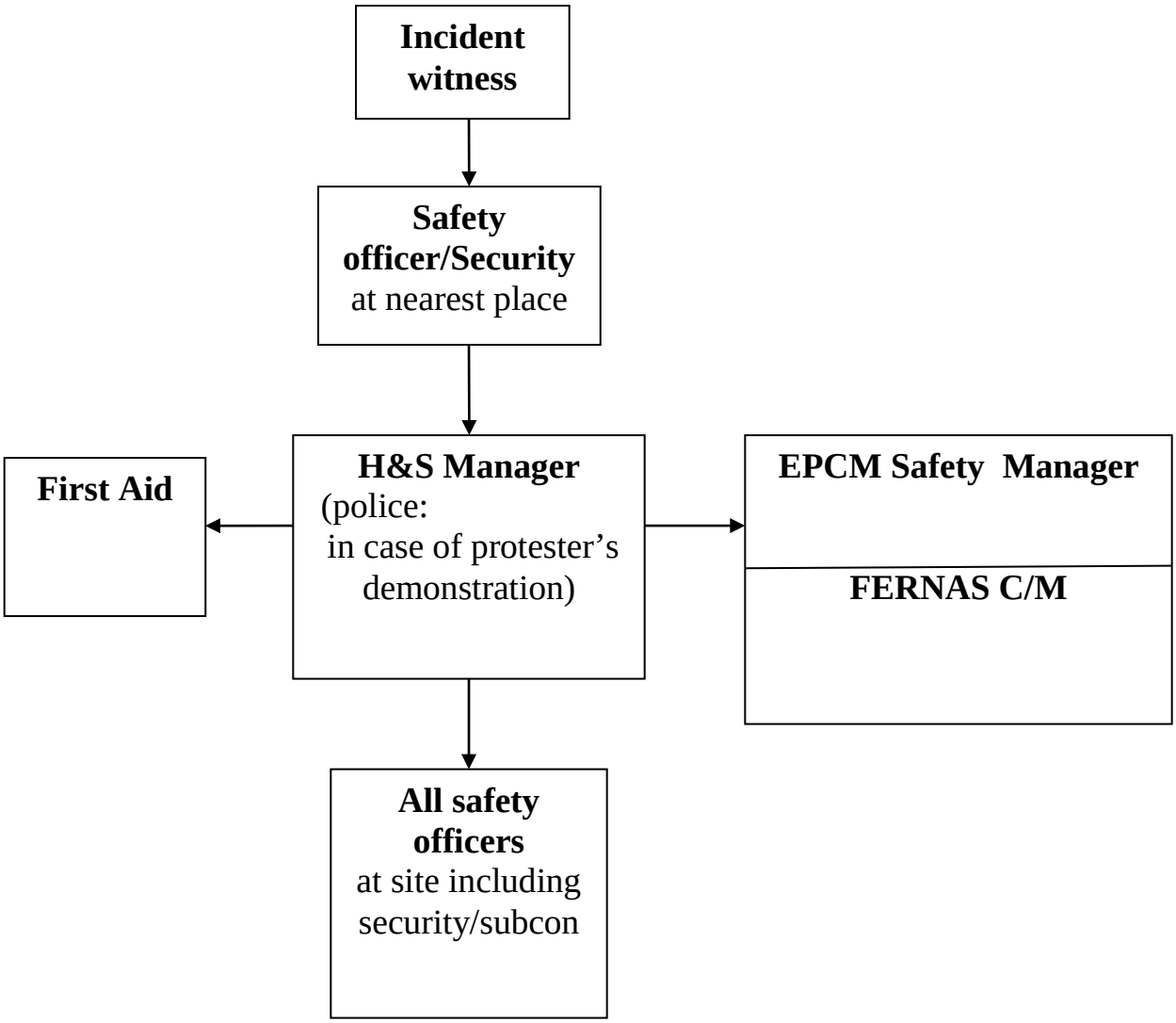
All persons working at or visiting site will be trained in accordance with the emergency evacuation procedure.

16. APPENDIX

APPENDIX A- Emergency Response Team Organization



APPENDIX B- Emergency Case Communication Chart



APPENDIX C: EMERGENCY INSTRUCTIONS NOTICE FOR WORKERS

The following instructions are intended for guidance in an emergency situation.

INSTRUCTION TO ALL WORKERS.

On discovering of an emergency situation:

1. Raise the alarm by what ever means available.
2. Call for assistance. Do not take undue personal risk.
3. If unsafe or in doubt evacuate.

On hearing the alarm:

1. Evacuate.

The Evacuation Area is at *(TO BE DESIGNATED PER LOCATION)*

WorleyParsons
resources & energy

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	SYA-PLN-HSE-GEN-004	REV	STATUS
		P4-0	IAAC
Document Title :	Emergency Response Plan		
Tag Nos.			
Contractor :	SYA - Sicim-Yuksel-Akkord JV		
Contractor Document No.		REV	

		Signature	Date
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Work may proceed.		
	C2- Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Work may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Work shall NOT proceed.		
	C4- Review not required. Resubmit for information only rev P4-0 - IFI. Work may proceed.		

Remarks:

SICIM-YUKSEL-AKKORD JV	**TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT - LOT 2-**	TANAP / WorleyParsons

EMERGENCY RESPONSE PLAN

Rev.	Status	Date (dd/mm/aa)	Document status Description	Issued by	Checked by	Approved by	TANAP Approval
P3-A	DIC	22/01/15	Discipline Internal check	PODR	KURV	TENP	
P3-B	IDC	23/01/15	Inter-Discipline check	PODR	KURV	TENP	
P3-C	IFR	25/01/15	Issued for Review	PODR	MUSN	TENP	
P3-D	Re-IFR	27/02/15	Re-issued for Review	PODR	MUSN	TENP	
P3-E	Re-IFR	20/03/15	Re-issued for Review	PODR	MUSN	TENP	
P4-0	IAAC	25/05/15	Issued As Approved For Construction	ABDN	KURV	TENP	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P3-A	DIC	22/01/15	Discipline Internal check
P3-B	IDC	23/01/15	Inter-Discipline check
P3-C	IFR	25/01/15	Issued for Review
P3-D	Re-IFR	27/02/15	Re-issued for Review
P3-E	Re-IFR	20/03/15	Re-issued for Review
P4-0	IAAC	25/05/15	Issued As Approved For Construction

HOLDS

No.	Section	Description	Input From	Planned Date
1	3.1.2	Notification Flow table to be completed	H&S dept.	Before Construction starts
2	6.2	Emergency drill schedule to be established	H&S dept.	Before Construction starts
3	Attachment 1	Contact list to be completed	HSE dept.	Before Construction starts

Table of contents

1 INTRODUCTION

1.1 Applicable Regulations and Reference Documents

Document Number	Title
Statute 6331	Turkish Occupational H&S Law (6331)
OHSAS 18001	Occupational Health & Safety Management System 18001:2007
SYA-PLN-HSE-GEN-002	H&S Management System
SYA-PCD-HSE-GEN-001	Risk Assessment Procedure
SYA-PLN-HSE-GEN-007	Health Management Plan.

1.2 Project Overview

Details about the project, the Right Of Way, approach, possible issues, etc.

1.3 Scope

The Emergency Response Plan (EMERGENCY RESPONSE PROCEDURE) has been prepared to ensure a state of emergency preparedness at all times during the execution of the TANAP Project.

The procedure will cover all SYA JV facilities, personnel, operations and travelling, transportation of equipment and pipe, picking the pipe from the port, camp accommodation, etc., as well as EPCM personnel and all authorized visitors to the project.

The Emergency Response Plan shall be specific for each location:

- Sivas – Hafik camp
- Erzincan – Cadirkaya camp

Refer to:
SYA-PLN-HSE-GEN-005 ‘’Medical Emergency Response Plan’’ and
SYA-PLN-SEC-PL2-002 ‘’Crisis & Emergency Response Plan’’

1.4 Objectives

The objectives of this EMERGENCY RESPONSE PROCEDURE are to detail individual responsibilities, to outline the emergency control resources, and to assist in the development of an efficient rapid response structure in the event of an emergency situation. Integral to this will be the provision of testing and training at the different exposure locations.

SYA JV considers the preservation of health and life not only as an integral part of business management, more importantly as a moral responsibility.

1.5 General Assumptions

- **An Emergency may occur at any time**

A critical incident, crisis or disaster may occur at any time of the day or night, throughout the duration of the project, with little or no warning.

- **The Emergency Response Plan (EMERGENCY RESPONSE PROCEDURE) must be flexible**

The succession of the sequence of events in any emergency situation is not fully predictable, therefore the EMERGENCY RESPONSE PROCEDURE will act primarily as guide or checklist and could be modified during the emergency to mitigate injuries, damages and / or to recover from the event.

1.6 Document Management

This procedure is a controlled document and shall remain the property of SYA JV. Each recipient of this procedure is responsible for:

- Ensuring their copy is up to date.
- Disseminating information contained within to staff and sub-contractors under their control.
- Informing the document owner of any required amendments that may affect this procedure.

2 GENERAL REQUIREMENTS

2.1 Project Medical Supplies

All Emergency Response Medical Supplies in the camp and ambulances will be provided by the designated Service Provider- . It will be stocked as minimum required in the Health Management Plan (SYA-PLN-HSE-GEN-007)

- The Service Provider will ensure up-to-date procurement and inventory control at all times during the duration of the project.
- All medical supplies will be ready to use at any given time.
- All medical supplies will be stored, utilised and disposed of as per manufacturer, legal and other requirements.

2.2 Activity Support

Certain activities will be supported by the strategic positioning of the medical resource adjacent to it or by provision of an additional employee with paramedic capabilities.

Work crossing large rivers, lowering in of a long string of pipes and work in confined spaces have been identified as such activities.

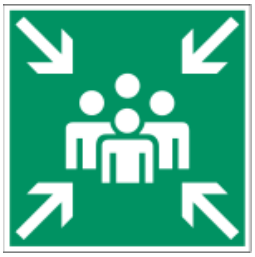
2.3 Emergency Alarm

- The project camp will be fitted with an Emergency Alarm. The alarm will sound in the event of an emergency situation and signal immediate evacuation to the Muster Points.
- A backup manual alarm will be situated at the Site Security Office.
- On the Right of Way a combination of “shouted instructions”, use of claxons, or vehicle horns will be used together with a purging vehicle which will travel away from any incident passing instructions.

2.4 Muster Points

- Muster Points are designated emergency assembly points and situated throughout the project responsible areas.
- Employees and visitors are required to assemble at these designated safe havens when an emergency situation is declared or the Emergency Alarm is sounded.

- Whenever the workforce is evacuated to the Muster Point, Roll Call will be carried out at these points.
- Each Muster Point is clearly marked as indicated below for the camp locations, fly camps and ROW:



- Muster Point locations are indicated on notice boards throughout the project, and communicated to all people during induction and toolbox talk discussions.
- Muster Points should be kept signalled and clean. Access to these areas should be free and safe. Designated Incident Coordinators are responsible for ensuring the proper condition of these points.
- On the Right of Way all Road Crossings will be designated as Muster Points. The Construction Manager, his Supervisors and H&S Team will identify other suitable Muster Points in close vicinity to work activities and camps. These, although temporary as work passes, will be correctly identified and their location communicated to all working in the area, the HSE Team and Medical and other Emergency Response staff.

2.5 Communication Equipment & Protocol

Prompt, effective communication during an emergency situation is of critical importance. Therefore there are three systems in use for the project:

Radio Communication: Primary Method

- All Site Managers, Supervisors and Emergency Response Team Members are issued with a handheld radio.
- The radio should always be charged and ready to use.
- Strict Radio Protocol will be followed, refer to point 3.4.4.

Cellular Telephones: Secondary Method

- Cellular Telephones are utilised where HF Radio Communication is intermittent
- All personnel and visitors should have relevant Emergency Response telephone numbers stored on their devices.
- Cellular phones should always be charged and ready to use.

S**atellite Telephones: Supplement to Secondary Method**

- Satellite Telephones are issued to Supervisors in locations where other devices have poor or no signal. All Satellite Telephones should have relevant Emergency Response telephone numbers stored in the memory.
- Satellite Telephones should always be charged and ready to use.

Radio Communication Protocol

When an emergency situation is declared, the following protocol needs to be followed using the Primary Method of Communication:

- Radio silence with only essential communicants talking (On hearing nearby crews and those trained in Emergency Response may make their way to assist only if safe to do so)
- All non-emergency communication should be terminated.
- The emergency channel will be in use at this point.
- Keep the communication to relevant information only.
- Do not interrupt a caller during transmission.
- Do not key the transmission button during a caller's conversation.
- If communication is unclear, use the following (or similar) criteria for the alphabet:

A – Alpha, B – Bravo, C – Charlie, D – Delta, E – Echo, F – Foxtrot, G – Golf, H – Hotel, I – India, J – Juliet, K – Kilo, L – Lima, M – Mike, N – November, O – Oscar, P – Papa, Q – Quebec, R – Romeo, S – Sierra, T – Tango, U – Uniform, V – Victor, W – Whiskey, X – X-Ray, Y – Yankee, Z – Zulu.

3 EMERGENCY RESPONSE ORGANIZATION & RESPONSIBILITIES

3.1 Emergency Response Plan

3.1.1 Emergency contact list

An Emergency Contact List (Attachment 1) is maintained and circulated by the Health and Safety Team to all Manager and Supervisors.

The information will be made available to all employees via noticeboards, toolbox talks, and via their Supervisors.

3.1.2 Emergency Notification Procedure

The notification shall be made according to the table below:

Incident	**Details**	**Timing**
Level 2	All types	IMM
Level 1	LTI	
	Other than LTI	
Level 0	RWI	IMM
	MTI	
	Land spill <600 bbl.	
	Water Spill < 3 bbl.	
	Off-site < 10 bbl.	
	MVA	
<Level 0	Near-Miss	<24h
	First Aid	<24h
	MVI	NBD
	Hazardous situations	EOM

Notifications description:

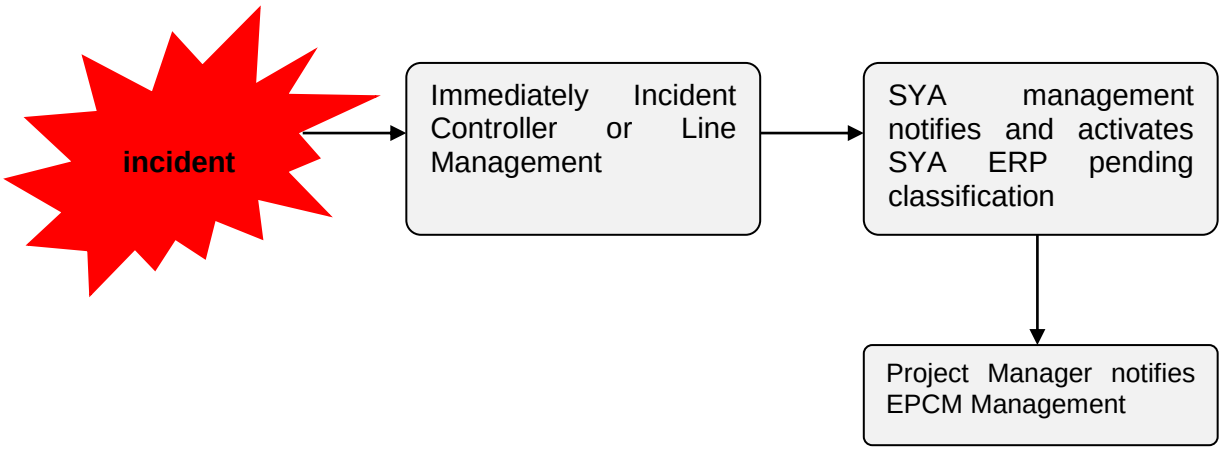
Timing	Method	Weekend Holidays	Wake up at night
IMM = Immediate	Phone	Yes	Yes
< 24H = During Waking Hours	Phone	Yes	No
NBD = Next Bus Day	Email/Phone	No	No
EOM = End of Month	Stewardship	No	No
EOW = End of Week	Stewardship	No	No

Notifications flow :

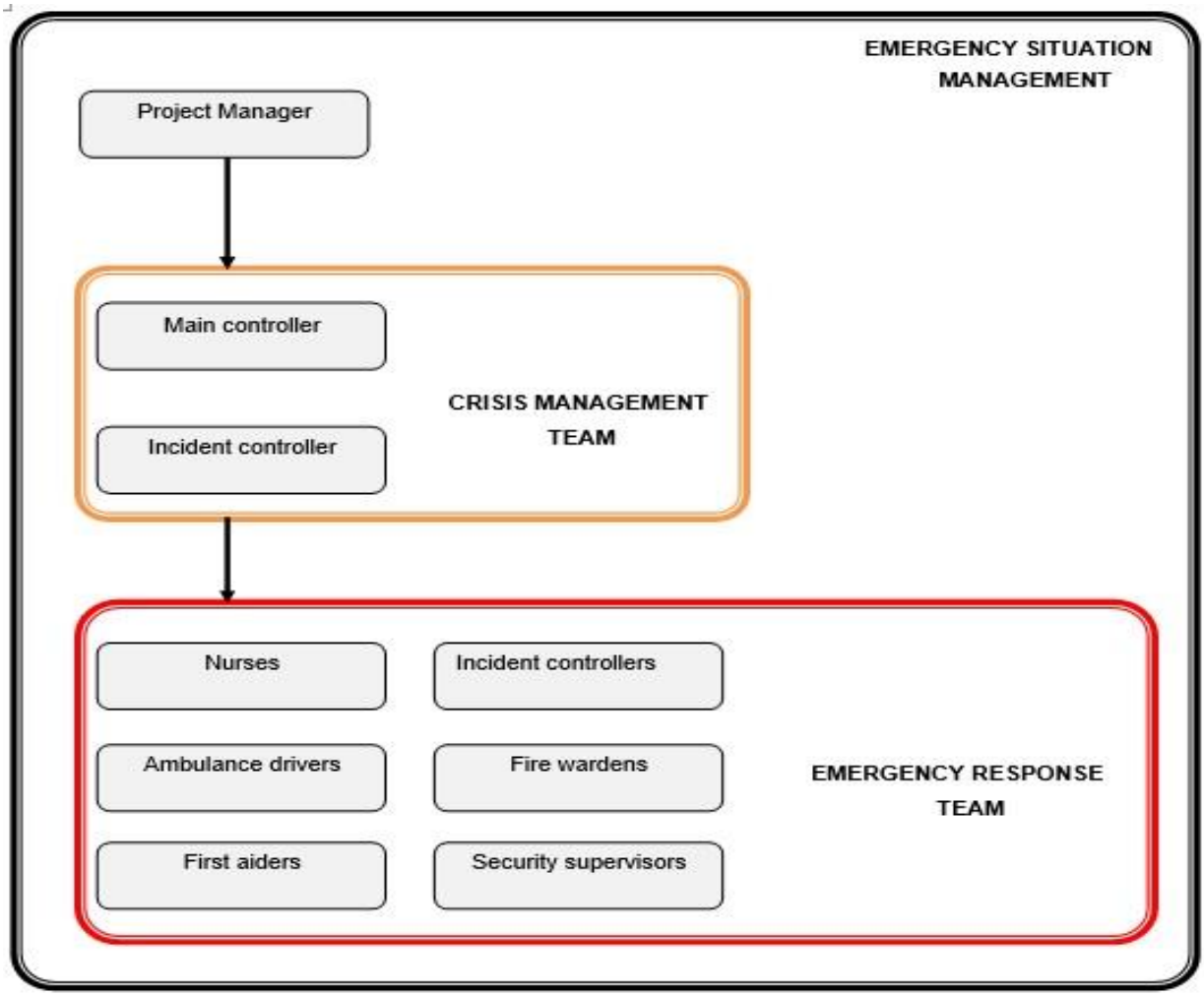
TIMING	BY (SYA JV)	TO	COPY
IMMEDIATE	Paolo TENANI		
NBD			
<24H / EOW / EOM EOW =End Of Week EOM = End Of Month			

3.1.3 Incident Notification Chain

As described below:

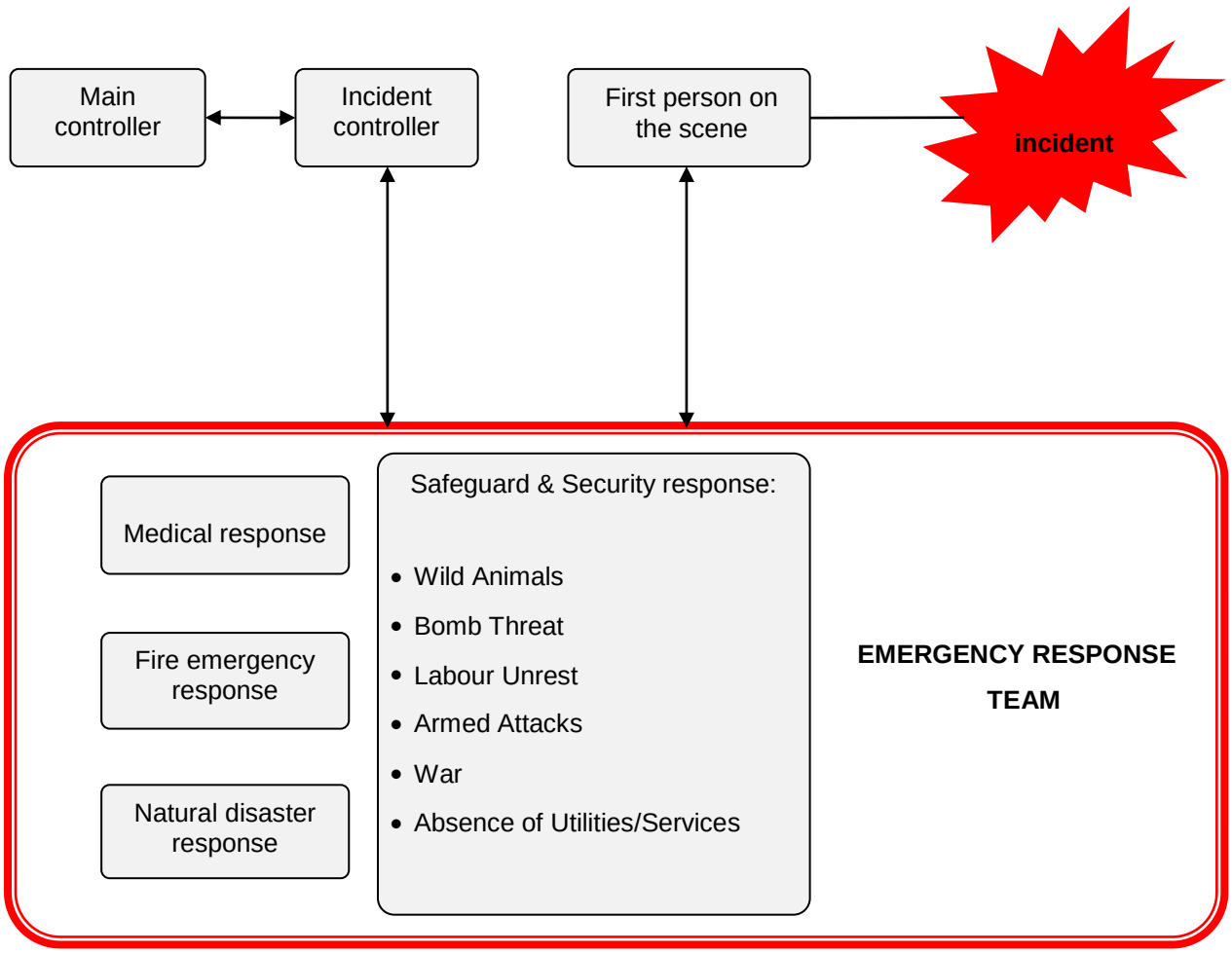


3.1.4 Incident Management Organization Chart



3.1.5 Incident Response

As described by the flow chart below:



Please also refer to Attachment 2, flow chart 1, flow chart 2.

3.1.6 Emergency Checklist (10 Primary Reminders)

Check Point	Item	Responsible	Yes	No	NA
1	All relevant primary parties and ER Team members are contacted and dispatched as required.				
2	The Incident Controller is managing the situation.				
3	Main Controller has classified the Incident (Minor, Serious or Major) and is in contact with PM.				
4	Initial incident scene has been secured and made safe or protected from potential further incidents. Victims were secured and protected.				
5	Access and Egress to/from the incident is clear and safe.				
6	Security is informed and controlling vehicle and pedestrian traffic to and From the emergency situation.				
7	Required medical information is available and distributed accordingly.				
8	The sequence of events is being recorded.				
9	Required secondary parties (including EPCM) has been notified.				
10	Instructions are issued for the preservation of potential evidence				
	Other Notes of Importance:				

3.2 Emergency Response Plan Management

The Emergency Response Plan Management ensures the realization of suitable resources, logistics and execution of requirements.

Project Manager

- The owner and custodian of this procedure is the Project Manager. He is overall responsible for the Emergency Response Procedures.
- The Project Manager will be notified of any necessary or proposed changes to this procedure.
- He is responsible for updates and revisions as required, not less than one annual review of this procedure each year.
- He will provide information to SYA JV and EPCM Management on emergencies.
- He is fully conversant with all Emergency Response Procedure requirements and procedures.
- The PM allocates suitable and sufficient resources for the realisation of the Emergency Response Procedure.

Construction Manager

- The Construction Manager is fully conversant with all EMERGENCY RESPONSE PROCEDURE requirements and procedures.
- He ensures that all relevant personnel have received adequate training in their Emergency Response responsibilities.
- Regularly inspect the project's overall Emergency Preparedness with the HSE Manager.
- The Construction Manager is a member of the Crisis Management Team and will cover the Critical Incident Management role of Main Controller

Health & Safety Manager

- The Health and Safety Manager ensures that all EMERGENCY RESPONSE PROCEDURE requirements are implemented.
- He is fully conversant with all EMERGENCY RESPONSE PROCEDURE requirements.
- Provides specialist Health and Safety advice and support to relevant personnel.
- Ensures that EMERGENCY RESPONSE PROCEDURE Drills and related training are executed.
- Ensures that the Emergency Response Team is trained in crisis management and is coordinated as required.
- Schedule and coordinate with the Project Doctor, First Aid Training for designated First Aiders maintaining ratios at the statutory 1 per 10 workers.
- Ensures that all personnel using or handling hazardous materials are trained in their safe use and for ensuring that the products Material Safety Data Sheets area kept at the point of use and additionally by the Medical Team so that they are accessible in case of an emergency.
- Lead the implementation of proactive and reactive preventative actions, inspections and corrective measures.

- Check that established procedures are functioning correctly.
- He is a member of the Crisis Management Team and will typically cover the Crisis
- Management role of Incident Controller

Human Resources Manager

- Will ensure that qualified and competent personnel, which is able to fulfil the requirements of the EMERGENCY RESPONSE PROCEDURE, is employed through the duration of the project.
- Is responsible to ensure that all personnel details are correct and available in the event of an emergency.
- Will assist the Main Controller & Incident Controller in the event of a medical evacuation with the arrangements and relevant communication to designated contacts.

3.3 Emergency Situation Management

Emergency situation Management ensures a structured approach to control and mitigate events during an emergency situation on the project.

First Responder on Scene

The first responder on scene is any member of the project team or authorised visitor to the project that is first to witness or respond to an emergency.

Their main duties in an emergency situation are to protect and alert:

Protect*:*

- Protection of themselves, other people and the injured party from further harm.
- Protection of the environment.
- Protection of property and equipment.
- The first responder on scene will only attempt to deal with the emergency if it is safe and they are trained accordingly

Alert:

- Upon the discovery of an incident, the first responder on scene will immediately contact the relevant emergency response team member, including the Incident Controller and Project Doctor, Nurse or First Aiders – depending on the situation and location of responders. All project personnel and visitors receive the relevant contact details during induction training. They are also made aware of emergency procedures during daily Toolbox Talk discussions prior to work. The emergency response team contact details are also posted on notice boards throughout the project.
- The first responder on scene will give clear and concise information on the nature and location of the emergency and other relevant details.
- Define the location for a rendezvous point for the emergency response team (usually the Muster Point) and will advise if the access to the incident scene be hazardous or difficult to find.
- Receive further instructions from the Incident Controller.

Crisis Management Team

The Crisis Management Team ensures fulltime emergency preparedness. The designated positions of the team will be covered throughout the duration of the project irrespective of personnel rotations.

Main Controller

The Main Controller will assume overall strategic responsibility during all emergencies.

- After liaising with relevant members of the Crisis Management Team, the Main Controller is responsible to decide the level of the emergency and the correct actions to be taken for the execution of the EMERGENCY RESPONSE PROCEDURE.
- The Main Controller will issue authorization for Emergency Evacuations.
- The Main Controller is also assigned responsibility for liaising with all external agencies and for reporting and updating the Project Manager and Operational Management.
- Where necessary, the Main Controller will liaise closely with Government authorities during emergency situations.
- During the emergency, he will be in constant communication with the Incident Controller by site radio or cellular phone.
- Should a Tier 2 - Emergency Evacuation be required, the Main Controller will contact the Management Base and coordinate the procedures for evacuation with the air charter (refer to Contact List). He will also contact the Medical Centre and ensure that they are fully aware of the specific details and prepared to receive the injured person.
- The Main Controller will communicate the estimated time of arrival and communicate that also.
- The Main Controller will liaise with the Human Resources Manager to arrange for the relevant documentation and for communication with the Injured Person's designated family or other nominated persons. This does not include any media enquiries which will be directed to EPCM for their attention.
- In the event of a Tier 3 International Evacuation, the Main Controller and Human Resources Manager will communicate with the injured party's named emergency contact. They will ensure that the necessary travel arrangements are in order and all relevant documents are provided to Speciality Assist.
- The Main Controller role is usually covered by the Construction Manager, but in the event of his absence, he will delegate the role to his deputy or another senior manager he nominates. The Main Controller role will be transferred by doing a suitable handover, including sharing all information with the Incident Controller and updating the Emergency Response Team members

Incident Controller

The Incident Controller has overall directive responsibilities during any emergency. He will direct procedures and take necessary precautions to minimize the extent of the emergency situation and initiate recovery measures where appropriate.

He is responsible to:

- Ensure that the Emergency Response Team and key personnel have been summoned and the required EMERGENCY RESPONSE PROCEDURE procedures are activated.

- Continually communicate with the Main Controller and Emergency Response Team and advice accordingly.
- Direct the shutting down and evacuation of any areas likely to be affected, in consultation with the Incident Coordinators and other key personnel.
- Inform the Health and Safety Management of the emergency situation who will submit a report on the same within 24 hour to EPCM. The EPCM site representative if not aware will be notified at the earliest opportunity.
- He will nominate a responsible person to keep record of the sequence of events.
- Initiate the “All Clear” when the emergency situation has been dealt with and instruct personnel to resume duty when the work area and conditions are deemed safe.
- Provide for the preservation of evidence that may be relevant to any subsequent enquiry.
- Lead the investigation to the incident and implementation of subsequent corrective measures.
- The IC role is usually covered by the HSE Manager, but in the event of his absence, he will delegate the role to his deputy or another person he nominates. The IC role will be transferred by doing a suitable handover, including sharing all information with the Main Controller and updating the ER Team members.

Emergency Response Team

The Emergency Response Team provides assistance in dealing directly with the incident and bringing the situation under control. The team is specifically trained in responding to emergencies, which may arise - and the equipment available to deal with incidents and the actions that require to be taken.

The Emergency Response Team consists of the Project Doctor, Project Nurse, Paramedic, Ambulance Driver, First Aiders, Incident Coordinators, Fire Wardens & Security Manager and Security Supervisor. Other staff may be requested to assist with supporting roles

Project Doctor

The Project Doctor is the supervising medical professional for the project, as well as the primary first medical responder and stabilization coordinator.

- The Doctor will advise the Main Controller & Incident Controller on the required medical action necessary during emergency situations.
- Available during all working hours and during camp occupation 24 hours, 7 days a week for the duration of the project.
- Will advise the nurse by radio or phone when necessary.
- Advise the Emergency Response Team on issues and potential influences on health and wellbeing.
- Coordinate patient’s movements and assist during medical evacuations. He will keep contact with the evacuation team and assist in evacuation decisions where necessary.
- If required, accompany the patient during evacuation, until an external service provider relieves him of patient responsibility.

Project Nurse

The Project Nurse is a first medical responder and provides initial specialised attention to a person suffering an injury or illness.

- The Nurse is stationed progressively by the Health and Safety Manager to ensure strategically effective coverage of work or other activities.
- Available during all working hours and during camp occupation 24 hours, 7 days a week for the duration of the project.
- The Nurse will have up-to-date knowledge of current site conditions, emergency routes, emergency meeting points and relevant contact details.
- There will be 2 nurses appointed. One will stay at each base.
- The Nurse will be available at any given area of his responsibilities as quickly as possible with a target of within 20 minutes.
- The Nurse will take initial responsibility of the injured party until he is relieved by the Project Doctor.

Project Ambulance Driver

The Ambulance Driver assists the Project ***Doctor*** and Project Nurse during emergencies.

The Ambulance Driver will:

- Have up-to-date knowledge of current site conditions, emergency routes, emergency meeting points and relevant contact details.
- Available during all working hours and during camp occupation 24 hours, 7 days a week for the duration of the project.
- Drive ambulances transporting sick, injured, or convalescent persons to the designated destination.
- Assist the Project Doctor or Project Nurse (if required) to place patients on stretchers and load stretchers into ambulance.
- Assist in the inventory of ambulance stock, maintaining all equipment and materials.
- Keep the ambulance clean, refuelled and in a state of emergency readiness at all times.

Additional drivers will be available when the Ambulance Driver is pre-occupied with other commitments. If the ambulance itself is not available (e.g. out on an emergency) alternative vehicles will be available to assist.

First Aiders

First Aiders are first medical responders and provide initial basic attention to a person suffering an injury or illness.

- All First Aiders will have up-to-date knowledge of current site conditions, emergency routes, emergency meeting points and relevant contact details.
- The First Aiders are stationed progressively by the Health and Safety Manager to ensure strategically effective coverage of work or other activities.
- A First Aider will be available at any given area of the project as quickly as possible with a target of within 4 minutes.
- The First Aider will take initial responsibility of the injured party until he is relieved by the Project Nurse or Project Doctor

Incident Coordinators

Incident Coordinators are assigned by the Health and Safety Manager to all areas in the project.

In the event of an emergency situation, the Incident Coordinator's main duties are to:

- Instruct personnel to proceed to and report at their designated assembly points and await further instructions.
- Liaise with the Security Supervisor by undertaking Roll Call to confirm that the names and number of personnel at the assembly point is correct.
- See that in the event of discovering any missing person/s, the situation is reported urgently to the Incident Controller.
- The Incident Coordinator will be in constant communication with the Incident Controller by site radio or cellular phone during the emergency.
- Assist the Security Supervisor to control traffic flow during an emergency situation.
- Ensure that the designated Muster Points are properly signalled, clean and free for safe access at all times.
- Be familiar with the location of exits and emergency escape routes and relevant contact details.

Fire Wardens

Fire Wardens are assigned by the Health and Safety Manager to all areas in the project.

In the event of fire, the warden's main duties are to:

- Instruct and ensure that all work is stopped and ensure all electrical and other equipment is made safe.
- Alert everyone in the hazardous area to evacuate in an orderly manner using the safest exit to the Muster Point.
- If in no imminent danger, attempt to extinguish the fire.
- Will the Fire Wardens not be able to deal with the fire effectively, external help will be summoned, refer to Contact List.
- Check and inspect the entire site / work area, offices, rooms and stores to ensure that no one is left behind.
- Liaise with the Security Supervisor by Undertaking Roll Call to confirm that the names and number of personnel at the assembly point is correct.
- See that in the event of discovering any missing person/s, the situation is reported urgently to the Incident Controller.
- Be familiar with the location of exits and emergency escape routes and relevant contact details.

Security Supervisor

The Security Supervisor's main duties in the event of an emergency situation are to arrange all security personnel to:

- Coordinate all relevant security activities relating to the emergency situation
- Arrange and coordinate strict control of access to and from the emergency situation perimeter.
- Control the traffic flow and ensuring the free and clear access for emergency vehicles
- Assist the Incident Coordinators / Fire Wardens with Roll Call by producing the daily Site

- Access Control Sheet.
- Inform the Incident Controller of any potential situation or issues where personnel and company asset security is /could be at stake.
- Be familiar with the location of exits and emergency escape routes and relevant contact details.

Persons without specific Emergency Response Duties during an emergency situation

All workers without specific Emergency Response Duties, including EPCM's employees as well as visitors, will be under the jurisdiction of the EMERGENCY RESPONSE PROCEDURE during an emergency situation. They will:

- Stop all work and ensure all electrical and other equipment is made safe.
- When ordered, proceed to the designated Muster Point for roll call in an orderly manner.
- Remain at the assembly point until the order to stand down has been issued.

4 EMERGENCY CLASSIFICATIONS

4.1 Incident Classifications

Minor Incidents (Level 0):

- An incident on site or a vehicle related incident involving project personnel, which results in a minor injury requiring first aid attention.
- An incident/potential incident involving project personnel, with a localised effect zone and is confined to the immediate area of the site where the incident occurs, including fire.

Serious Incident (Level 1):

- An incident or a vehicle related incident involving project personnel, which injures / affects a number of personnel but not life threatening.
- An incident that affects a large area of the site or building, but is confined within the site boundaries.

Major Incident (Level 2):

- Serious life threatening / fatal incident.
- An incident, which requires off-site evacuation.
- Serious Incident involving project personnel external to site.
- Serious life threatening / fatal vehicle related incident.

5 EMERGENCY RESPONSE PROCEDURES FOR SPECIFIC SITUATIONS

5.1 Medical Emergency Response (Injury Trauma or Ill Health)

Emergency Response Locations

The project requires Emergency Response in two different specific locations:

Location 1: Sivas – Hafik camp

Location 2: Erzincan- Cadirkaya camp

Medical emergency situation: (Please refer to Attachment 2 - flow chart 1)

- The EMERGENCY RESPONSE PROCEDURE is activated by the First Responder on Scene contacting the Incident Controller. The Incident Controller will immediately contact and dispatch the relevant Emergency Response Team Members and (depending on the severity) order evacuation to the Muster Point of the remaining work force.
- After initial assessment by the Emergency Response Team, the IC is updated accordingly and in turn continually updates the Main Controller
- Will Medical Evacuation be required
- If Medical Evacuation is not required, the Injured Person is treated either on-site or at the camp clinic.
- The Incident Controller will only terminate the emergency situation once it is determined that the work area and related activities are safe to continue.
- The Incident Controller will immediately start with the necessary investigation and follow up actions.

Medical Evacuation: (Please refer to Attachment 2 - flow chart 2)

- Medical Evacuation will be authorised by the Main Controller after consultation with the Incident Controller and Site Doctor
- A decision will be made according to the severity of the Injured Party's injuries or illness, based on recommendations made by the Site Doctor, taking into account all variable factors.
- There are 3 Tiers of evacuation:
  - Tier 1 – Regional Hospital (Expatriates & Nationals)
  - Tier 2 – Emergency Medical Centre
  - Tier 3 - MEDEVAC (Expatriates)

The MEDEVAC Procedure will be activated after consultation of the Main Controller, Incident Controller and Site Doctor. The ain Controller will authorise the evacuation only after notifying and agreeing with the Project Manager.

Medical Emergency during travelling

- In the event of a Medical Emergency while travelling, the closest medical facility of the incident will be utilised. Please refer to Contact List, for relevant contact details of emergency facilities.
- In the event that the Injured Party requires additional medical care in their country of origin or other designated country, the Tier 3 Medical Evacuation Procedure, will be activated.

MEDEVAC Procedure (Tier 3 Medical Evacuation)

- In the event that a Tier 3 Medical Evacuation is required, MEDEVAC Procedure is activated. SYA JV is insured by Speciality Assist, which will evacuate the IP to a suitable medical facility abroad.
- The Tier 3 Medical Evacuation is the final stage of Evacuation in case of critical medical conditions due to illness or personal injuries, when local facilities cannot ensure proper treatment of the medical case.
- The Main Controller will liaise with the Human Resources Manager and contact the Service Provider Speciality Assistance.
- He will provide comprehensive information to the Service Provider in order to assist them in mitigating the situation:
    - Location and situation (what has happened)
    - Name of person
    - Date of birth
    - Home address
    - Outline details of incident
    - Any other known medical information
    - Details of how soon the patient can be transported to the airport
    - Main Controller details
    - Project Doctor details
    - If Project Doctor is not present, the telephone number of the contact person attending to patient
    - The Main Controller will arrange for contact with the Injured Party's emergency home contact.
    - The Main Controller will also arrange the availability of the Injured Party's necessary travel documentation

Evacuation Tiers:

Refer to SYA-PLN-HSE-GEN-005 Medical Emergency Response Plan, SYA-PLN-SEC-PL2-002 Crisis & Emergency Response Plan

5.2 Fire Emergency Response

5.2.1 Fire extinguishers and fire blankets

- Dry Chemical Powder Fire extinguishers are in use for the project. It is suitable for Classes ABC Fires - as the name implies can be used on Class A (burning solids), B (liquid fires) and C (Gases) fires.
- The powder leaves a residue that could cause damage to electrical equipment.
- Fire Blankets are also available in the camp kitchen, which is effective in dealing with kitchen related fires.
- Please note that only people trained in using fire-extinguishing equipment will attempt to extinguish fires in such an event. Training is scheduled during the project.

5.2.2 Response

The First Responder on Scene will raise the alarm immediately at the work location, which will normally be by means of verbal communication. Under no circumstances will individual attempt to extinguish a fire until he / she has made alarm and alerted others to the emergency.

- Summons the responsible Fire Wardens in the area.
- If in no imminent danger, trained workers to attempt extinguishing the fire.
- Ensure that all work is stopped and electrical and other equipment is made safe.
- All other personnel Evacuate to Muster Point
- If the Fire Wardens are not able to deal with the fire effectively, external help will be summoned refer to Contact List.

5.3 Natural Disasters

Natural Disasters include but are not limited to the following:

- Storms & Lightning
- Floods / Landslides
- Hurricanes
- Major Earthquake

These are acts of providence and cannot be prevented, although impact of such acts may be reduced. The Incident Controller will take immediate control and decide on the action required, inter alia, a complete evacuation of the entire area and site evacuation that may be needed

The nature and extent of the disaster will dictate the appropriate actions, but the following general guidance applies:

5.3.1 Storms/ Lightning

In the event of a storm and / or lightning, close all openings, and isolate / switch off all electrical appliances.

- Seek shelter inside a building but stay away from windows.
- Never seek shelter under vegetation e.g. trees.
- Stay well clear from high vantage points.
- Stay well clear from electrical conducting materials e.g. metals.
- Should an emergency situation occur, contact the Incident Controller, who will direct instructions.
- As soon as possible after the situation, the Emergency Response Management will assess firstly injury to personnel and then damage to buildings and equipment.
- The Incident Controller will only declare the area safe and allow personnel to return to work after a complete assessment.

5.3.2 Flood/ Landslides

In the event of a possible Flood or Landslide, be ready to evacuate as directed by the Incident Controller. Follow the recommended evacuation routes.

- Climb to high, stable ground and stay there
- Avoid walking or driving through flood water
- If the vehicle stalls, abandon it immediately and climb to higher ground
- Avoid areas where ground collapse may occur

5.3.3 Earthquake

In the event of a possible Earthquake, be ready to evacuate as directed by the Incident Controller.

Follow the recommended evacuation routes

Dangers Associated with Earthquakes

The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Most casualties result from falling objects and debris or collapsing structures. Injuries are commonly caused by:

- Partial building collapse, such as falling masonry, collapsing walls, falling ceiling plaster, etc.
- Flying glass from broken window
- Overturned bookcases, filing cabinets, fixtures, furniture, office machines and appliances.
- Fires, broken gas lines, etc. These dangers may be aggravated by lack of water due to broken mains.
- Fallen power lines.
- Inappropriate actions resulting from panic

During an Earthquake

- If you are inside:
  - Get under a sturdy table, desk or bed.
  - Brace yourself in an inside corner away from windows.
  - Move to an inner wall or corridor. (A doorframe or the structural frame or inner core of the building are its strongest points and least likely to collapse. They will also break the impact of any falling objects).
  - In an apartment building, the safest place is by the central reinforced core of the building, which is usually located by the elevator well.
  - Choose shelter which will provide an airspace if it collapses
  - Watch for falling objects - plaster, bricks, light fixtures, pots and pans, etc.
  - Stay away from tall shelves, china cabinets and other furniture, which might slide or topple over.
  - Stay away from windows, sliding glass doors, mirrors.
- If you are outside:
  - Stay there. Move away from the building, walls, power poles and lampposts. Electric power lines are a serious hazard - stay away from fallen lines. If possible, proceed cautiously to an open area.

5.3.4 Hurricane

The nature of a hurricane provides for more warning than other natural and weather disasters. A hurricane watch is issued when a hurricane becomes a threat to an area. A hurricane warning is issued when hurricane winds of 74 mph or higher, or a combination of dangerously high water and rough seas, are expected in the area within 24 hours.

Once a hurricane watch has been issued:

- The Project Management will enter into discussions with the EPCM and other relevant parties to evaluate the situation.
- Stay calm and await instructions from the Incident Controller
- Continue to monitor local TV and radio stations for information
- Coastal and low-lying areas will be evacuated early on.
- Designated shelters will be secured, boarding up windows and openings.
- Always ensure sufficient supplies of drinkable water & preserved food available for emergency situations.

Once a hurricane warning has been issued:

- Be ready to evacuate as directed by the Incident Controller.
- Leave areas that might be affected by storm tide or stream flooding

During a hurricane, remain indoors and, where shelter in a building available, consider the following:

- Small interior rooms on the lowest floor and without windows
- Hallways on the lowest floor away from doors and windows
- Rooms constructed with reinforced concrete, brick, or block with no windows

5.4 Wild Animals

In the case of an encounter with a wild animal, the following procedure must be followed:

- Move calmly and cautiously away from the animal
- Do not approach the animal
- Do not try to scare it away
- Do not look into the animal's eyes
- Do not attempt to feed the animal
- Do not use flash photography to take pictures of the animal
- Notify others of the danger and vacate the area.
- Report to Incident Controller

Bomb Threat or Explosion

Bomb threats are serious. Explosions themselves or an incorrect response to a bomb threat could result in panic, injury, or death as well as disruption to operations through forced shut downs or damage to property.

Threat by telephone:

- Do not hang up. Remain calm
- Take the caller seriously. Assume the threat is real
- If you have a digital phone with call display, look for the originating number
- Note any demands

Emergency Control in the event of threat or explosion:

- Inform the Security Manager who will act as Incident Controller immediately.
- Follow instructions of Security Manager
- If possible, evacuate personnel from the affected area.
- If not possible to evacuate - personnel to be informed to remain calm and find cover.
- Local Police Services / Defence Force / Professional Team to take charge on arrival.
- The Security Manager in consultation with the Police Services, to declare the work site safe and allow personnel to return to work.

5.5 Labour Unrest (Strikes & Riots)

In the event that a labour confrontation exists, it is advisable to respond collectively to the situation through the Main Controller, Incident Controller and Project Human Resources Manager.

- During the first signs of labour confrontation, the Main Controller will inform the Security Manager and Project Manager immediately.
- The Main Controller, Incident Coordinator and Human Resource Manager must attempt to contain the confrontation to the affected area.
- They must obtain a list of the grievances or reasons for the labour unrest and communicate this to the Project Manager.
- The Security Manager and Protection Services will take the lead if requested.
- The Main Controller, Incident Coordinator and Human Resource Manager will, on receipt of any grievance(s) or demand(s) from employees, consult with the Project Manager and decide on the appropriate action to take. They will have full authority to:
    - Communicate with any aggrieved person(s).
    - Liaise with employee representative or trade union.
    - Liaise with the labour department
- The Main Controller, Incident Coordinator and Human Resource Manager will discuss the grievance(s) and attempt to resolve the issue(s) whilst the employees return to their working areas. If this cannot be done, all parties involved will be advised to follow the Labour Relation procedure in filing for dispute.

5.6 Armed Attacks

In the case of an armed attack, the following procedure must be followed:

- Inform the Incident Controller immediately, who will summon the Security Manager and Police Services
- The Incident Controller will keep the Main Controller informed at all times
- If possible, the personnel will be evacuated from the affected area
- If not possible to evacuate, personnel to be informed to remain calm and find cover
- All employees to co-operate and not try to attack any perpetrator
- Local Police Services/Defence Force to take charge on arrival
- The Security Manager in consultation with the Police Services, to declare the work site safe and allow personnel to return to work.

5.7 War

- During the first signs of possible warfare or civil unrest in Turkey, the Project Management will enter into discussions with EPCM and other relevant parties to evaluate the situation.
- Stay calm and await instructions from the Incident Controller
- Continue to monitor local TV and radio stations for information
- All project personnel will evacuate affected areas as per instruction at the time

5.8 Absence of Utilities or Services

- Monitor local TV and radio stations for information
- All project personnel will evacuate affected areas as per instruction at the time.
- In the event that utilities or services are interrupted, do not use camp stoves, kerosene heaters or barbecues indoors as they emit Carbon Monoxide.
- Always ensure sufficient supplies of drinkable water & preserved food available for emergency situations
- Ensure that cellular and satellite phones have sufficient power at all times.
- Ensure all vehicles have sufficient fuel available at all times.

6 EMERGENCY DRILLS

6.1 Emergency Drill Programme

Emergency Drills are used to condition project personnel for different scenarios. A programme of scheduled regular exercises will be published by the Health and Safety Manager after consultation with the Medical Team after one month of commencement of construction activities. Regular exercises will familiarize and test by simulation the required procedures and assist in overall Emergency Preparedness. The drills will be reviewed and lessons learned will be communicated to all relevant parties. These lessons learned will also be focused on during follow-up drills.

- Drill program will relate to the scenarios identified in the Risk Assessment.
- Drills shall be performed for each identified scenarios/location.

Emergency Drill training is conducted on regular intervals according to the Emergency Drill Schedule and cover:

- Emergency Drills for specific situation: Medical Emergencies, Fire Drills, Specific
- Scenario Drills Disasters and Evacuations.
- Project specific alarms and methods of raising an alarm
- Procedures in the event of an emergency
- Procedures and methods of evacuation
- The location of assembly areas
- Post-evacuation actions
- Circumstances where evacuation may need to be modified or where it is not the most appropriate action to take

6.2 Emergency Drill Schedule

The Emergency Drill Schedule will be planned for 6 months by the Project HSE Manager. The schedule could be influenced by variable factors and will be updated and distributed accordingly.

7 GLOSSARY

- **EPCM – Worley Parsons**
- **SYA JV:** SICIM-YUKSEL-AKKORD JV
- **Crisis Management Team (CM Team):** The CM Team ensures fulltime emergency preparedness, and in the event of an emergency situation, take control and responsibility for decisions. The team consist of the Main Controller (MC) and Incident Controller (IC)
- **Emergency Drill:** A structured exercise to familiarise project personnel with the safety procedures and the actions that must take in the event of an emergency situation. It consist of Medical Emergencies, Fire Drills, Specific Scenario Drills, Environmental Disasters and Evacuations
- **Emergency Response (ER):** The rapid response effort executed to control and mitigate the impact of an emergency situation on the project.
- **Emergency Response Plan (EMERGENCY RESPONSE PROCEDURE):** The documented plan that describes the organization, actions and other requirements necessary to effectively respond to emergency situations.
- **Emergency Response Plan Management:** Ensures the realisation of suitable resources, logistics and execution of requirements. Consist of the Project Manager, Construction Manager, Health Safety Environment Manager and Human Resources Manager.
- **Emergency Response Team:** The Emergency Response Team is specifically trained in dealing directly with the incident and bringing the situation under control. The Emergency Response Team consist of the Project Doctor, Project Nurse, Ambulance Driver, First Aiders, Incident Controllers, Fire Wardens and Security Supervisor.
- **Emergency Situation:** An immediate, urgent, and critical situation of a temporary nature, regardless of its cause, which may seriously endanger or threaten the lives, health, or safety of individuals.

- **First Responder on Scene:** Those individuals who respond in the early stages of an incident and who aid in the protection of life, property and the environment and initiate to alert the required people to assist.
- **Incident Controller:** The Incident Controller has overall directive responsibilities during any emergency. He will direct procedures and take necessary precautions to minimize the extent of the Emergency Situation and initiate recovery measures where appropriate.
- **Injured Party:** A Person that sustained injuries OR Ill health during an incident or as result of an incident / natural cause.
- **Main Controller:** The Main Controller will assume overall strategic responsibility during all emergencies, and is required to inform and update the Project Manager
- **Medical Emergency:** An event that requires rapid emergency response and treatment
- **Project Personnel:** All people on-site or at a specific Work Area, including authorised visitors and EPCM employees. Alternatively referred to as the Workforce.
- **Work Area:** The immediate area of working related activities. It could be defined by the Incident Controller to include specific areas or the whole project site

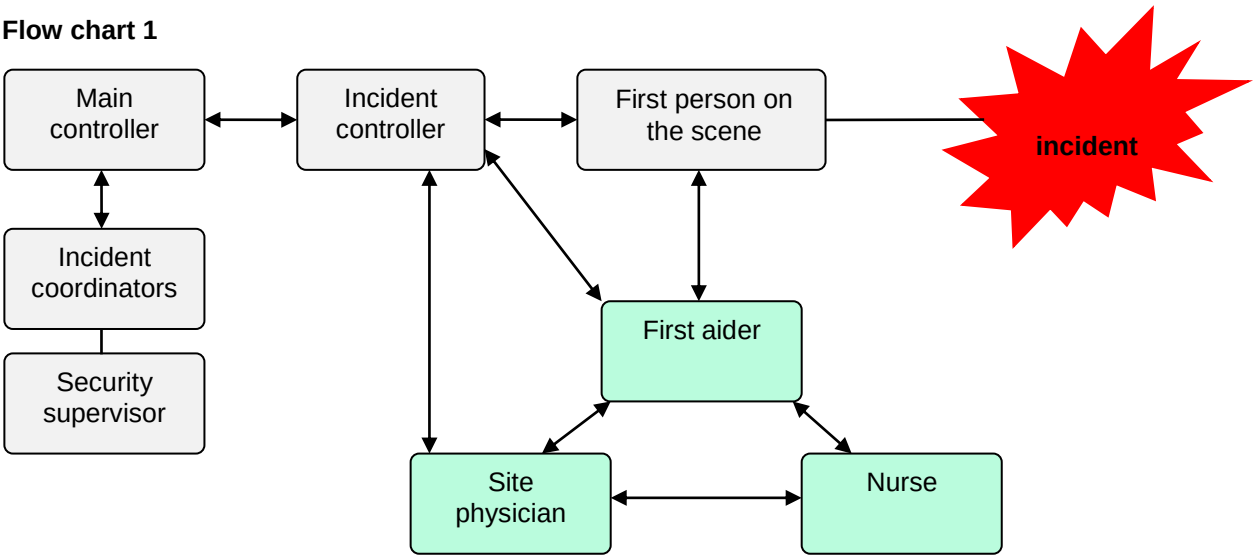
Attachment 1 – Contact list

Position / Institution	Name	Contact Details
Project Manager Owner of EMERGENCY RESPONSE PROCEDURE	Paolo Tenani	Email: paolo.tenani@syatanap.com Phone: 0537 597 18 97
Construction Manager **Main Controller** **Alternative Main Controller** (For when Construction Manager is not available)	Claudio Mancastroppa Giulio Carminato	Email: claudio.mancastroppa@syatanap.com Phone: 0539 304 4802 Email: giulio.carminato@syatanap.com
HSE Manager **Incident Controller** **Alternative Incident Controller** (For when HSE Manager is not available)	Mohamad Noor Bulent Ozay – Class A exp.	Email: mohamad.noor@syatanap.com Phone: 0531 250 9525 Email: bulent.ozay@syatanap.com Phone: 0532 333 6472
Human Resources Manager	Giuliano Savarese	Email: giuliano.savarese@syatanap.com Phone: 0534 296 9379
Medical & Emergency Service Provider	Dr. Ali Atay (Sivas) Dr. Mehmet Kurt (Erzincan)	Phone: 0507 407 7415 Phone: 0543 220 6171
Tier 1 Medical Evacuation Regional Hospital /	Dr.	Phone: Email:
Tier 2 Medical Evacuation Medical Centre	Dr.	Phone: Email:
Tier 2 Medical Evac Air Support	Dispatcher	Phone:
Tier 3 Medical Emergency International Air Support Extra Medivac Procedure Speciality Assist	Dispatcher	Phone:
For Travelling via		Phone:
Fire Department	Dispatcher	
Police Department	Dispatcher	
Doctor Back to back		
Project Nurse 1		
Project Nurse 1 Back to back		
Project Nurse 2		

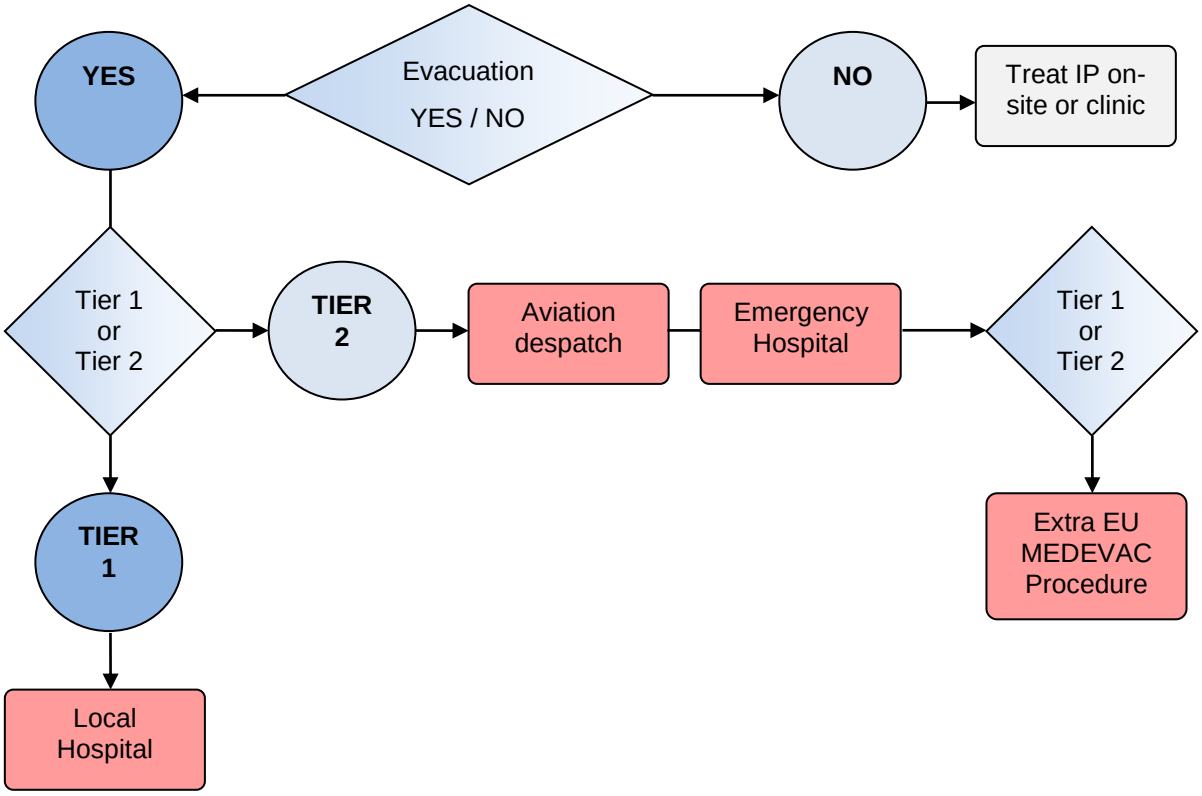
Project Ambulance Driver		
Project Ambulance Driver 2		
First Aider Area 1		
Incident Coordinator Area		
Fire Marshal Area 1		

Attachment 2

Flow chart 1



Flow chart 2



WorleyParsons
resources & energy

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc. No.	**TKF-PLN-ENV-PL3-021**	**Rev**	**Status**
		P4-1	**Re-IAA**
Document Title	**Environmental Emergency Response Plan**		
Tag Nos			
Contractor	**Tekfen Construction and Installation Co., Inc.**		
Contractor Document No.	**TKF-PLN-ENV-PL3-021**	**Contractor Rev**	**P4-1**

Tick Box	Descriptions	Signature & Date
☐	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
☐	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

TEKFEN CONSTRUCTION	**TANAP** **TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT** **LOT 3**	TANAP

ENVIRONMENTAL EMERGENCY RESPONSE PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP Approval
P4-A	DIC	24.07.2015	Discipline Internal Check	TASI	BAGS	KOPM	
P4-B	IDC	27.07.2015	Inter-Discipline Check	TASI	BAGS	KOPM	
P4-C	IFR	26.08.2015	Issued for Review	TASI	BAGS	KOPM	
P4-0	IAAC	17.09.2015	Issued As Approved for Construction	TASI	BAGS	KOPM	
P4-1	Re-IAA	20.11.2015	Re-Issued As Approved for Construction	TASI	BAGS	KOPM	

DOCUMENT REVISION HISTORY

REV.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	24.07.2015	First issue
P4-B	IDC	27.07.2015	Issued for IDC incorporating DIC comments
P4-C	IFR	26.08.2015	Issued for Client Review
P4-0	IAAC	17.09.2015	Issued As Approved for Construction
P4-1	Re-IAA	20.11.2015	Re-Issued As Approved for Construction Attached form TKF-ENV-FRM-001 has been revised.

HOLDS

No.	Section	Description	Input From	Planned Date

INDEX

1. PURPOSE

This purpose of this Plan is to define criteria for emergency preparation and response with the purpose of preventing, minimizing and/or mitigating environmental impacts. The Plan provides a framework for proper response to emergency situations that may occur and may have environmental impacts.

2. SCOPE

This plan applies to emergency situations that could have significant environmental impacts to resources found on the applicable administrative unit of the Forest Service. Spills or discoveries of hazardous materials, and wildland fires are emergencies for which employees may lessen, mitigate, or prevent undesired environmental effects by taking prompt action as described in this plan. This Plan has been synchronized with the plans and procedures of the Contractor's HS plans that are created to focus on human safety and health. This plan covers all activities at TANAP Project by Contractor, regardless whether the job is being executed directly by Contractor employees or by Subcontractors' employees.

3. REFERENCES

TKF-PLN-HSM-PL3-001- Project HS Plan

TKF-PCD-HSE-PL3-004- Crisis and Emergency Response Procedure

TKF-PCD-HSE-PL3-003- Incident Investigation and Reporting Procedure

TKF-PLN-ENV-PL3-001- E&S Management Plan

TKF-PLN-ENV-PL3-008- Ecological Management Plan

TKF-PLN-ENV-PL3-009- Waste Management Plan

TKF-PLN-ENV-PL3-010- Pollution Prevention Plan

4. DEFINITIONS

Accident: An accident is any unplanned event that results in personal injury, property damage or environmental damage.

Incident: An event or chain of events which has caused, or could have caused injury, illness and /or damage (loss) to assets, the environment or Contractor reputation.

An Incident may result in one or more of the following:

- Fatality/death;
- Personal injury/illness;
- Loss of production;
- Interruption of work;
- Damage to assets;
- Negative environment impact
- Spill or release of hazardous substances;
- No harm by chance (in the case of a Near Miss);

Near Miss (NM): An undesired event that, under slightly different circumstances, could have resulted in harm to people, damage to assets or environmental harm. A near miss is an incident involving the unintentional transfer of energy but has no negative consequence.

Environmental Incidents (EI): Unplanned event or chain of events that has or could have a negative impact on the environment.

- **Environmental Incidents Level I: MAJOR (severity):** Any irreversible damage/degradation to the quality/availability of habitats and Socio Economic conditions at international level. Releases to the atmosphere more than 1000 kg gas, and spills to land and water more than 10 tons (m^3) are Level 1 incidents. These are reportable via incident investigation form.
- **Environmental Incidents Level II: SERIOUS (severity):** A critical situation typically including material damage to an important resource or a reasonable expectation of impending damage. Releases to the atmosphere more than 100 kg gas and spills to land and water between 1-10 tons (m^3) are Level 2 incidents. These are recordable and reportable via incident notification form.
- **Environmental Incidents Level III: MEDIUM (severity):** Limited harm to the environment, but could result in damage to an important resource. Poses no danger to the public and is reversible. Releases to the atmosphere less than 100 kg gas and spills to land and water between 10 liters - 1 ton (m^3) are considered Level 3 incidents. These are reportable via incident notification form.
- **Environmental Incidents Level IV: MINOR (severity):** No immediate threat or limited harm to environment, requiring minor corrective action. Releases to the atmosphere less than 25 kg gas and spills to land and water between 1 - 10 liters are considered Level 4 incidents. These are reportable via initial incident notification form.
- **Environmental Incidents Level V: LOW (severity):** No immediate threat or limited harm to environment, requiring on the spot minor corrective action. Releases to the atmosphere less than 10 kg gas and spills to land and water less than 1 liter are considered Level 5 incidents. These are reportable via initial incident notification form.

Level 1 Investigation: A basic investigation involving Project personnel initiated after any incident with the Incident Potential Matrix factor of B2 or less. (TKF-PCD-HSE-PL3-003- Incident Investigation and Reporting Procedure, Attachment-2 Incident Potential Matrix)

Level 2 Investigation: Is a detailed investigation, Incident Potential Matrix factor of B3 or higher, carried out by a team approved by Project Manager. This team may include specialists brought in to assist in the investigation and the involvement third party.

Corrective action: Steps taken to correct non-conformance and to prevent recurrence by eliminating the cause, or causes, of an existing non-conformance.

Primary containment: Tank, vessel, pipe, rail car or equipment intended to serve as the primary container or used for the transfer of the material. Primary containers may be designed with secondary containment systems to contain and control the release. Secondary containment systems

include, but are not limited to, tank dykes, curbing around process equipment, drainage collection systems into segregated oily drain systems, the outer wall of double walled tanks, etc.

Uncontrolled Release/Event: Any uncontrolled event where fluids that are flammable, corrosive or toxic fluids; or inert gases that could deplete oxygen levels; or otherwise inert fluids by nature of their temperature or pressure are considered dangerous to people, *are released intentionally for a purpose (maintenance etc.)* from primary containment but results in the need for immediate corrective action (e.g. shutdown, evacuation or isolation) because of inability to control to mitigate the effects of loss of containment. Fugitive emissions and minor flange, hose joint or seal liquid leaks which can be contained by capturing the fluid for safe disposal should not be included.

Unplanned Material Release or "Spill": An unplanned or *accidental loss of primary containment* of oil or other materials (including untreated effluent, sanitary waste water, etc.), irrespective of any secondary containment or recovery. The status of uncontrolled or other material release (whether it is an environmental incident or not) will be defined by the fact if the release has reached the environment or not.

5. METHOD

5.1. ENVIRONMENTAL INCIDENT RESPONSE

Potential environmental incidents and associated responses and responsibilities are listed in below tables. Mitigation measures from the Contractor's E&S Plan, Pollution Prevention Plan, Waste Management Plan and associated plans will be implemented to counter the occurrence of such events.

DUST

Incident	Response	Responsibility
Dust event due to a particular construction activity	Dust generating activities will cease under the direction of Environmental Advisor/ Inspector or Site Supervisor until the adverse conditions diminish.	Environmental Advisor/ Inspector Site Supervisor Social Advisor
Community complaint relating to dust	Any dust complaint received from the community will be recorded, promptly investigated and addressed.	Environmental Advisor/ Inspector Site Supervisor

SOIL/WATER

Incident	Response	Responsibility
Uncontrolled release of water/wastewater that exceeds a permit emission limit/condition	Discharge will cease. Water/wastewater will be treated to meet acceptable criteria prior to release. Corrective/preventive action to be implemented.	Environmental Advisor/ Inspector Site Supervisor
Oil or fuel spill	Machinery or activity to cease, if safe to do so. Spill kit to be used to contain and clean up spill. Machinery or process not to start operation until an inspection and necessary repairs/corrective action has been implemented.	Environmental Advisor/ Inspector Site Supervisor

Release/spill of other hazardous material/waste	Activity will cease or source of the release will be stopped, if safe to do so. Material Safety Data Sheet (MSDS) will be referred to evaluate the hazards of the material. The spill will be contained and cleaned up to prevent run-off into storm water drains.	Environmental Advisor/ Inspector Site Supervisor
Temporary erosion and sediment controls are damaged or ineffective	Controls are to be repaired /replaced as soon as possible.	Environmental Advisor/ Inspector Site Supervisor
Waste sub-contractor illegally disposing waste in an unauthorized facility	Immediate contact with the sub-contractor to establish reasons, request transfer forms for authorized facility and hold all payments to sub-contractor until corrective actions are taken.	Environmental Advisor/ Inspector Environmental Manager Site Supervisor
Heavy rainstorm and flood beyond the capacity of drainage system and/or camp WWTPs	Investigate the reasons for failure and prepare an incident report including details of rainfall.	Site Manager

NOISE

Incident	Response	Responsibility
Noise levels that exceeds a permit limit/condition	Noisy activities will cease or reduce under the direction of Environmental Advisor/ Inspector or Site Supervisor. Remedial measures will be implemented prior to recommencing work.	Environmental Advisor/ Inspector Site Supervisor
Community complaint relating to noise	Any noise complaint received from the community will be recorded, promptly investigated and addressed.	Environmental Advisor/ Inspector Site Supervisor Social Advisor

WILDLIFE

Incident	Response	Responsibility
Human-wildlife conflict	Excluding the incidents resulted in harm to workers, establish reasons for incident and corrective/preventive action to be implemented for reoccuring.	Environmental Advisor/ Inspector Site Supervisor
Community complaint relating to wildlife injury	Any wildlife related complaint received from the community will be recorded, promptly investigated and addressed.	Environmental Advisor/ Inspector Site Supervisor Social Advisor

Discovery of contaminated material on-site (e.g. underground fuel storage tanks or buried agricultural pesticides or insecticides) should not be considered as Contractor related incidents. The area of concern will be fenced-off as “no-go” zone and the Site Manager will be immediately informed for further action.

Discovery of items of heritage value will be managed as per Contractor's Cultural Heritage Management Plan. The chance finds should not be considered as Contractor related incidents.

5.2. RECORDS AND REPORTS

5.2.1. Full Investigation Report

For Environmental Incident Levels I-II and III (major, serious, medium), the Incident Investigation Form provided in TKF-PCD-HSE-PL3-004- Crisis and Emergency Response Procedure will be issued within 3 days, to Project HS&ES Manager, Project Manager, EPCM, TEKFEN Corporate HSE manager and TEKFEN Operations HSE Manager. The report may be revised and re-issued in case of new findings / evidences / results after submission of the report.

Investigation report will minimum include the following:

- Report number
- Date of the incident
- Hour of the incident
- Location of the incident
- Provisional category
- Type of incident
- Injured personnel information
- Witness statements
- Photographs, drawings, sketches or diagrams
- Investigation Team
- Full description of the incident
- Details of the physical injury
- Incident Category
- Immediate (direct) causes of the incident
- Underlying (basic) causes of the incident
- Actions to prevent recurrence

5.2.2. Pre-notification Forms

For Environmental Incident Levels IV and V (minor, low), the Environmental Incident/Spill Notification Form provided in Annex 1 of this Plan will be issued within 5 days, to Spread Manager, Project HSES Manager and EPCM.

Environmental Incident/Spill Notification Form will minimum include the following:

- Report number
- Date of the incident
- Location of the incident
- Type of incident

- Description of the incident
- Details of the impacted area and pollution occured
- Incident Category
- Immediate (direct) causes of the incident
- Actions for clean-up/response

5.2.3. Statistical Records

CONTRACTOR will keep statistics of incidents and will report to EPCM in regular basis (Monthly Reports, Monthly Meetings, etc). They will be reported to EPCM via incident register provided in Annex 2.

CONTRACTOR Management will evaluate the statistical records and will take necessary actions if necessary.

6. RESPONSIBILITIES

Project Manager

Project Manager is responsible to;

- Making an initial assessment of the severity of an incident
- Instigating the appropriate investigation process
- Appoint the Level 2 Investigation Team
- Accepting the Incident Report and allocating the resultant actions.

Project HS&ES Manager

Project HS&ES Manager is responsible for assuring the quality of the investigation report and the data entered into the Accident and Incident Reporting database.

Environmental Manager:

Environmental Manager is responsible to;

- Review the Incident Investigation Report to ensure an accurate document with proper root cause analysis
- Ensure that action items are clear and provide the Responsible Party with adequate details to implement the action item
- Report all Incidents to EPCM.

Environmental Advisor/Environmental Inspector

- Making an initial assessment of the incident/spill
- Advising clean-up/response actions
- Filling in the Incident Report and/or Environmental Incident/Spill Notification Form and submitting it to Environmental Manager.

All Employees

Any person involved in or observing an incident with environmental consequences/spill must immediately report it to his/her supervisor.

ANNEX-1: Environmental Incident/Spill Notification Form

Form Sıra No: TKF-HSE-SPx-ENV-xxx	**ÇEVRESEL OLAY / DÖKÜNTÜ BİLDİRİM FORMU** **ENVIRONMENTAL INCIDENT / SPILL NOTIFICATION FORM**				TEKFEN CONSTRUCTION
Saha & Firma / Site & Company	**LOT 3 - Spread X** **TEKFEN** **taşeron/subcontractor**				
Olay Yeri / Incident Location	**KP_xxx**	**Olay Tarihi /** Date of Incident	**d/m/y**	**Olay Zamanı /** Time of Incident	**00:00**

KISA AÇIKLAMA VE KAZA TİPİ / BRIEF ACCOUNT AND TYPE OF INCIDENT								
☑ **Döküntü /** Spill	☐ **Yaban hayatı /** Wildlife	☐ **Diğer/** Other						

☐ **DÖKÜNTÜ DETAYLARI /** DETAILS OF SPILL				
Dökülen madde tipi / Type of material spilled				
Dökülen madde miktarı / Amount of material spilled	kg or Lt			
Döküntü kaynağı / Source of spill				
Etkilenen alan / Areas affected	☐ **Toprak/**soil	☐ **Su/**water	☐ **Beton/**concrete	☐ **Hava/**air
Etkilenen alan boyutu/ Dimensions of areas affected	m2			
Kaldırılan toprak miktarı/ Amount of soil removed	kg			

OLAYA KARIŞANLARIN TANIMI (kişiler, görevleri, araçlar, plakalar vs) / DESCRIPTION OF THE ONES INVOLVED IN INCIDENT (people, their tasks, vehicles, plates etc)

KÖK SEBEPLER SEBEPLER / ROOT CAUSES

ALINAN AKSİYONLAR (durdurmak, temizlemek için) / ACTIONS TAKEN (to stop, control and clean-up) (**önleyenleri/temizliği yapanları not edebilirsiniz**/define the crew who stoped and cleaned-up)

Yorumlar ve Düzeltici Önlemler (resimler, çizimler vs) / Comments and Corrective Actions (pictures/sketches)

RAPORLAYAN / REPORTED BY				
ADI SOYADI / NAME SURNAME	**ÜNVAN/** TITLE	**TARİH /** DATE	**İMZA /** SIGNATURE	**İRTİBAT BİLGİLERİ /** CONTACT INFO

ANNEX-2: Incident Register

INCIDENT REGISTER - LOT 3

Reporting Period:

Total of incidents	
To date	This reporting Period

Total of incidents to date	
Open	Closed

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close By	Actual Close-out Date	

WorleyParsons
resources & energy

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc.No.	FRN-PLN-SOC-PL1-001	**Rev**	**Status**
		P4-0	**IAA**
Document Title :	EMPLOYMENT AND TRAINING PLAN		
Tag Nos.			
Contractor:	**FERNAS İNŞAAT A.Ş.**		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAA. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAA. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

FERNAS®	**TANAP** TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT (LOT-1)	TANAP WorleyParsons

EMPLOYMENT AND TRAINING PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	APPROVED
P4-A	DIC	09.05.2015	Discipline Internal Check	CETB	GULA	OZKE	
P4-B	IDC	11.05.2015	Inter-Discipline Check	CETB	GULA	OZKE	
P4-C	IFR	06.06.2015	Issued for Review	CETB	GULA	OZKE	
P4-0	IAA	17.06.2015	Issued as Approved	CETB	GULA	OZKE	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	09.05.2015	Discipline Internal Check
P4-B	IDC	11.05.2015	Inter-Discipline Check
P4-C	IFR	06.06.2015	Issued for Review
P4-0	IAA	17.06.2015	Issued as Approved

HOLDS

No.	Section	Description	Input From	Planned Date
1				

TABLE OF CONTENTS

1. PURPOSE

This plan objective is intended to ensure to maximize the local employment by identifying employment targets throughout the construction phase of the project in LOT-1. The project plan will include social commitments. This plan is a live document and will be updated according to the project needs.

In addition, the business skills specified in the ESIA will comply with the employment strategy setting out the actions to be taken to increase local employment opportunities.

CONTRACTOR will be away from public or ethnic origin, religion, language and gender discrimination and ensure equal opportunity during recruitment phase.

The plan will include the purposes below:

- Identification of employment needs,
- Identification of personnel training needs,
- Identification of sources related to provide trainings to personnel,
- Maximum efficiency to meet the training needs,
- Maximize local employment during the construction phase for the needs of unskilled and semi-skilled labour.

(Reference: Annex 5.4 of ESIA)

2. SCOPE

The project that CONTRACTOR will be conducted in LOT-1 will be needed in the period in which about 1200 people, with the greatest number of employees work, including subcontractors. Approximately distribution thereof;

Camp staff (the dining hall, cleaning, security etc.)	: 300 people
Operator	: 100 people
Welder	: 250 people
Workers	: 300 people
Technician and Foreman	: 100 people
Driver	: 50 people
Manager and Engineer	: 100 people

Recruitment of the needed personnel will be specified in section 5.2 of this plan according to local employment process and meetings that local governments and other stakeholder will contribute will be held to inform the local community. This meeting will be given on where and when to ads in a local newspaper on hand leaflets to be printed, information will be given to local authorities to make the announcement which aims to inform all possible candidates / applicants. Social Team and the HR department of CONTRACTOR will attend these meetings and EPCM will be informed before the meetings.

CONTRACTOR shall carry out the recruitment process from Ankara office and Local recruitments from Camp sites. Appendix-2 to be used in the application form and whether these records are categorized by the HR and Social department according to the nature of their work for easy access to the central office will be kept in soft and hard copy. Project staff will be needed during the first revision of this record.

Before signing the agreement for the project with the workers, the workers will be informed in detail about legal rights, the scope of the work they do, the contract conditions.

Mobilization of workers will be part by part based on the nature of work to be done, for example, two weeks before the beginning of the pipe welding, welders will start to work to be sent to camps where they stay (For Site Orientation, HS Induction, etc.)

A clear communication system will be provided for workers to get benefit of all rights in the laws and contract and workers will not be punished because of their complaints. CONTRACTOR (including subcontractors) will organise internal audits every six months to control the functioning of this system and will share the results of these audit reports with EPCM.

Workers employed for the project construction in LOT-1, will be retrenched at the end of the construction/work because of project-based employment. This is what they deserve while legally dispose of all payments to be made and kept records on these payments.

2.1 Abbreviations

CLIENT **:** TANAP Doğalgaz İletişim A.Ş.
Project **:** Trans Anatolian Natural Gas Pipeline Project (TANAP)
EPCM **:** Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi
CONTRACTOR **:** FERNAS Insaat A.S.
ETP **:** Employment and Training Plan
CLO **:** Community Liaison Officer
HR **:** Human Resources
ESIA **:** Environmental and Social Impact Assessment
ESMP **:** Environmental and Social Management Plan
KPIs **:** Key Performance Indicators

3. LEGISLATION FRAMEWORK AND REFERENCE DOCUMENTS

The legislation framework related to the management of employment is summarized in this section.

The employment activities conducted for providing as identified in this document will be undertaken to support the CONTRACTOR construction activities with adherence to Turkish regulations.

Additionally all employment activities will be conducted in compliance with all applicable Turkish laws, regulations, the standards and best-practices that support the protection, preservation and enhancement.

In addition to the above stated reference documents will be used as a reference during the all construction activities for the employment;

- Turkish Labour Law No: 4857 and its Pertinent Regulations,
- Turkish Workers Health and Safety Law No: 6331 and its Pertinent Regulations,
- The Project ESIA Report,
- Chapter 4 of ESIA Report,
- ESIA Report Appendix 5.4-Employment and Training Plan,
- Environmental and Social Requirements for Contractors (ILF-SPC-ENV-GEN-001),
- Environmental and Social Management Plan (ILF-PLN-ENV-GEN-001),
- Stakeholder Engagement Plan (GLD-PLN-SOC-GEN-001),
- Grievance Management Procedure (TNP-PCD-SOC-GEN-001),
- Compliance with Legislative Requirements Procedure (ILF-PCD-PAL-GEN-001),
- CONTRACTOR Environmental and Social Management Plan (FRN-PLN-ENV-PL1-001),
- CONTRACTOR Environmental and Social Monitoring Plan (FRN-PLN-ENV-PL1-011),
- CONTRACTOR Community Relations Management Plan (FRN-PLN-SOC-PL1-005),
- CONTRACTOR Community Safety Management Plan (FRN-PLN-SOC-PL1-004),
- CONTRACTOR Traffic Management Plan (FRN-PLN-SOC-PL1-003),

4. ROLES AND RESPONSIBILITIES

4.1 Project Manager

- The Project Manager has overall responsibility for Employment and Training Management issues of the LOT-1 construction works,
- Will implement and approve all activities of the plan,

4.2 Construction Manager

- Will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with the CONTRACTOR ETP,
- Will support Social Team for activities of the plan.

4.3 Social Manager

- Will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with the CONTRACTOR ETP,
- Will implement Employment and Training Plan,
- Will evaluate the compliance with laws, regulations and CLIENT Project requirements,
- Will all employment issues report to the Project Manager,
- Will be responsible of organizing the recruitment awareness,
- Will follow procedures related of employment and training for site-specific issues.
- Will create all necessary reporting to EPCM.

4.5 Community Liaison Officer

- Will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with the CONTRACTOR ETP,
- Will implement Employment and Training Plan,
- Will evaluate the compliance with laws, regulations and TANAP Project requirements,
- Will organize cooperation activities with Sub-Contractor,

- Will report employment, which are received or observed written or verbally, to Social Manager,
- Will follow the results of complaint and report on weekly, monthly and annual basis to the Social Manager,
- Will implement Grievance Management Procedure for the complaints received, related to the employment process.

4.6 Human Resources Department

- Will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with the CONTRACTOR ETP,
- Will evaluate the compliance with laws, regulations and CLIENT Project requirements,
- Will follow procedures related of employment and training for site-specific issues,
- Will record general and local employment rates and processes,
- Will inform to workers about contract details and legal rights,
- Will participate & Support the audits that will be done by EPCM / TANAP or other dedicated third party auditors.
- Will assure that salary payments of all employees (including its subcontractor employees) will be done on time, in compliance with the national legislations

CONTRACTOR will be ensured the implementation of the commitments stated in the ESIA (the parts about Community Safety (Chapter 4, Appendix 5.4)).

CONTRACTOR is responsible for the management of employment issues during the construction of the project and implementation of related management plan.

5. REQUIREMENT OF THE PLAN

CONTRACTOR will maximize local employment for skilled and unskilled labour by ensuring implementation of ETP by Sub-Contractors during the pre-construction and construction. To implement that local employment CONTRACTOR will communicate local authorities to identify the type of workers needed. CONTRACTOR will oversee the subcontractors to provide this. At the same time, non-discriminatory, transparent, public and fair recruitment process will be ensured by contractor. Social Manager with internal auditors will make audits to monitor recruitment process and will share the results of audits with EPCM.

The CONTRACTOR will provide the development of specific training programs and will get an approval from EPCM, in accordance with the training matrix containing the minimum requirements at every stage of project.

CONTRACTOR (including the Sub-Contractor) will provide clear information about the recruitment process, will inform local people about employment opportunities through various channels such as mukhtar and local associations and will distribute information materials such as pamphlets, posters etc.

The CONTRACTOR will ensure all staff has legally required training. It will be ensured by the contractor that defined asks of special education of project will be taken by all staff and they will be registered. Such training would allow to be given by qualified and certified trainers if necessary.

5.1 General

- CONTRACTOR will organize internal audits to monitor recruitment process,
- The recruitment process will be stated clearly in the job description and work time, salary, working hours, required qualifications and so on. Salaries will be paid on time to all employees (including Sub-Contractor employees) and in compliance with national legislations. Detailed information will be provided in the subject,
- Employment contract will be prepared in accordance with legal requirements in two copies and one copy will remain the employee,
- The temporary nature of the jobs will be emphasized in all the recruiting stage. (In order to assess the consequences of leaving farming activities that they already carry out),
- Training needs of workers will be identified and employees will have all legal trainings related to the project. None of the employees will start working without having initial trainings, (Site induction, the law determined by the HS training, Environmental and Social training etc.)
- In order to receive job-specific training for the employee's regular training program will be planned and implemented during the construction phase,
- All employment records will be kept regularly and conveyed to the EPCM.
- CONTRACTOR will implement the grievance process for managing all community complaints related to the recruitment process, and will report monthly to EPCM on the complaints received and on grievance resolution and redress as stated in the Community Relations Plan. Workers' grievances will be recorded and followed up in accordance with the Grievance Mechanism. Community Relations and Human Resources Department will co-operate for workers' complaints to be handled in accordance with the grievance mechanism, Turkish laws and legislations; and TANAP Project Requirements.
- CONTRACTOR will ensure that all employees receive information about disciplinary actions, during induction training. Camp Rules will also be posted in the construction camps in the areas that are used widely by the employees.
- CONTRACTOR will prepare a retrenchment plan, with the aim of reducing the impacts of end of employment contracts In case of collective dismissals, a retrenchment plan will be prepared by CONTRACTOR to reduce impacts on workers once opportunities will end and will be put into application by HR Department. 30 days before the dismissal process starts, National Employment Service will be

informed with a complete dismissal list to ensure the all legal rights of workers are under protection of Turkish legislations.

5.2 Recruitment

- Local employment process will start with affected villages in 5 km corridor, then extent to district level, then province level,
- HR or admin department will be responsible for recruitment,
- For workers rotations, working conditions, leaves, emergency etc. compliance with national legislation will be considered,
- In consideration of the employment needs and available local work skills, local residents will be employed to the extent possible,
- Recruitment process will be transparent, public and non-discriminatory and open with respect to ethnicity, religion, sexuality, disability or gender
- Through distinct channels to ensure wide distribution of information, employment opportunities will be disclosed including unskilled, semi-skilled and skilled positions,
- On the job descriptions, working conditions and possible duration of the work, comprehensible information will be provided,
- Employment opportunities such as part time jobs will emerge as the pipeline construction proceeds along the route, the recruitment for this part time jobs will be conducted from the nearby residential areas, until the construction activity moves to another location,
- Candidates will fill out job application forms including personal details and these forms will be considered. Previous job applications will also be taken into consideration,
- While assessing the application forms, a fair screening process will be executed,
- Face-to-face interviews will be made with the candidates that pass the first screening,
- Contract will be signed with the workers subsequent to recruitment, All workers will have contracts describing conditions of work and will have the contents explained to them
- All contracts and employment records of the workers will be kept,
- All workers will receive at least the minimum wage as defined by Labour Law and relevant regulations.

5.3 Training

- Fully comprehend workers' health and work safety issues, including the use of personal protection equipment,
- Understanding all the aspects of environmental and social requirements of the project particularly in terms of the environmental, social and cultural sensitivities of the areas through which the pipeline and other facilities will be constructed,
- Fully understand the potential impacts of the Project, the mitigation measures that have been adopted to address those impacts and how and where to apply these measures,
- How the management and monitoring requirements of the project will be handled and how they will be implemented in line with the ESMP,
- Being aware of the roles and responsibilities of CONTRACTOR staff and EPCM representatives,
- Fully understand the content and scope of the environmental and social management plans/procedures to be followed, Environmental and Social Policy of CLIENT,
- Fully understand the procedures to be followed in the event of a non-compliance with the environmental and social requirements,
- Understanding the emergency response procedures and actions required in case of unforeseen incidents,
- Fully understand the procedures for responding to the media, to unauthorized visitors to the site, and enquiries from the public,
- All training records of the workers will be kept,
- Retrenchment, unplanned demobilization, planned demobilization will be followed and organized by CC HR and CLOs. This is what they deserve while legally dispose of all payments to be made and kept records on these payments,

Training matrix given in Appendix-1.

5.4 Performance Indicators

Performance indicators of ETP are given below;

- The total number of employees that had trainings,
- Ratio of local and female employees,
- Training records, (education, history, and with the number of participants)
- The operational indicators and targets given in Table 4.1,
- Worker complaints,

Table 5.1 Key Performance Indicators (KPIs) for Employment

	Type	Period	Target
% of unskilled staff employed from affected provinces	KPI	Monthly	100%
Out of 100% unskilled staff employed from affected province, % that is employed from affected district	KPI	Monthly	90%
Out of the 90% of unskilled staff employed from affected district, % that is employed from affected villages	KPI	Monthly	80%
% of semi-skilled staff employed from affected provinces	KPI	Monthly	100%
# of semi-skilled staff employed from affected villages	Measure	Monthly	N/A
% of skilled staff employed from a national level	KPI	Monthly	80%
# of community complaints relating to recruitment issues	PI	Monthly	negative trend
# of worker grievances	Measure	Monthly	N/A
# of worker strikes	Measure	Monthly	N/A

6. MONITORING AND REPORTING

When there is work conducted by CONTRACTOR, internal monitoring of the construction activities will be conducted by Social Manager and CLOs. EPCM / TANAP or dedicated third party monitoring and auditing will be supported by CONTRACTOR. The execution of the activities at site by CONTRACTOR from the point of view of Employment and Training Management will be assessed by the CLO and will be regularly reported to the Social Manager who collects all the above stated feedback and reports the outcomes of the monitoring activity through monthly reports to EPCM. Reporting period of local employment status will be submitted to EPCM.

The outcomes of the employment related monitoring activities of CLO are reported in the monthly reports with detailed assessment of the case specific applications and results.

Reporting will cover below items;

- Reporting period will be monthly & weekly basis,
- Social KPIs will be included,
- Actual recruitment awareness meetings versus planned,
- Grievances related to recruitment process,
- Worker grievances - open (pending assessment, pending corrective action), closed (accepted, rejected), number per category,
- Number of industrial disputes,
- Number of demobilizations,

APPENDIX-1 Training Matrix

	Time	All Staff	Project Manager	Construction Manager	Social Manager	Env. Manager	HS Manager	CLO	Subcontractor
Site Induction	Beginning of Construction	X	X	X	X	X	X	X	X
HS&ES		X	X	X	X	X	X	X	X
Legislations			X	X	X	X	X	X	
Non-Compliance & Requirement			X	X	X	X	X	X	X
PPE		X	X	X	X	X		X	
Waste Segregation & Handling		X	X	X	X	X	X	X	
Hazard Awareness		X	X	X	X	X	X	X	

APPENDIX-2 Employment Application Form

İŞ MÜRACAAT FORMU

Fotograf

Adınız Soyadınız			Doğum Tarihiniz		
Doğum Yeriniz			Babanızın Adı		
Tahsil Durumunuz	Mezun olduğunuz Okul	Fakülte / Branş	Yılı	Derecesi	
Bildiğiniz Yabancı Lisanlar	**Derecesi (Çok iyi - İyi - Orta)**				
	Yabancı Dile Çevirme	Türkçeye Çevirme	Konuşma		
İngilizce					
Almanca					
Fransızca					
Rusça					
Diğer (.....)					
İkametgâh Adresiniz					
	Telefon :.....				
Babanızın	İşi				
	İş Adresi				
Annenizin	Adı				
	İşi				
	İş Adresi				
Medeni Haliniz	Evli ( ) Bekar ( )				
Eşinizin	Adı				
	İşi				
	İş Adresi				
Çocuklarınızın	Adı	DoğumTarihi	Adı		DoğumTarihi
	1).....		3).....		
	2).....		4).....		
Askerlik Durumunuz	Yaptım	Yapmadım	Terhis Tarihi		Rütbeniz
	( )	( )			
Trafik Ehliyetiniz Varmı?	Sınıfı	Tarihi	Nosu		Sürücü Kursu Adı
Şirketimizde ne gibi bir iş istersiniz	.....				
Kabul Edebileceğiniz İkinci Derecedeki İş	.....				
Talep Ettiğiniz Ücret (NET / BRÜT)	Aylık		Yevmiye		Saat
Kabul Edebileceğiniz Asgari Ücret	Aylık		Yevmiye		Saat

DAHA ÖNCE ÇALIŞTIĞINIZ YERLER

Çalıştığınız Müessese veya Firma Adı	Buralardaki Vazifeniz	Çalıştığınız Tarihler		Ücret	Ayrılış Nedeni
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SİZİ TANIYAN VE HAKKINIZDA MALÜMAT VEREBİLECEK KİMSELER

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İşbu müracaat formundaki suallere verdiğim cevapların tam, sahih ve doğru olduğunu ve hilafı hakikat beyanımla şirketi yanıltarak işe alınmış olduğumun anlaşılması halinde, herhangi bir ihbara ve tazminata hacet olmaksızın işime son verilebileceğini ve bundan dolayı herhangi bir takip, talep ve iddiada bulunmayacağımı ve eksik veya hilafı hakikat beyanımla işe alınmamdan dolayı şirketin uğradığı ve uğrayabileceği bilcümle zarar ve ziyanı tanzim edeceğimi kabul ve beyan ederim.

Tarih : ...../...../2014

Adı Soyadı
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UYGUNDUR
Tarih : ...../...../2014

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc. No.	**PLK-PLN-SOC-PL4-003**	**Rev.**	**Status**
		P4-2	**Re-IAA**
Document Title	**EMPLOYMENT AND TRAINING PLAN**		
Tag Nos.			
Contractor	**PUNJ LLOYD-LIMAK JV**		
Contractor Document No.	**PLK-PLN-SOC-PL4-003**		**Rev. P4-2**

☐	**C1/APP – <u>Reviewed & accepted</u>.** Construction may Proceed. For documents status IFR/IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC –** <u>Reviewed & accepted as marked</u>. Revise and resubmit. Construction may proceed. For documents status IFR/IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC –** <u>Reviewed & returned</u>. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR/IFA, resubmit for review Re-IFR/IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** <u>Reviewed not required</u>. Construction may proceed. Resubmit for information as IFI at next Revision Code.	
☐	**C5 /REJ–** <u>REJECTED</u>. Revise and resubmit. Construction shall **NOT** proceed. Revise documents and resubmit for review.	

Remarks:

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TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
Comment Response Sheet

TANAP

Document Title	EMPLOYMENT AND TRAINING PLAN	Originator	CELILE ERTUNC
Document Number	PLK-PLN-SOC-PL4-003	Rev	P4-1-C2

* O - Open, C - Closed

No.	Section/ Page	Comment	By	Response	By	Date	O/C *	Remarks
1		PLEASE SEE ATTACH WORD DOCUMENT						
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Additional Notes (if any)

Distribution

Date	Signature

Punj Lloyd / Limak PUNJ LLOYD-LIMAK JV	TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT 48" ONSHORE PIPELINE CONSTRUCTION LOT 4	TANAP WorleyParsons resources & energy

EMPLOYMENT AND TRAINING PLAN

Rev.	Status	Date	Update/Amendment Details	Prepared By	Checked By	Approved By	Approved by TANAP
P4-A	DIC	05/04/16	Discipline Internal Check	BABD	ASOV	DHAG	
P4-B	IDC	06/04/16	Inter Discipline Check	RICS	BHAG	DHAG	
P4-C	IFR	07/04/16	Issued for Review	DHAG	SDUT	KKSA	
P4-0	IAA	11/05/16	Issued as Approved	ZALT	KALF	MALB	
P4-1	Re-IAA	31/05/16	Re-Issued as Approved	ZALT	KALF	MALB	
P4-2	Re-IAA	14/06/16	Re-Issued as Approved	ZALT	KALF	MALB	

Punj Lloyd / Limak **PUNJ LLOYD-LIMAK JV**	**TANAP** **TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT** **48" ONSHORE PIPELINE CONSTRUCTION LOT 4**	TANAP WorleyParsons resources & energy

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DOCUMENT REVISION HISTORY SHEET

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P4-1	Re-IAA	31/05/16	Re-Issued as Approved
P4-2	Re-IAA	14/06/16	Re-Issued as Approved

HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1 PURPOSE AND SCOPE

This Plan is prepared as per the provisions of the Appendix 5.4 of ESIA of TANAP and in line with the requirements stated in it. This plan also covers the policies, compatible with the commitments stated in Appendix 4.7 of the ESIA report of TANAP. Implementation of the Employment and Training Plan is central to maximizing the opportunities for local employment and ensuring a fair distribution of jobs to all affected settlements. This is vital for establishing a good relationship between the Project and the local settlements.

This plan outlines the skills development and training process of all the staff and to ensure that work force from local settlements can benefit from this project as well in the long term by developing their skills that can help them to find other employment opportunities once the Project is completed.

Turkish legal requirements and Project commitments shall be complied with the recruitment processes which shall be transparent, public and non-discriminatory, providing equal opportunities with respect to ethnicity, religion, language, gender and sexuality as the main principle. This plan is a live document and will be updated according to the project needs.

Therefore, the scope of this plan covers:

- Identification of employment needs,
- Employment policies,
- Recruitment processes for different categories of employment
- The means to maximize the local employment during the construction phase for the unskilled and semi-skilled workforce requirements.
- Identification of Personnel training needs,

Definition of the means for providing trainings to personnel,

2 DEFINITIONS AND ABBREVIATIONS AND REFERENCES

2.1 Definitions

Client	TANAP DOĞALGAZ İLETİM A.Ş.
CONTRACTOR	Punj Lloyd-Limak JV responsible for the procurement, construction, installation, pre-commissioning, testing and commissioning assistance of the Lot 4 section of TANAP Project
Environmental or Social (	Overall environmental or social goal, arising from the environmental or social policy, that an organization sets itself to achieve, and which is quantifiable where practicable
Environmental or Social `	Detailed performance requirement, quantified where practicable, applicable to the organization or parts thereof, that arises from the environmental or social objectives and that needs to be set and met in order to achieve those objectives
EPCM	means the engineering, procurement and construction management consultant engaged by Client, namely WORLEYPARSONS PROJE YÖNETIMI VE MÜHENDISLIK LIMITED SIRKETI or such other Person notified by TANAP to CONTRACTOR in writing.
Key Performance Indicator	An indicator that is measured against a target, with the expectation that the target will be met. Indicates compliance with Project requirements.
Measure	An indicator of the volume or quantity of an impact.
Monitoring	Process of observation and sampling to obtain information to establish baseline and trends.
Performance Indicator	An indicator that is measured against a target, with the expectation that the trend will be toward meeting the target.
Project	procurement, construction, installation, pre-commissioning, testing and commissioning assistance Lot 4 section of TANAP Project
Subcontractor	Company working under a contract to a Contractor
TANAP Project TANAP	Trans Anatolian Natural Gas Pipeline Project TANAP DOĞALGAZ İLETİM A.Ş. who is the client of the CONTRACTOR.
Work	Any and all activities, services, and materials provided by the Contractor, subcontractors and suppliers

2.2 Abbreviations and Acronyms

Abbreviations/ Acronyms / Terms	Meaning
CLO	Community Liaison Officer
E & S	Environmental and Social
EMS	Environmental Management System
EPC	Engineering, Procurement & Construction Contractor
EPCM	Engineering, Procurement & Construction Management
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
HSE	Health, Safety and Environment
KPI	Key Performance Indicators
NCR	Non Conformance Report
PI	Performance Indicator
RoW	Right of Way
SEP	Stakeholder Engagement Plan

2.3 References

Document	Document Reference
ESIA Report (Turkish)	TNP-REP-ENV-GEN-001
ESIA Report (English)	TNP-REP-ENV-GEN-002
Grievance Management Procedure	TNP-PCD-SOC-GEN-004
Stakeholder Engagement Plan	WRP-PLN-ENV-GEN-003

These above stated documents should be read in conjunction with

•ESIA Report – English language (TNP-REP-ENV-GEN-002)

•ESIA Report – Turkish language (TNP-REP-GEN-001)

•Grievance Management Procedure (TNP-PCD-SOC-GEN-001)

•Appendix 5.3. “Community Relations Plan” of ESIA REPORT (TNP-REP-ENV-GEN-002-APPENDIX 5-3)

•Appendix 5.4. “Employment and Training Plan” of ESIA REPORT (TNP-REP-ENV-GEN-002-APPENDIX 5-4)

•CHAPTER 6 “Stakeholder Engagement” of ESIA REPORT (TNP-REP-ENV-GEN-002-06)

•CHAPTER 4 “Legal, Political and Institutional Framework” of ESIA Report (TNP-REP-ENVGEN-002-04)

• Appendix 4.6 “Legislation Registers” of ESIA Report (TNP-REP-ENV-GEN-002-APPENDIX 4-6)

• INTEGRATED ESIA REPORT –Appendix 4-7 Commitment Register (TNP-REP-ENVGEN-002-APPENDIX 4-7)

• Grievance Management Procedure (TNP-PCD-SOC-GEN-001)

In addition to the above stated reference documents all Turkish legal requirements will be complied with National Labour Legislation (i.e. Turkish Labour Law No: 4857 released in the Official Gazette dated 10.06.2003 and numbered 25 134, and its pertinent regulations, Turkish Workers Health and Safety Law No: 6331 and its pertinent regulations) as stated in the Appendix 4.6 of the ESIA of TANAP.

3 EMPLOYEMENT STRATEGY AND REQUIREMENT OF THE PLAN

The employment policies and strategies stated in this document is also compatible with the required commitments stated in Appendix 4.7 of the ESIA report of TANAP. Recruitment procedures are carried out mainly by the Human Resources Department for the key personnel and by the Site Personnel Department for the workers/local workers to be hired to work in site. The recruitment process in sites are mainly conducted and finalized by the Site Managers.

For the key personnel and managers, a comprehensive job description shall be prepared. This job description shall describe the main duties and responsibilities of the task and cover the minimum skill requirements needed for the candidates.

All the job descriptions will be clearly communicated in advance and will contain information on working conditions: - working hours, conditions, skills required, etc.

CONTRACTOR will ensure clear information/adverts regarding employment and will not raise any unrealistic expectations pertaining to the recruitment of the employment opportunities including unskilled, semiskilled and skilled positions.

CONTRACTOR will be open for the employment of disadvantaged people unless the disadvantage does not prevent the requirements position.

Two copies of contracts will be prepared in compliance with the existing legal requirements, will be signed mutually and a copy will be provided to the future employee.

3.1 General

The general recruitment and training procedures shall be competent as outlined in Section 1.3 of Appendix 5.4 of the TANAP ESIA Report. The main procedures and principles are given below:

Recruitment

- The required duties and responsibilities of the task and the required competencies will be stated clearly in the job description and working hours, required qualifications.
- All employment records will be maintained and reported to the EPCM.
- Salaries will be paid on time to all employees (including Sub-Contractor employees) and in compliance with national legislations.
- Workers will be subject to legal health screening before employment contracts are signed and if necessary will be provided with required immunisation treatments; all health information will be dealt with confidentially.

- CONTRACTOR will ensure that all employees receive information about access to Grievance Mechanism and the contact details of CLOs during induction training. Workers' grievances will be recorded and followed up in accordance with the Grievance Mechanism. Community Relations and Human Resources Department will co-operate for workers' complaints to be handled in accordance with the grievance mechanism, Turkish laws and legislations; and Project Requirements.
- CONTRACTOR will implement the grievance process for managing all community complaints related to the recruitment process, and will report monthly to EPCM on the complaints received and on grievance resolution and redress as stated in the Community Relations Plan.
- CONTRACTOR will ensure that all employees receive social induction training about disciplinary actions. Camp Rules will also be posted in the construction camps in the areas that are used widely by the employees.
- The temporary nature of the jobs will be emphasized in all the recruiting stage.

Training

- Training needs of workers will be identified and employees will have all legal trainings related to the project.
- None of the employees will be allowed start working without having initial trainings, (Site induction, HS training, Environmental and Social training etc.)
- Job-specific trainings will be planned and implemented during the construction phase,
- Training needs for the employees will be identified and workers will receive the compulsory trainings and will not start working before completing induction training.
- Workers will receive work-place and work-task specific trainings. Further training programs will be planned and implemented throughout the entire phases according to the needs and requirements.
- Training will be provided by professional trainers or experienced employees.

3.2 Methodology

Mainly the employment procedures of all the workers shall be carried out by the Human Resources Department of the CONTRACTOR.

3.3 Recruitment Policies and Procedures

Applications for employment will be considered if submitted via the official application and HR department will be responsible for recruitment. Previous job applications in the CV pool, available current staff and the references are also be taken into consideration.

- Recruitment process will be transparent, public and non-discriminatory and open with respect to ethnicity, religion, sexuality, disability or gender,
- CONTRACTOR will also ensure that information/adverts regarding the employment do not raise unrealistic expectations. Therefore, clear information on the recruitment process shall be provided as well as the employment opportunities for the unskilled, semi-skilled and skilled positions.
- Employment opportunities will be disclosed including unskilled, semi-skilled and skilled positions, through distinct channels to ensure wide distribution of the announcement,
- Job descriptions will be clear enough to indicate the description of the task, working conditions, possible duration of work, as well as minimum required skills of the candidates,
- Rotations, working conditions, leaves, emergency etc. of the workers shall be compatible with the requirements of the National Legislation,
- Local workers will be employed to the extent possible in consideration of the employment needs and available skills
- The recruitment from the nearby residential areas for temporary jobs will be conducted until the construction activity moves to another location,
- While assessing the application forms, a fair screening process will be executed,
- Contract will be signed with the workers subsequent to recruitment, and all the contracts and employment records of the workers will be kept in the related departments of the CONTRACTOR. All workers will have a copy of their contracts describing the conditions of work,
- CONTRACTOR will ensure that salary payments of all employees (including its subcontractor employees) will be done on time, in compliance with the national legislation.

3.4 Human Resources Department

Human Resources department shall evaluate especially the skilled personnel recruitments' and their compliance with the laws together with the project requirements.
The Department will be responsible mainly from:

- Providing transparent, public and non-discriminatory and open recruitment process with respect to ethnicity, religion, sexuality, disability or gender
- Advertisement of job vacancies through appropriate and accessible media channels
- Providing clear job descriptions in advance of recruitment,
- Evaluation of the applications and make the interviews in collaboration with the managing staff

- Ensuring all workers' contracts will be available in native language and clearly describing conditions of work
- Informing the workers about their legal rights and contract details.
- To ensure that all workers will receive at least the minimum wage as defined by Labour Law and relevant regulations.
- Keeping all employment records,
- To cooperate with the Managers working on site on hiring the local site staff if necessary,
- Ensure all the subcontractors to be aware of the requirements of this Plan, and audit their performance in co-operation with the Community Relations Manager in terms of compliance with the requirements set by this plan

Cases subject to disciplinary subjects are widely defined and the procedures regarding it, is explained in the "Personnel Guideline".
In case of collective dismissals, a retrenchment plan shall also be prepared by the CONTRACTOR to reduce impacts on workers, once opportunities will end. National Employment Service will be informed before the dismissal process starts, with a complete dismissal list to ensure all the rights of workers are under protection of Turkish Legislations. Employees will be given their legal notice, according to the duration of their employment, before demobilization and will get their compensation for dismissal in accordance with the relevant Turkish Laws and legislation.

The recruitment of the staff shall be done in line with the organisation chart and the requirements of the work.

All the employment records shall be kept at the accounting department in sites and in HR department.
CONTRACTOR will maximize local employment for semi-skilled and unskilled labour by ensuring implementation of Employment and Training Plan by Sub-Contractors during the pre-construction and construction. In the pre-construction phase the main technical/non-technical staff shall be recruited and other staff shall be hired in line with the requirements of the project phases after the commencement of the works in site.

During the pre-construction phase, it is planned to be approximately working 50 personnel, and this is expected to reach around 1500 personnel at the peak period of the construction to work at different categories. These documents shall be submitted as "Manpower Chart" to EPCM. All these recruitment process shall be conducted according to the requirements of National Laws and Regulations.

3.5 Local Recruitment

CONTRACTOR will maximize local employment for semi-skilled and unskilled from project affected communities within 5 km corridor of pipeline, 5 km diameter area of the camps and facility construction sites, communities which have lands on pipeline route and have significant traffic impacts, then extent to district level, then province level. All the labour force working in the project are subject to the rights issued by the National Legislation of Workers.

CONTRACTOR commits to enhance local job opportunities and will undertake but not limited with the following general commitments as stated in Appendix 5.4 of TANAP ESIA: CONTRACTOR will communicate local authorities to identify the type of workers needed. CONTRACTOR (including the Sub-Contractor) will provide clear information about the recruitment process, will inform local people about employment opportunities through various channels such as mukhtar and local associations and will distribute information materials such as pamphlets, posters etc.

CONTRACTOR will oversee the subcontractors to provide this. At the same time, non-discriminatory, transparent, public and fair recruitment process will be ensured by contractor. Social Manager with internal auditors will make audits to subcontractors to monitor recruitment process and will share the results of audits with EPCM.

Workers will be subject to legal health screening before employment contracts are signed; all health information will be dealt with confidentially.

Training needs for the employees will be identified and workers will receive the compulsory trainings and will not start working before completing induction training.

Workers will receive work-place and work-task specific training; a training program will be planned and implemented throughout the entire phases. All employment records will be kept and provided to TANAP as requested.

The CONTRACTOR will provide the development of specific training programs and will get an approval from EPCM, in accordance with the training matrix containing the minimum requirements at every stage of project

3.6 Process of Employment for semi-skilled positions

Depending on the positions, job descriptions, job requirements and expected availability of the suitable candidates of semi-skilled positions in the affected settlements; districts' and provinces' local announcement channels such as announcement from the Mukhtar's office, notice boards of Governors' or Sub-governors' office, community notice boards shall be used as appropriate. Positions to be announced will not raise unrealistic expectations. Extent and duration of the employment, recruitment process and limitations to the employment shall be accurately communicated. Semi-skilled workers to be recruited from the provinces through which the pipeline "lot" will cross such that workers in each province have an equal opportunity to apply. Those residents in directly affected settlements again have the priority for semi-skilled employment, followed by those living in the districts and then the provinces through which the pipeline passes.

3.7 Process of Employment for skilled positions

Skilled workers shall be recruited on a nationwide basis in line with the employment targets. Depending on the positions, job description and required specification, expected availability of the suitable candidates at the national level shall be ensured. National press, employment websites, recruitment offices may be used as appropriate. Extent and duration of the employment, recruitment process shall be accurately communicated so that the limitations to the employment are to be known. CONTRACTOR at all times recruit the person who is most suited to the particular post, based on the applicant's abilities, qualification, experience and merit as measured against the job description and the persons' specification. In order to manage the high employment expectations, CONTRACTOR may use the pool of the applicants if and when necessary.

3.8 Roles and Responsibilities

3.8.1 Project Manager

The Project Manager has overall responsibility for Employment and Training Plan implementations and approve all activities of the plan.

3.8.2 Construction Manager

The Construction Manager will be responsible for ensuring that all site staff, including Sub-Contractors and all activities comply with this plan, and will support the Social Team.

3.8.3 Social Manager

The Social Manager will be responsible from implementation of this plan and will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with this plan. He/she shall ensure the compliance with laws, regulations and Project requirements together with Human resources department. This plan is subject to required revisions if and when necessary.

Social Manager will also be responsible from further issues such as:

- Informing local communities of employment opportunities through different channels such as settlement heads, and local associations,
- Preparing and submitting Monthly Social Report including employment KPIs to EPCM
- Implementing the grievance process to manage all community complaints related to the recruitment process
- Co-operation with the HR manager regarding workers' grievance and implementation of local employment targets.

3.8.4 Community Liaison Officer

The CLO's will be responsible in the implementation of this plan. He/she shall be liable from the following issues:

- To carry out personnel trainings regarding social requirements of TANAP Project, raise community awareness of safety issues through classroom lessons,
- To distribute communication material such as posters and brochures locally for recruitment
- Process and to take part in the recruitment process in order to maximise employment from the affected settlements and even from disadvantaged groups
- Record employee complaints on Online Stakeholder Interaction Database and follow up the resolution of the complaints in co-operation with the Site Manager and report them to the Social Manager.
- Keep records for semi-skilled and unskilled employment process in co-operation with the
- Site Manager and include employment KPIs on monthly social report.

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4 TRAINING

Trainings shall be given to all personnel for different purposes, in different topics in order to ensure the maximum health and safety conditions, environmental protection, good social relations management with the locals as well as to achieve the maximum quality and timely manner in job specific issues.

General training subjects shall:

- Cover the main information for being aware of the roles and responsibilities of CONTRACTOR staff and EPCM representatives,
- Fully comprehend workers' health and safety issues, including the use of personal protection equipment,
- Understanding all the aspects of environmental and social requirements of the project particularly in terms of the environmental protection and sensitivity for flora and fauna elements,
- Inform the workers on social and cultural sensitivities of the areas through which the pipeline and other facilities will be constructed,
- Include advice on minimising water and energy consumption, waste sorting and means to eliminate hazardous wastes on sites,
- Fully understand the potential impacts of the Project, the mitigation measures that have been adopted to address those impacts and how and where to apply these measures,
- Cover how the management and monitoring requirements of the project will be handled and how they will be implemented in line with the ESMP,
- Fully understand the content and scope of the environmental and social management policy, plans and procedures to be followed,
- Fully understand the procedures to be followed in the event of a non-compliance (NCR) with the environmental and social requirements,
- Understanding the emergency response procedures and actions required in case of unforeseen incidents,
- Fully understand the procedures for responding to the media, to unauthorized visitors to the site, and enquiries from the public,
- All drivers shall undergo safety, environmental and social awareness training, driving performance will be assessed and monitored with additional training provided if necessary.
- Driver training will include advice on behaviours to reduce potential for disturbance, including use of horn, loud radios with windows open, switching engines off when not in use, strictly observing speed limits and not accelerating or braking aggressively.

CONTRACTOR shall analyse and organize further training need requirements in line with the issues raised under the section 1.3 of Appendix 5.4 of TANAP ESIA.

4.1 Induction Training

Initially, the induction training about the main community relations, social relations and HS&ES shall be provided to all the personnel. The requirements for camp induction are given in Construction Camp Management Plan. CONTRACTOR will ensure that all the personnel, including the Sub-contractors' personnel, regardless of their position, shall receive all relevant induction training before being given access to any worksite. The training subjects are stated in the training matrix given in Appendix 1.

5 PERFORMANCE INDICATORS

The performance indicators for the monitoring of the implementation of the Employment and Training Plan will be the followings;

- Number of employees trained,
- Number and ratio of local and female workforce,
- Training records, (topic, hours and attendees)
- Worker complaints.
- Number of Grievances Received

All these issues shall be registered and indicated in weekly and monthly reports with the following tables given below.

Grievance Records Table:

Worker Grievances	Total Received This Month	Total Received	Open	Closed	Waiting	Open More than 30 days
Recruitment Process						
Compensation/Wages						
Promotions						
Accommodation						
Food						
Working Hours						
Behavior of Colleagues						
Discrimination						
Other						

Local Employement Table:

TANAP Project Local Employment Tracker - …. 2016									
Location	**Un-skilled***	**% of local Unskilled**	**Semi-skilled****	**% of local semi skilled**	**Skilled*****	**% of local Skilled**	**Total Local Employee**	**Total Number of All Employees**	**% of Locals**
Spread 7									
Spread 8									
Grand Total									
Un-skilled*	Unskilled workers								
Semi-skilled**	Employer needs some experience & specification like office boy ,								
Skilled***	Skilled employee with a certification & experience								

Employement Register Table:

EMPLOYMENT SUMMARY REGISTER - LOT 4 Reporting Period:											
		Unskilled		Semi-Skilled		Skilled		Total No of Employees (employed to date)	Total No of Local Employees	Total % of Locals	Total No of Women Workers
		No of Unskilled Employees	% from directly affected settlements	No of Semi-skilled employees	% Locals*	No of Skilled Employees	% Locals*				
TOTAL											

Notes:
"Local" employee is a person from the village, district or province through which the pipeline is passing.
Unskilled : No specific skill required to perform the job
Semi skilled : Partly skilled or trained, but not sufficiently skilled to perform specialized work
Skilled : Possessing and/or demonstrating accomplishment, skill or specialized training

Social Training Registers:

TRAINING REGISTER - LOT 4						
Reporting Period:						
Date	**Subject**	**Duration (min)**	**Location**	**Attendees (who)**	**Number of attendees**	**Total Manhours**

Key Performance Indicators (KPIs) for Employment

	Type	**Period**	**Target**
% of unskilled staff employed from affected provinces	KPI	Monthly	100%
% employed from affected district among the total (100%) unskilled staff employed from the affected province	KPI	Monthly	90%
Out of the 90% of unskilled staff employed from affected district, % that is employed from affected villages	KPI	Monthly	80%
% of semi-skilled staff employed from affected provinces	KPI	Monthly	100%
# of semi-skilled staff employed from affected villages	Measure	Monthly	N/A
% of skilled staff employed from a national level	KPI	Monthly	80%
# of community complaints relating to recruitment issues	PI	Monthly	Negative trend
# of worker grievances	Measure	Monthly	N/A
# of worker strikes	Measure	Monthly	N/A

APPENDIX 1: Social Training Matrix

SOCIAL TRAINING MATRIX						
		Construction Office Staff	Construction Field Staff	E/S Environmen	Community Liason	Archaeologist/Land Team
General Social Induction Trainings:						
	Social Induction**	x	x	x	x	x
	Community Safety Management Plan**					
	Community Relations Plan**					
	Stakeholder Management Pln**					
	Employement and Training Plan**					
	Procurement and Supply Management Plan**	x		x	x	x
	Land Acquisition, Compensation Action Plan**					
Social Competency Training*						
	Daily Monitoring Requirement*				x	
	Daily Checklist*					
	Reporting*					
Social NCR*						
	Definition*			x	x	x
	Process*					
	Closing actions*					
Environmental & Social Key Performance Indicators (SKPI's)**				x	x	
Social Risk Management**					x	
Social Induction (Especially for expats)*		x	x	x	x	x

* *At the beginning*
** *As refreshment trainings when needed*

APPENDIX 2 Employement Application Form and Evaluation Form

Limak	**İŞ BAŞVURU FORMU**	**Form No:** F-4.2 **Revizyon No:** 01	FOTOĞRAF

Başvuru Tarihi : / /

Başvurduğunuz Pozisyonlar : 1. _____

2. _____

KİŞİSEL BİLGİLER

Adı Soyadı	:	Cinsiyetiniz:	Kadın ☐ Erkek ☐
Doğum Tarihi/ Yeri	:	Medeni Haliniz:	Evli ☐ Bekar ☐
TC Kimlik No (Zorunlu)	:	Askerlik Durumunuz:	
Vergi No	:		Yaptı ☐ Tecilli ☐ Muaf ☐
Anne Adı/Mesleği	:	Sürücü Belgeniz:	
Baba Adı/Mesleği	:		Var ☐ Sınıfı : Yok ☐
(Varsa) Eşinin Adı/Mesleği	:	Mahkumiyetiniz:	*Var ☐ Yok ☐
Çocuk Sayısı	:	*Süresi :	Nedeni:
Ev Adresi	:	Geçirdiğiniz herhangi bir ameliyat var mı ?	
			*Evet ☐ Hayır ☐
Telefon Ev	:	* Varsa açıklayınız:	
Telefon Cep	:	Kullandığınız herhangi bir cihaz ya da protez var mı? Önemli bir sağlık (işitme, görme, kalp vb.) sorununuz var mı?	*Evet ☐ Hayır ☐
E-Posta Adresi	:	* Varsa Açıklayınız:	
Acil Durum Telefonu	:		

EĞİTİM BİLGİLERİ (Sondan Başa Doğru)

Okul Adı	Bölümü	Başlangıç/ Bitiş Tarihi	Mezuniyet Derecesi

MESLEKİ SERTİFİKALAR

Eğitimin Adı	Eğitimi Veren Kurum / Kişi	Eğitim Yeri	Eğitim Süresi / Yılı

İş Sağlığı ve Güvenliği eğitim/sertifikanız var ise belirtiniz.

YABANCI DİL

Yabancı Dil ve Seviyesi	Okuma			Yazma			Konuşma			Anlama		
	Çok İyi	İyi	Orta/Az	Çok İyi	İyi	Orta/Az	Çok İyi	İyi	Orta/Az	Çok iyi	İyi	Orta/Az
İngilizce	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Diğer (_____)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Yabancı Dili Nerede Öğrendiniz?

Yurt Dışında Bulundunuz mu? / Neden? / Süresi?

BİLGİSAYAR BİLGİSİ

Program Adı	Çok İyi	İyi	Orta/Az	Program Adı	Çok iyi	İyi	Orta/Az
Word	☐	☐	☐	MS Project	☐	☐	☐
Excel	☐	☐	☐	Primavera	☐	☐	☐
Powerpoint	☐	☐	☐	Diğer (_____)	☐	☐	☐
Access	☐	☐	☐	Diğer (_____)	☐	☐	☐

İŞ BAŞVURU FORMU (Sayfa: 2)

İŞ TECRÜBENİZ (Sondan Başa Doğru)				
İş Yerinin Adı	Görev / Unvan	Giriş/Çıkış Tarihi (Ay-Yıl)	Alınan Son Net Ücret	İşten Çıkış Nedeni

ÜYESİ OLDUĞUNUZ DERNEKLER

REFERANSLARINIZ				
Adı Soyadı	Şirketi	Görev/Unvanı	Telefon Numarası	İlgisi
Limakta çalışan tanıdıklarınız/akrabalarınız var mı?				

İŞE AİT BİLGİLER
Talep ettiğiniz aylık Net Ücret?
İşe başlayabileceğiniz en erken tarih?
Seyahat engeliniz var mı?
Gerektiğinde fazla mesai yapabilir misiniz?
Gerektiğinde yurt dışında orta / uzun vadeli görevlerde çalışabilir misiniz?

İş bu başvuru formunda verdiğim bilgilerin, yazdıklarımın olası bir hizmet akdine esas teşkil ettiğini; bunların doğru ve eksiksiz olduğunu; aksi takdirde hizmet akdinin ihbarsız ve tazminatsız sona erdirileceğini, bundan dolayı herhangi bir takip, talep ve iddiada bulunmayacağımı, ve eksik veya hakikat dışında beyanımla işe alınmamadan dolayı şirketin uğrayabileceği her türlü zarar ve ziyanı tazmin edeceğimi kabul ve beyan ederim. istihdamım halinde kuruluşun personel ve disiplin yönetmeliklerine uygun çalışmayı teyit ve beyan ederim.

Ad Soyad:

İmza: **Tarih:** / /

Punj Lloyd
Limak

İŞ BAŞVURUSU
DEĞERLENDİRME KRİTERLERİ TABLOSU
ASSESSMENT CRITERIA TABLE

Adayın Adı - Soyadı - Candidate Name Surname :.....
Başvuru No - Application No :.....

Değerlendirme Maddeleri Assessment Items	Puan Mark	Değerlendirme Kriterleri Assessment Criteria		
İkamet Yeri Point of Residence	25	500m. İçinde etkilenen Yerleşim Yerleri	Affected village/ district within 500m.	25
		5 km. İçinde etkilenen yerleşim yerleri	Affected village / district within 5 km.	20
		Etkilenen İl Merkezi	Affected Province	10
		Diğer	Other	0
İş Deneyimi Work Experience	15	5 yıl veya fazlası benzer iş deneyimi	5 years and more experience in same or similar job	15
		2-4 yıl arası benzer iş deneyimi	2-4 years experience in same or similar job	10
		5 yıl veya fazlası iş deneyimi farklı sektörde	5 years and more experience in industrial facilities but different job	10
		2-4 yıl iş deneyimi farklı sektörde	2-4 years experience in industrial facilities but different job	5
Açık Pozisyona Uygun Öğrenim Durumu Education Status	20	Gereken Eğitim Seviyesi	Required Education Level	20
		Gereken Eğitim Seviyesinin bir derece üstü	1 upper level of Required Education Level	20
		Gereken Eğitim Seviyesinin bir derece altı	1 lower level of Required Education Level	10

Pozisyona Göre Aldığı Eğitimin/ Sertifikanın Uygunluğu **Education/ Certificate Conformity to Position**	**5**	**Pozisyona uygun eğitim veya sertifika**	**Related Education/Certification with position**	**5**
		Pozisyona uygun eğitimi /sertifikası yok	**No-Related Education with position**	**0**
Kurs/Seminer gibi Faaliyetler **Other Courses and Training**	**5**	**İş tanımıyla ilgili alınan kurs veya sertifikalar; Her kurs 1 Puan maximum 5 puan**	**Each course and trainings related with job: 1 point (up to 5 courses or trainings)**	**1-5**
Medeni Durumu **Marital Status**	**5**	**Evli**	**Married**	**5**
		Bekar	**Single**	**2**
Başvuru Sahibinin Bakmakla Yükümlü Olduğu Kişi Sayısı **# of Dependents**	**10**	**4 kişi ve Fazlası**	**4 or more**	**10**
		3 kişi	**3 people**	**9**
		2 kişi	**2 people**	**6**
		1 kişi	**1 people**	**3**
Yabancı Dil Bilgisi **Language**	**5**	**İngilizce**	**English**	**5**
		Almanca / Fransızca	**German / French**	**3**
		Diğer diller	**Other Language**	**2**
Genel Değerlendirme **General Assessment**	**10**	**Genel Görünüm (temizlik Uyum , Özen)**	**General Appearance (Cleaning , conformity ,attention)**	**5**
		Kurum Kültürüne Uygunluk	**Compliance with corporate culture**	**5**
TOPLAM **Total**	**100**			

İş Kategorisi **Categories of Job**	**Vasıfsız / Unskilled**	**Yarı Vasıflı / Semi-skilled**	**Vasıflı / Skilled**

KRİTERLER **Criteria**	**Yetersiz / Düşük In sufficient**	**Orta - Medium**	**İyi / Yüksek - Eligible**

ADAYIN DEĞERLENDİRMESİ
Evaluation of the Candidate

Firma Unvanı/ Görüşmecinin Adı & Ünvanı Company / Assessor Name & Position	Değerlendirme ve Yorumlar Evaluation & Comments	İmza Signature

SONUÇ DEĞERLENDİRMESİ
Evaluation of Result

SONUÇ Result	İşe Başlamaya Uygun Değil Not sufficient to work	İşe Uygun Sufficient	İleride Değerlendirilebilir Assessable in the Future

APPENDIX 3: CODE OF CONDUCT

Limak Yolsuzlukla Mücadele Politikası

I. Giriş

Limak birçok iş alanında önde gelen bir holding şirketi olarak kendini kanıtlamıştır. Lider olmak ve liderliğimizi sürdürebilmek adına, şirket bütünlüğümüzü en üst düzeyde gerçekleştiriyoruz ve gerçekleştirmeye devam edeceğiz.

Uluslararası alanda ve Türkiye'de iş yapmanın doğasında var olan zorluk ve imkânlara aşina olmamız gerekmektedir. Böylece iş yapış tarzımızda en üst düzey etik standartlara olan ortak bağlılığımızı yenilemiş oluruz.

Küresel mevcudiyetimiz ve devlet ile özel sektörden müşterilerimizle Türkiye'de ve dünya çapında yürüttüğümüz işler gereği çalışanların işbu Politika ile aşina olmaları, gerektiği zaman işbu Politika hakkında açıklama ve ek bilgi talep etmeleri ve işbu Politika'ya ve tüm uygulanabilir yolsuzlukla mücadele kanunlarına her daim riayet etmeleri gerekmektedir.

EK-B'de örneği bulunan Limak Meslek Kuralları, Limak'ın bütün faaliyetlerinin uluslararası hukuk ve Türkiye Cumhuriyeti kanunlarına uygun olarak yürütülmesini zorunlu kılmaktadır. Limak'ın Yolsuzlukla Mücadele Politikası ("Politika") Limak Meslek Kuralları ile öngörülen davranış standartlarını yükseltmek amacıyla oluşturulmuştur.

II. Uygulanabilirlik

Bu Politika, Limak Grup Şirketlerinin ve dünya çapındaki her bir iştirak, ortak girişim ve bağlı şirketinin (birlikte "Limak") bütün yönetici, görevli ve çalışanlarına uygulanır. Tüm çalışanlar vatandaşlıklarına ve nerede ikamet ettiklerine bakılmaksızın bu Politikayı anlamak ve bu Politikaya riayet etmekle yükümlüdürler.

Ayrıca Limak bu Politikanın işin veya işle ilgili konuların edinilmesi, sürdürülmesi, yürütülmesi veya hızlandırılması gibi konularda Limak'a herhangi bir hizmet sunan üçüncü kişiler ("Üçüncü Kişiler") için de uygulanmasını beklemektedir. Bu Üçüncü Kişilere komisyoncu, danışman, distribütör, yeniden satıcı, temsilci, aracı, gümrük komisyoncusu, ulaşım sağlayıcı, nakliyeci, yüklenici ve tedarikçiler dahildir fakat Üçüncü Kişiler bunlarla sınırlı değildir. Söz konusu yükümlülüklerin Üçüncü Kişilere açıkça anlatılması ve mümkün olan her yerde sözleşmesel bir yükümlülük haline getirilmesi beklenmektedir.

İşbu Politika _____ tarihinde yürürlüğe girmiştir. Bu politika zaman zaman tadil edilebilir. Tadiller aksi belirtilmediği sürece derhal yürürlük kazanır.

III. Uygulama

Limak Politikasını bilmek ve anlamak her bir Limak çalışanının sorumluluğudur. Limak, Hukuk Departmanı üyelerine ek olarak şirketin öncelikli "uyum görevlileri" olarak atamış olup, bu uyum görevlilerin sorumlulukları: (a) Politikanın uygulanması, (b) Politika konusunda çalışanların eğitilmesi, (c) Politikaya uyumun sağlanması konusunda iş faaliyetlerimizin takip edilmesi ve (d) her bir çalışanın Politikanın muhtemel ihlallerini raporlayabilmesi için gerekli kaynakların sağlanmasıdır.

Ancak Limak Politikası ve içeriği hakkında tüm Limak çalışanlarının haberdar olmasını sağlamak ile bu Politikanın uygulanması ve yorumlanmasında yol göstermek ve yardımcı olmak Limak'taki her bir tüzel kişinin tüm üst düzey idarecileri, görevlileri ve yöneticilerinin nihai sorumluluğu altındadır. Uyum görevlileri herhangi bir soruya ve oluşabilecek endişeye cevap vermek için uygundurlar. Her bir çalışan aracılığıyla uyum görevlileri ile iletişime geçebilir.

IV. Uyum

Limak'ın faaliyet gösterdiği veya Limak çalışanlarının herhangi bir başka şekilde iletişimde olduğu ülkelerde uygulanan kanun, yönetmelik ve uluslararası sözleşmelere riayet etmek her daim Limak çalışanlarının sorumluluğundadır. Uygulanan kurallar ve düzenlemeler hakkında bilgi sahibi olmamak geçerli bir mazeret olmayıp her Limak çalışanı aşağıdakiler hakkında bilgisini güncel tutmalı ve bunlara göre davranmalıdır:

Bu Politikadaki gereklilikler;

İş yaptıkları ülkelerdeki tüm ilgili yerel kanunlar, kurallar ve mevzuat;

Meslek odası etik kuralları ve uluslararası sözleşmeler gibi ilgili olabilecek diğer iş uygulamaları.

Amerika Birleşik Devletleri Yurtdışı Yolsuzluk Uygulamaları Kanunu (ABD Yurtdışı Yolsuzluk Kanunu) ve 2010 tarihli Birleşik Krallık Rüşvetle Mücadele Yasası (Birleşik Krallık Rüşvetle Mücadele Yasası) gibi bazı ülkelere ait yolsuzlukla mücadele kanunları uygulama alanlarını ülkesel sınırları dışında gerçekleştirilen fiillere de uygulanacak şekilde genişletmişlerdir. Bütün Limak çalışanları, faaliyet gösterdikleri tüm ülkelerin kanunlarına uygulama alanlarından bağımsız olarak uyum sağlamalı ve bunların ihlal edilmediğinden emin olmalıdır.

Yolsuzlukla mücadele kanunlarına uyum göstermemenin Limak için, yüksek para cezaları, devlet ihalelerinden men edilme ve şirketin itibarının tarifi mümkün olmayan zararlar görmesi gibi, ciddi kötü sonuçları olabilir. Yolsuzlukla mücadele kanunlarının ihlali ayrıca Limak çalışanlarını etkileyebilir ve onları hapis ve para cezaları gibi cezai müeyyidelere maruz bırakabilir.

Bu Politikayı veya uygulanabilir herhangi bir kanunu ihlal etmek HİÇBİR ZAMAN Limak'ın yararına olmaz. Bu Politikaya uyum ZORUNLUDUR ve uyum sağlamayan her birey feshin de dâhil olabileceği uygun görülen bir disiplin işlemine tabi olacaktır.

V. Uygunsuzluğun Görünümü

Limak Politikası etik olmayan veya hukuka aykırı her türlü davranışı yasaklamakla kalmayıp ayrıca tüm Limak çalışanlarının ve üçüncü kişilerin uygunsuz görünebilecek davranışlardan kaçınmalarını gerektirmektedir.

VI. Yolsuzluk ve Rüşvet Tanımı

Bir işi edinmek, sürdürmek veya Limak'ın herhangi bir uygunsuz yararını güvence altına almak için herhangi bir Devlet Yetkilisine, devletin sahip olduğu veya kontrolünü elinde bulundurduğu bir kuruluşun çalışanı veya temsilcisine ya da herhangi özel bir kişiye veya ticari işletme çalışanına bu kişilerin karar veya davranışlarını uygunsuz olarak etkilemek amacıyla rüşvet veya değeri olan herhangi bir şeyin verilmesini dolaylı veya dolaysız yoldan söz vermiyor, teklif etmiyor, bunları vermiyor ya da verilmesine ilişkin onay vermiyoruz.

Rüşvetin söz verilmesi, teklif edilmesi ve ödenmesine ilişkin bu yasak, hizmet sağlayan ve Limak adına hareket eden tedarikçi, komisyoncu, danışman, distribütör ve iş ortakları gibi Üçüncü Kişilere ve her tür işleme de uygulanacaktır. Bu Politika ayrıca herhangi bir Limak çalışanı tarafından ya da yararına rüşvet alınmasını da yasaklamaktadır.

VII. Hediyeler

Hediye Teklif Etme

Özel kişilerle karşılıklı mütevazi ve nezaket gereği iş hediyelerinin alıp verilmesi şeffaf, orantılı, makul ve iyi niyetli bir amaç için olduğu sürece mümkündür. Hediyeler değer bakımdan mütevazi olmalıdır. Çalışan hediyenin verilmesinden önce [ilgili Departman Yöneticisi/uyum görevlisi]'nden açıkça izin almadıkça verilen hediyenin değeri [100 ABD Doları]'nı aşamaz. Hiçbir takdirde herhangi bir hediye yerel kanunlar ve içtihat kararlarında belirtilen değeri aşamaz.

Devlet Yetkililerine (ve yakınlarına) herhangi bir değerde bir hediye vermek genel olarak yasaklanmış olup sadece istisnai durumlarda Limak'ın Hukuk Müşaviri veya uyum görevlisinin yazılı onayı alındıktan sonra bu kişilere hediye önerilebilir veya sunulması mümkün olabilir.

Hediyelerin sıklığı uygunsuz görülmediği sürece ve işin güvencesini veya sürdürülebilirliğini sağlamak gibi bir amacın bulunmadığı açıksa, çalışanlar kişisel ilişkilerine dayalı olarak hediye verebilir.

Tüm Limak çalışanlarının ticari bir işin sonucunu etkilediği şeklinde yorumlanabilecek hediyeleri teklif etmeleri ve sağlamaları yasaktır. Bir hediye asla alıcıyı yükümlü bir konumda bırakmamalıdır. Yaygın ve kabul edilebilir hediyelere şirket promosyonel ürünleri örnek gösterilebilir. Bir hediye asla para içermemelidir.

Limak çalışanı tarafından teklif edilen veya sunulan her hediye düzgün bir şekilde belgelendirmeli ve [ilgili müdür]'e beyan edilmelidir. Bu kayıt hediye verenin, alanın ve hediyenin değerinin kaydını içermek zorundadır.

Hediye Kabul Etme

Genel olarak Limak, çalışanlarının hediye vereni etkileyecek bir kararı alma veya bu kararın alınmasını etkileme konumunda olmaları durumunda hediye kabul etmelerini yasaklamıştır. Hediyelerin sıklığı uygunsuz görünmediği sürece, çalışanlar aşağıdaki hediyeleri kabul edebilir:

Motivasyonun işi güvence altına almak veya sürdürmek olmadığının açıkça anlaşıldığı zamanlarda kişisel bir ilişkiye dayanan hediyeler;

- *Geniş bir topluluğa verilen indirim ve menfaatler;*
- *Hakiki ödüller ve armağanlar; veya*
- *Geniş çaplı bir toplantı veya sosyal etkinlik için parasız katılım, yemek, ara öğünler veya materyaller sağlanması.*

Eğer hediyeyi kibarca reddetmek veya geri göndermek pratik olarak mümkün değilse hediye değeri veya mahiyetine bakılmaksızın [Departman Yöneticisi/uyum görevlisi]'ne teslim edilir. Bu hediyeler şirket eşyası haline gelecektir ve bu nedenle hediyelerin:

- *Şirket ofislerinde sergilenmek üzere tutulması;*
- *Her çalışanın eşit kazanma şansına sahip olduğu bir şans çekilişi ile dağıtılması veya*
- *Bir hayır müessesesine bağışlanması tavsiye edilir.*

Kabul Edilen Hediyelerin Raporlanması

Limak çalışanına verilen her bir hediye kayıt altına alınmalıdır. Bu kayıt hediye verenin ve alanın kimliğini ve hediyenin değerini içermek zorundadır.

Tüm Limak şirketleri, işbu Politikaya ek olarak vergi hukuku dahil yerel mevzuat kurallarına uygun olarak hediyeler için parasal limitleri ve onayları takip etmekle sorumludur.

Davet ve Ağırlamalar

Bir iş kararını uygunsuz olarak etkileyecek, uygunsuz bir iş menfaatine sebebiyet verecek, işi yönlendirecek veya devam ettirecek veya bunların herhangi biri olarak algılanabilecek nitelikte ise hiçbir davet veya ağırlama önerilemez, sağlanamaz ve kabul edilemez.

Devlet Yetkililerini (ve yakınlarını) davet etmek ve ağırlamak genel olarak yasaklanmış olup sadece istisnai durumlarda Limak'ın [Hukuk Müşaviri veya uyum görevlisinin] yazılı onayı alındıktan sonra bu davet veya ağırlama mümkün olabilir.

Hediyeler gibi davet ve ağırlamalar de her daim, ilgili kanunlar tahtında yasal olmak zorundadır. Davet ve ağırlamalar hiçbir şekilde cinsel hizmet, uyuşturucu veya herhangi bir başka yasal olmayan veya Limak için olumsuz bir imaj yaratabilecek fiilleri içeremezler.

Davet ve Ağırlamalar

İşbu Politika uyarınca aşağıdaki dört şartın sağlanması koşuluyla özel kişilere verilen yemek, ara öğün ve davetlerin önceden izin alınmadan yapılması mümkündür:

Bir toplantı veya başka bir etkinlik şeklinde gerçekleşen, iş müzakerelerini gerçekleştirmek amacı taşıyan ve yerel hukuk ile alıcının kuruluşunun politikalarının izin verdiği bir işle ilgili olan ağırlamalar;

Yerel standartlarca makul olarak ölçüsüz veya abartılı olarak değerlendirilebilecek nitelikte olmayan yemek veya davetler;

Kişi başı [100] ABD Doları veya daha az değerde yemek; veya spor, tiyatro veya diğer kültürel etkinlikler gibi [250] ABD Doları veya daha az değerde davetler ve

Eş veya işle ilgili olmayan başka misafirlerin davetlilere eşlik etmediği davetler.

Tüm Limak şirketleri, davet ve ağırlamalar için, işbu Politika uyarınca ve buna ek olarak vergi mevzuatı dahil ilgili tüm yerel hukuk kuralları uyarınca öngörülen parasal limitleri ve onayları takip etmekle sorumludur.

VIII. Seyahat

Seyahat

Limak çalışanı olmayan kişilerin yerel olmayan ulaşım (hava seyahati dahil) ve konaklamalarının karşılanması için [bir amir]den ön izin alınması gerekmektedir. Limak çalışanı olmayanlar için havayolu biletleri Limak personeli tarafından doğrudan havayolundan veya bağımsız bir seyahat acentesinden satın alınacaktır.

Limak çalışanı olmayan kişilerin kendi yaptıkları seyahat ve konaklama masrafları için bu kişilere ödeme yapmak gerekirse, ödeme yapılmadan önce seyahat için makul ve gereğince harcanmış tutarı gösteren düzgün belgelerin temin edilmesi gerekmektedir. Limak iş ile ilgili olmayan faaliyetler için asla ödeme yapmayacaktır (gezi, aile bireyleri vb.). Devlet Yetkililerinin (ve yakınlarının) yerel olmayan ulaşım (hava seyahati dahil) ve konaklamalarının karşılanması genel olarak yasaklanmıştır ve sadece istisnai durumlar dahilinde [Limak Hukuk Müşavirinin veya uyum görevlilerinin] yazılı ön izni alındıktan sonra teklif edilebilir veya sunulabilir.

Seyahat, davet ve ağırlamaya ilişkin tüm kayıtlar (masraf iade formları dahil) tam ve doğru olmalı ve ilgili kişilerin isim unvan ve işveren bilgileri ile, davet ve ağırlama faaliyetine ilişkin özel açıklamayı ve bu faaliyetlerinin detaylı nedeni içermelidir.

IX. Birleşmeler & Devralmalar

Herhangi bir birleşme, devralma veya ortak girişim öncesinde Limak, yolsuzlukla mücadeleye ilişkin uygun bir hukuki inceleme yapacaktır. Yolsuzlukla mücadeleye ilişkin hukuki inceleme; ilgili tarafa yönelik mevcut veya öyle olduğu düşünülen muhtemel menfaat çatışmalarının, ilgili tarafın itibarının ve geçmiş davranışlarının (örneğin etik olmayan bir işle ilgisinin olup olmadığı), yolsuzlukla mücadele politika veya programlarının ve yolsuzluk iddialarına ilişkin olarak ilgili tarafa karşı yürütülen herhangi bir eski veya güncel idari, özel veya kamu işleminin incelenmesini de içerecek fakat söz konusu hukuki inceleme bunlarla sınırlı olmayacaktır.

X. Üçüncü Kişiler

Limak, üçüncü kişilerin Limak adına yürüttükleri işlerde hukuka ve etiğe, ilgili kanunlara ve Limak Politikasına uygun davranmalarını beklemektedir. Limak üçüncü kişilerin işbu Politikaya uygun davranmalarını sağlamak amacıyla mümkün olan yerlerde makul girişimlerde bulunacaktır.

Sözleşmeler

Limak adına iş yapan ve Şirketin üzerlerinde kontrol sahibi olduğu tüm üçüncü kişiler mümkün olduğu ölçüde ilgili mevzuat ve Limak Politikasını anlamış ve bunlara uymayı kabul etmiş olmalılardır. Limak, üçüncü kişilerin bu gereklilikleri yerine getirmemeleri halinde, ilgili üçüncü kişi ile olan ilişkisine son verme hakkını saklı tutacaktır. Uygulanabildiği ölçüde Limak'ın üçüncü kişilerle yaptığı sözleşmelerde ayrıca Limak'ın uyum incelemesi yapma ve yıllık uyum belgeleri talep etme hakkı bulunacaktır.

Üçüncü Kişilerin Seçimi ve İzlenmesi

Limak çalışanları, Limak adına iş yapan üçüncü kişilerin davranışlarının Limak için ciddi sonuçları olabileceğini anlamalıdır. Bu doğrultuda Limak çalışanları üçüncü kişilerin seçiminde özenli ve dikkatli davranmalı ve bu kişilerle iş yapmadan önce veya yaparken üçüncü kişilerin Limak Politikasını veya ilgili kanunların ihlaline yönelik davranışlarını mümkün olduğunca takibe almalıdır. Aşağıda tanımlanan "tehlike işaretlerine" özellikle dikkat edilmesi zorunludur.

Aracılar

Kamu yolsuzluğu genelde şirketlerin üçüncü kişileri bir devlet işi almaları veya devlet işlemini etkilemeleri için kendileri adına aracı olarak kullanmaları esnasında meydana gelmektedir. Yolsuzlukla mücadele kanunları çoğu zaman işlemin bizzat yapılması ile başkası aracılığıyla işlem sahibi adına yapılması arasında fark gözetmemektedir. Bu nedenle biz, ister Devlet Yetkilileri ister özel sektördeki müşterilerle irtibatta olsun, Limak iş davranış kurallarıyla aynı standartlara sahip olan aracılarla çalıştığımızdan emin olmalıyız.

Tehlike İşaretleri

"Tehlike işaretleri" bir işlemde yolsuzlukla mücadele kanunlarının veya Limak Politikasının muhtemel ihlaline yönelik daha fazla inceleme ve koruma gerektirebilecek durumlardır. "Tehlike işaretlerine" ilişkin örnekler aşağıda "Tanımlar" bölümünde yer almaktadır.

Tüm "tehlike işaretleri" uyum görevlerine veya bölüm 17'de açıklanan "yardım hattı" üzerinden raporlanmalıdır. Tüm "tehlike işaretleri" Limak'ın [uyum görevlileri] veya gereğince atanmış bireyler veya komiteler tarafından değerlendirilecektir. "Ben bilmek istemiyorum" şeklinde bir tavır hem Limak hem de bu tavır sahibi için sorumluluğun başlangıcı oluşturabilir.

XV. Kolaylaştırma/Hızlandırma Ödemeleri

Zorunlu devlet işlemlerini (örneğin vize işlemi, polis koruması sağlama, posta hizmeti veya telefon, elektrik, su gibi tedarik hizmetleri gibi işlemler) hızlandırmak veya rutin olarak gerçekleşmelerini güvence altına almak adına Devlet Yetkililerine yapılan kolaylaştırma/hızlandırma ödemeleri Limak'ın iş yaptığı ülkelerin kanunları uyarınca çoğunlukla yasaktır. Bu nedenle çalışanın hayatı, özgürlüğü veya güvenliği tehlike altında olmadığı takdirde Limak bu şekilde kolaylaştırma/hızlandırma ödemelerine izin vermemektedir. Eğer böyle bir ödeme yapılırsa çalışan (i) derhal hem direkt amirine [hem de uygun uyum takım liderine] ödemenin detaylarını ve nedenlerini raporlamalı; ve (ii) bu bilgilerin şirket defter ve kayıtlarına doğru işlenmesini sağlamalıdır.

XVI. Politik Katkılar

Siyasi partiler, parti görevlileri veya adaylarına yapılan katkılar ABD Yurtdışı Yolsuzluk Kanunu, Birleşik Krallık Rüşvetle Mücadele Yasası ve diğer yolsuzlukla mücadele kanunlarını ihlal edebilir. Bu harcamalar ayrıca diğer kanunlar ve Politikanın gerekliliklerine tabidir.

Dolayısıyla Limak'a ait hiçbir varlık politik katkılar için kullanılamaz; meğerki bu katkı ilgili kanunlara uygun olarak ve uyum görevlisinin önceden alınan izni uyarınca yapılmış olsun.

XVII. Hayır Yardımları/Sosyal Sorumluluk

Sosyal sorumluluk projeleri Limak'ın şirket kimliğinin önemli bir parçasını oluşturmaktadır. Bununla birlikte, şirketin işi için herhangi bir menfaat sağlama karşılığında Devlet Yetkililerinin de örneğin bir vakıf yöneticisi olarak görev yaptığı hayır kurumlarına yapılan yardımların uluslararası yolsuzlukla mücadele kanunları altında sorun teşkil edebileceğinin bilincinde olmalıyız. Bazı devlet kurumları, bir Devlet Yetkilisi ile bağı olan bir hayır işine yapılan katkının Devlet Yetkilisi yararına yapılmış sayılabileceğine yönelik bir tutum içerisindedir. Hayır yardımı için yapılan talepler ticari faaliyetlerden ayrı olarak değerlendirilmelidir ve şirketin işi ile ilgili çıkarlarına yönelik herhangi bir fayda karşılığında hayır yardımı yapmak uygunsuzdur.

Hiçbir Limak çalışanı, yöneticisi veya Üçüncü Kişi şirket adına işle ilgili herhangi bir fayda edinmek amacıyla herhangi bir hayır yardımı veya sosyal sorumluluk projesi teklif edemez, yapamaz veya üstlenemez.

Tüm bu harcamalar [Limak'ın uyum görevlileri]'nin ön iznini gerektirmektedir.

XVIII. Diğer Yasaklı Davranışlar

Kesin surette yasak olan davranışlara aşağıdakiler de dahildir:

- *Yolsuzluk veya dolandırıcılığın herhangi bir türü;*
- *Ödül, rüşvet ve diğer hukuka aykırı teşviklerin önerilmesi veya kabul edilmesi;*
- *Evrakların, harcama raporlarının, finansal kayıtlar, marka ve diğer ürünlerin sahteciliği;*
- *Görevi kötüye kullanma, kaçakçılık, sahtekârlık, şirket casusluğu veya diğer haksız, rekabete aykırı uygulamalar.*

XIX. Defterler ve Kayıtlar

Bir iç muhasebe kontrolleri sistemi oluşturup bunu korumak ve işlemlerin ve varlık elden çıkarmalarının düzgün bir şekilde aktarıldığı, bunlara ilişkin makul detay içeren, gerçeğe uygun defter ve kayıtları oluşturmak ve tutmak bir Limak Politikası'dır. Bu kayıtlara veya diğer evraklara yanlış, yanıltıcı veya noksan girişlerin yapılması kesin surette yasaklanmıştır. Açıklanmamış veya kaydedilmemiş fonlar veya hesaplar hiçbir sebeple oluşturulamaz.

Limak'ın harcamaları, bu harcama tutarlarını gösteren gerçek ve geçerli makbuz ve faturalara ek olarak faaliyetlerin yeterli ölçüde detaylandırılmış açıklamalarıyla desteklenmelidir. Bu çabayla Limak'ın uyum görevlileri zaman zaman belli başlı harcamaların veya faaliyetlerin onayı için formlar yayınlayabilir. Bakınız ör. EK G (Eğitim ve Geçici Görevlendirme için Ön Onay Formu).

Yanlış makbuzların ve/veya faturaların bilinçli bir şekilde ibrazı (her hangi bir çalışan tarafından) veya kabulü (muhasebe departmanı veya başka bir personel tarafından) kesin surette yasaklanmış olup bunların yapılması fesih ve yasal işleme kadar varan ve bunların dahil olduğu bir disipline tabidir. (i) İşlemlerin yönetimin onayı doğrultusunda yapıldığının, (ii) işlemlerin gerçeği yansıtan mali tabloların hazırlanmasına izin verecek şekilde kaydedildiğinin ve varlıkların hesaplanabilirliğinin korunduğunun, (iii) varlıklara erişimin ancak yönetim onayı doğrultusunda izin verildiğinin ve (iv) uygun denetim fonksiyonlarının gerçekleştirildiğinin makul ölçüde garantisini sağlayan bir muhasebe kontrol sistemi sürdürülecektir.

XX. Hukukun ve Politikanın İhlali

İşbu Politikanın veya ilgili kanunların ihlali fesih, para cezası, cezai kovuşturma, hapis ve/veya özel hukuk davasına kadar varabilecek disiplin önlemleri ile sonuçlanabilir. Buna ek olarak dünyanın herhangi bir yerinde yolsuzlukla mücadele yasasına ilişkin ihlaller çalışanı ve şirketi özel ve cezai müeyyideye tabi kılabilir.

XXI. Bildirim Yükümlülüğü / Misilleme Olmaması

İşbu Politikanın ihlal edildiğini veya edileceğini bilen veya böyle bir ihlalin yapıldığından veya yapılacağından şüphelenen her çalışan bu durumu hemen takım liderine, bölümün İnsan Kaynakları müdürüne, [uyum görevlilerine] raporlamalıdır. Limak, böyle bir raporlamayı iyi niyetle yapmış kişiye karşı yapılacak herhangi bir misilleme hareketine müsamaha göstermeyecektir. Misillemenin varlığından şüphelendiğiniz takdirde bunu hemen raporlamanız gerekmektedir.

İşbu Politikanın ihlaline ilişkin ihbarlar, öngörülemeyen durumlar veya Politikanın yorumuna dair sorular ilgili amirlere sorulmalı veya [Limak'ın Hukuk Müşaviri veya uyum görevlileri]ne iletilmelidir.

Herhangi bir çalışanın en yakın amiriyle konuşmakta kendini rahatsız hissetmesi durumunda, bu çalışan doğrudan [uyum görevlileri] ile irtibata geçmelidir. İlgili konu [uyum görevlileri]'nin yetkisini aşarsa gönderilmelidir.

Çalışan, tedarikçi, yüklenici veya iş ortaklarının dahil olduğu ticari işlemler veya muameleler ile ilgili sahtecilik, kanunsuz el koyma, rüşvet ihbarlarında bu ihbarlar mutlaka somut bulgu ve verilerle desteklenmelidir.

Şirketçe alınan tüm ihbarlar hukukun izin verdiği ölçüde gizli tutulacaktır.

XXII. Yardım Hattı/İç Rehber

İşbu Politika veya ilgili yolsuzlukla mücadele kanunları ile ilgili yönlendirilmeye ihtiyacı olan veya işbu Politika'nın veya ilgili yolsuzlukla mücadele kanunlarının muhtemel ihlalini raporlamak isteyen her çalışan Limak'ın [XXXXXXXXXXXX] numarasındaki yolsuzlukla mücadele yardım hattını veya [Limak'ın XXXXXXXXXXXX numarasındaki yardım hattını] arayabilir veya [_____ adresinden Limak'ın uyum ofisine] elektronik posta gönderebilir. Arayanlar sorunlarını kimliklerini gizli tutarak aktarma seçeneğine sahip olsalar da bazı ülkeler kimlik açıklamadan sorunların raporlanmasına izin vermemektedir. Uygulanan kısıtlamaların detaylarına ülke bazlı arama talimatnamesinde yer verilmiştir. Tüm sorular ve raporlar çok gizli tutulacaktır.

XXIII. Eğitim

Her çalışan düzenli aralıklarla Limak Politikası hakkında eğitimden geçecektir. Politikanın bir kopyası her yıl ve Politika her tadil edildiğinde her bir çalışana verilecektir. Politikanın bir kopyasını aldıktan sonra çalışanlar Politikayı aldıklarını, okuduklarını ve anladıklarını ve bu Politikaya riayet edeceklerini beyan edeceklerdir.

TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	SYA-PLN-ENV-GEN-009	REV	P4-0
Document Title :	ENVIRONMENTAL TRAINING PLAN		
Tag Nos :			
Contractor :	SYA - Sicim-Yuksel-Akkord JV	REV	

		Signature	Date
	C1- Reviewed & accepted as final & certified. Manufacture may proceed.		
	C2- Reviewed & accepted as marked. Revise & resubmit. Manufacture may proceed.		
	C3- Reviewed & returned. Correct & resubmit. Manufacture shall NOT proceed.		
	C4- Review not required. For information only. Manufacture may proceed		

Remarks:

SICIM-YUKSEL-AKKORD JV	TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT - LOT 2 -	TANAP WorleyParsons

ENVIRONMENTAL TRAINING PLAN
SYA-PLN-ENV-GEN-009

Rev.	Status	Date (dd/mm/aa)	Document Status Description	Issued by	Checked by	Approved by	TANAP Approval
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P4-0	IAAC	16/04/15	Issued As Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

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1 PURPOSE

The purpose of Environmental Training Procedure is to design training programs to form a lasting culture on the behaviour and activities in the workplaces that in turn affects the environmental performance.

The aim of this procedure is to ensure that all Contractor employees are provided with the necessary training in environmental issues based on the needs of the individual. This will enable individuals to conduct their work tasks in a way that safeguards the environment and meets the requirements of Project Environmental Management System. Key project personnel whose management roles or job responsibilities/activities may have an impact on the environment will also receive specific issue training as appropriate (e.g. in waste management, fuel handling etc.).

2 SCOPE

This procedure explains that the environmental training system structure and critical training and environmental trainings are beneficial to work safely in the workplaces and take environmental precautions during the construction of LOT- 2 section of TANAP Project.

This program is designed to fully support Contractor's and TANAP's stated goals of:

- Zero incidents and accidents,
- Systematically identifying and managing all forms of environmental risks inherent in the Work,
- Complying with the requirements of applicable Turkish Regulations, WB Standards, EU Directives and TANAP specifications,
- Minimising waste generation,
- Using material and energy efficiently during construction,
- Continuously measuring and improving our environmental performance; and
- Promoting a culture for all employees, contractors and subcontractors, to increase individual responsibility, and to approach the environmental excellence.

3 REFERENCES

- ISO 14001 Environmental Management System - Requirements
- Environmental Social Impact Assessment Report- TANAP
- Turkish Environmental Law and Regulations
- Appendix M: Environmental and Social Management for 56" Onshore Pipeline Construction Lots 1, 2 and 3 (BCH-AGR-CNT-GEN-015)
- Pipeline Construction Specification (BCH-SPC-PPL-PLG-010)
- Environmental & Social Requirements for Contractors (ILF-SPC-ENV-GEN-001)
- Environmental & Social Management Plan (ILF-PLN-ENV-GEN-001)
- Stakeholder Engagement Plan (GLD-PLN-SOC-GEN-001)
- Grievance Management Procedure (TNP-PCD-SOC-GEN-001)

- Compliance with Legislative Requirements Procedure (ILF-PCD-PAL-GEN-001)
- Trans-Anatolian Natural Gas Pipeline (TANAP) Project ESIA Report
- Biodiversity Action Plan (BAP) (CIN-REP-ENV-GEN-017-Rev-P3-D)

4 ROLES AND RESPONSIBILITIES

Project Manager

Has overall responsibility o ensure that Environmental Training Plan is implemented;

- Ensures that enough resources are allocated
- Ensures that training program is adequate
- Approves the training program and associated elements

Environmental Manager

- Assist project manager any Environmental Training Plan related issues
- Ensures that training program is conducted, satisfying the project requirements
- Ensures that trainings are documented and records are kept for inspection
- Ensures that training program is adequate for project requirements
- Developing course material as necessary
- Ensures that training matrix is adequate
- Auditing training program

Spread Environmental and Social Coordinator

- Ensures that All Employees are received Environmental İnduction training
- Ensures that Specific Environmental Courses for operators, drivers & field workers are provided
- Ensures that Specific HSE Courses for supervisors, and construction and project management are provided
- Ensures that trainings are documented
- Developing course material
- Analysing and requesting any changes to training program
-

Training Manager

Has overall responsibility for implementation and maintenance of the HSE Training Management Plan. Primary duties include:

- Deployment of existing training programs;
- Source selection of training programs;
- Coordinating development of course work and Subject Matter Expert review of training curricula (i.e. Environmental Engineering);
- Co-ordinating yearly review and update of materials;
- Determining student-instructor ratios, based on training activity;
- Determining methods of skill and proficiency assessment, and minimum levels of achievement;
- Overseeing training record maintenance;
- Provide training and evaluation opportunities to Instructors and Learning Program Designers;
- Defining and developing basis for retraining of workforce while work is in progress;
- Defining training facility requirements for the workforce; and
- Finalising orientation program and training curricula.

5 METHOD

Contractor will develop and implement an Environmental training program. The training program will include an initial site induction program for all site personnel prior to carrying out any work on site. The induction program will be developed and tailored to meet the needs of the different personnel employed by Contractor. Upon completion of the induction program, all site personnel will be issued with an authorized training passports and hard hat stickers that must be carried by the person at all times and may be requested by Contractor inspectors during site inspections/audits. The training program documentation will be made available for review of EPCM. Contractor will also attend training programs organized by EPCM when requested.

The HSE training program will ensure that all site personnel:

- fully understand the environmental requirements of the Project and how they will be implemented and monitored on site
- fully understand the potential impacts of the Project, the mitigation measures that have been adopted to address those impacts and how and where to apply these measures;
- fully understand the environmental sensitivities of the areas through which the pipeline and other facilities will be constructed;
- fully understand the relevant requirements of the project actions specified in the Project Seasonal Sensitivity Tables and accompanying notes
- fully understand the procedures to be followed in the event of a non-compliance with the environmental requirements;
- fully understand the procedures for responding to the enquiries from the public;
- know how to deal with unforeseen environmental incidents;

In addition to the induction program, Contractor will ensure that all construction personnel attend regular site-specific ‘tool-box’ training sessions on environmental issues and retraining sessions after incidents and NCRs have been issued throughout the term of the Contract. This will include updates on specific local issues such as seasonal constraints, valuable crops or archaeological sites.

Environmental Training

a) Basic Environmental Induction (for all personnel)

Perform work activities in a manner consistent with environmental permits, site specific conditions, best practices, legal compliance requirements in general and ISO 14001 requirements in line with SYA Management system for the environmental monitoring, waste management, reinstatement, pollution prevention, spill response, cultural heritage.

b) Specific Environmental Courses for operators, drivers & field workers,

Reinstatement

- General and site-specific methods for reinstatement
- Special Crossing (e.g. rivers)
- Reinstatement of permanent/temporary access roads
- Steep slopes and side slopes

Waste management

- Waste minimization
- Hazardous waste
- Non-hazardous waste
- Waste segregation and storage
- Recycling
- Housekeeping

Water and Soil Management

- Measures/work practices required to minimise damage to soil productivity
- Requirements for dewatering of pipeline trench
- Measures/action required for the storage of hazardous materials i.e. chemicals, fuels, oils
- Refueling practices
- Requirement for vehicle wash facilities
- Spill response measures
- Procedures upon discovery of pre-existing environmental contamination
- Reporting spill incidents

Air Quality Management

- Vehicle maintenance
- Monitoring emissions from plant equipment
- Measures for the control of vehicle movements on site
- Measures required to minimize dust emissions

Cultural Heritage Management

- Requirements of the CHMP
- Procedure to be followed in the event of chance finds
- Processes to be adopted in "careful excavation"

Traffic Management

- Summary & potential impact of anticipated traffic flows
- Measures for reducing road related traffic accidents
- Vehicle standards and maintenance

Noise and Vibration Management

- Noise baffling
- Piling and blasting
- Noise emissions standards to be attained

Aggregate Management

- What is an aggregate?
- Short and long term E&S issues associated with removal and transportation
- Sources of aggregates
- Importance of not sourcing aggregates from excavation of existing river beds

Biodiversity Action Plan

- What is biodiversity?
- What is flora-fauna?
- What is endemic species?
- Compliance with season constraints
- Compliance with RoW boundaries during construction activities
- Recording of any dead/injured fauna
- Clear and grade activities

c) Specific Environmental Courses for supervisors, and construction and project management

Biodiversity Action Plan

- What is biodiversity?
- What is flora-fauna?
- What is endemic species?
- Compliance with season constraints
- Compliance with RoW boundaries during construction activities
- Recording of any dead/injured fauna
- Clear and grade activities
- Monitoring requirements

Reinstatement

- General and site-specific methods for reinstatement
- Erosion control
- Bio-restoration
- Special crossing (e.g. rivers)

- Construction phases (construction - maintenance)
- Reinstatement of permanent/temporary access roads
- Steep slopes and side slopes

Waste Management

- Waste management hierarchy
- Hazardous waste management
- Non-hazardous waste management
- Waste disposal requirements
- Medical waste disposal
- Sewage wastes
- Waste segregation and storage
- Waste permits
- Waste management plans

Water and Soil Management

- Requirements for effluent discharge to surface waters
- Requirement for water abstraction
- Water quality at river crossings etc.
- Sampling and testing effluent and receiving water quality
- Measures/work practices required to minimise damage to soil productivity
- Requirements for dewatering of pipeline trench
- Hydrotest management
- Measures/action required for the storage of hazardous materials i.e. chemicals, fuels, oils
- Re-fuelling practices
- Requirement for vehicle wash facilities
- Spill response measures
- Procedures upon discovery of pre-existing environmental contamination
- Reporting spill incidents

Air Quality Management

- Vehicle maintenance
- Monitoring emissions from plant equipment
- Measures for the control of vehicle movements on site
- Air emission standards to be attained
- Measures required to minimise dust emissions

Cultural Heritage Management

- Consequences of destroying Turkish Cultural Heritage Sites
- Requirements of the CHMP
- Procedure to be followed in the event of chance finds
- Processes to be adopted in "careful excavation"

Traffic Management

- Summary & potential impact of anticipated traffic flows
- E&S considerations to be adopted in the upgrade of new access roads or creation of new roads
- Control and management of traffic flows
- Measures for reducing road related traffic accidents

- Vehicle standards and maintenance

Noise and Vibration Management

- Scheduling of construction activities having the potential for excessive noise emissions
- Noise baffling
- Piling and blasting
- Noise emissions standards to be attained

Aggregate Management

- What is an aggregate?
- Short and long term E&S issues associated with removal and transportation
- Development & implementation of aggregates management plans
- Permits / licenses
- Sources of aggregates
- Importance of not sourcing aggregates from excavation of existing river beds
- Reclamation/reinstatement

Subcontractors will also attend the above training at the same level of organization.

Contractor will provide:

- Effective knowledge transfer of industry best practices,
- A step change in individual and organisational behaviour,
- The organisational capability to manage the training processes,
- Mobile training facilities, materials and evaluation tools to serve the workplace,
- Multi-lingual enabled training programs,
- Trained and competent trainers,
- Culturally sensitive training materials,
- Programs specifically tailored to the needs of the entire workforce,
- Effective mechanisms for evaluating individual's proficiencies; and

6 DOCUMENTATION

Training records will be maintained in a central database that will serve to:

- Track the individuals training needs and requirements vs. completed training;
- Track required refresher training dates;
- Track delinquent training;
- Track the arrangements completed;
- Maintain records on trainee progress;

Attachment 1: Training Attendance Form

Attachment 2: Environmental Training Courses syllabi

Attachment 3: Environmental Training Matrix

Attachment 4: Training Register

ATTACHMENT 1: Training Attendance Form

PROJECT NAME	
JOB NO	

NAME OF TRAINING				
TOPIC				
INSTITUTION				
COMMENCEMENT DATE / TIME				
END DATE / TIME				
TRAINEES				
NO.	FAMILY NAME	NAME	DEPARTMENT	SIGNATURE
DEPARTMENT MANAGER		**TRAINER**		

ATTACHMENT 2: Environmental Training Courses

Course Title	General E&S Awareness
Suggested Duration	TBD
Key Objective(s)	To put the Project, LOT-2, into a global context regarding environmental and social issues
Issues to be covered	Global environmental issues Introduction to the importance of social awareness
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All new employees Employees that have little or no E&S experience and whose work

	activities could have an E&S impact.

Course Title	Environmental & Social Management Systems
Suggested Duration	TBD
Key Objective(s)	To introduce the TANAP Project E&S management systems and to highlight some of the key requirements for those involved in construction related activities.
Issues to be covered	Environment & Social Management Plan Environment & Social Management Manual Environment & Social Procedures Environment & Social Surveys & Studies Key requirements under ISO 14001 (e.g., environmental assessments/EIAs; KPIs; E&S data reporting; incident reporting; E&S auditing).
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities.

Course Title	Reinstatement
Duration	TBD
Key Objective(s)	To make attendees aware of the work practices required to reduce the extent of reinstatement needed; the need to conduct pre-construction surveys; techniques and standards required for TANAP acceptable reinstatement
Issues to be covered	General and site specific methods for reinstatement Erosion control Bio restoration Special Crossings (eg, rivers) Construction phases (construction – maintenance) Reinstatement of permanent/ temporary access roads Steep slopes and side slopes
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

Course Title	Waste Management
Duration	TBD
Key Objective(s)	To make attendees aware of their individual and company responsibilities regarding the management of construction related waste
Issues to be covered	Waste management hierarchy Hazardous waste management Non-hazardous waste management Waste disposal requirements Medical waste disposal Sewage wastes Waste segregation and storage Waste permits Waste management plans

Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	Employees with direct and indirect waste management responsibilities

Course Title	Water and Soil Management (General)
Duration	TBD
Key Objective(s)	To make attendees aware of the measures / work practices required to minimize disruption / damage to water resources and soil quality
Issues to be covered	Requirements for effluent discharge to groundwater Requirements for effluent discharge to surface waters Measures / work practices required to minimize damage to soil productivity Hydro test management
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities
Course Title	Water and Soil Management (Spill Response)
Duration	TBD
Key Objective(s)	To make attendees aware of the measures required to reduce the potential for hazardous material spills and the action(s) to be taken in the event that a spill does occur
Issues to be covered	Measures / actions required for the storage of hazardous materials i.e., chemicals, fuels, oils Refueling practices Requirement for vehicle wash facilities Spill response measures Procedures upon discovery of pre-existing environmental contamination Reporting spill incidents
Tools / Method of Delivery	Presentation Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

Course Title	Air Quality Management
Duration	TBD
Key Objective(s)	To make attendees aware of the measures / work practices required to minimize the impacts upon air quality from construction activities as well as the potential negative impacts on flora/fauna and human health of uncontrolled air emissions
Issues to be covered	Vehicle maintenance Monitoring emissions from plant equipment Measures for the control of vehicle movements on site Air emission standards to be attained Measures required to minimize dust emissions
Tools / Method of Delivery	Presentation Group discussions
Target Audience	All staff directly involved in managing or engaging in construction

	activities

Course Title	Cultural and Heritage Management
Duration	TBD
Key Objective(s)	To make attendees aware of the scale of culture and heritage evident across the Turkish pipeline route as well the requirements of the Cultural & Heritage Management Plan
Issues to be covered	Consequences of destroying Turkish archaeology Requirements of the CHMP Procedures to be followed in the event of chance finds Processes to be adopted in 'careful excavations'
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

Course Title	Traffic Management
Duration	TBD
Key Objective(s)	To make attendees aware of the measures required to minimize the impact construction related traffic movements on the local environment
Issues to be covered	Summary & potential impact of anticipated traffic flows E&S considerations to be adopted in the upgrade of new access roads or creation of new roads Control and management of traffic flows Measures for reducing road related traffic accidents Vehicle standards and maintenance
Tools / Method of Delivery	Presentation Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

Course Title	Managing Environmental Noise and Vibration
Duration	TBD
Key Objective(s)	To make attendees aware of the measures required to minimize the disruption / disturbance to the local community from excessive noise levels related to construction activities
Issues to be covered	Scheduling of construction activities having the potential for excessive noise emissions Noise baffling Piling and blasting Noise emission standards to be attained
Tools / Method of Delivery	Presentation Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

Course Title	Aggregates Management
Duration	TBD
Key Objective(s)	To make attendees aware of the measures required for the removal of aggregates as well as the E&S implications associated with aggregate removal, transportation and disposal
Issues to be covered	What is an aggregate?

	Short and long-term E&S issues associated with removal and transportation Development & implementation of aggregates management plans Permits / licenses (requirement for EA) Sources of aggregates Reclamation / reinstatement Importance of not sourcing aggregates from excavation of existing river beds
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

Course Title	Tool-Box Talks – For field staff in addition to those courses detailed above.
Duration	10 – 15 minutes each
Key Objective(s)	To educate field personnel of key day to day actions required to be taken to ensure compliance to E&S Project commitments
Issues to be covered	Employee involvement in E&S i.e., how can an individual make a difference? Accident / incident investigation and reporting Conducting E&S inspections Conducting E&S audits Housekeeping
Tools / Method of Delivery	Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

Course Title	Biodiversity Action Plan Training
Duration	TBD
Key Objective(s)	To educate field personnel of key day to day actions required to be taken to ensure compliance Biodiversity Action Plan
Issues to be covered	• What is biodiversity? • What is flora-fauna? • What is endemic species? • Compliance with season constraints • Compliance with RoW boundaries during construction activities • Recording of any dead/injured fauna • Clear and grade activities
Tools / Method of Delivery	Group discussions
Target Audience	All staff such as operators, drivers & field workers, clear and grade crew directly involved in engaging in construction activities

Appencix 3: Environmental Training Matrix

sicim YÜKSEL		Rev.: 00																													
	TITLE	TRAINING MATRIX																													
POSITIONS / TRAINING COURSES		PROJECT MANAGER	DEPUTY PM	QAQC MANAGER & COORDINATOR	TRAINING MANAGER	HSE MANAGER & COORDINATOR	HSE OFFICER	QAQC INSPECTOR	OFFICE WORKER	CONSTRUCTION MANAGER	SUPERVISOR & FOREMAN	WELDER & GRINDER	ELECTRICIAN	BENDING ENGINEER & TECHNICIAN	BEVELLING MACHINE OPERATOR	COATER	PIPE FITTER	MECHANIC	SURVEYER	STOREKEEPER	DRIVERS	GENERAL HELPER	First Aiders	HSE committee	PAY WELDER operators	Crane truck operators	Crane operators	Agricultural tractor operators	Dozer, Sideboom, Excavator operators	Forklift operators	NDT operators	Clear and Grade Crew
TRAINING	***Hours***																														
Basic Environmental Induction																															
Reinstatement																															
Waste Management																															
Water and Soil Management																															
Air Quality Management																															
Cultural Heritage Management																															
Traffic Management																															
Noise and Vibration Management																															
Aggregate Management																															
Biodiversity Action Plan																															

Appendix 4: Training Register Table

TRAINING REGISTER - LOT 2						
Reporting Period:						
Date	**Subject**	**Duration (min)**	**Location**	**Attendees (who)**	**Number of attendees**	**Total Manhours**

WorleyParsons
resources & energy

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	SYA-PLN-SOC-GEN-004	REV	STATUS
		P4-0	IAAC
Document Title :	RECRUITMENT AND WORKERS MANAGEMENT PLAN		
Tag Nos.			
Contractor :	SYA - Sicim-Yuksel-Akkord JV		
Contractor Document No.		REV	

		Signature	Date
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Work may proceed.		
	C2- Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Work may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Work shall NOT proceed.		
	C4- Review not required. Resubmit for information only rev P4-0 - IFI. Work may proceed.		

Remarks:

Prepared by: SYA On behalf of: sicim YÜKSEL AKKORD SICIM-YUKSEL-AKKORD JV	TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT – LOT 2	TANAP WorleyParsons resources & energy

RECRUITMENT AND WORKERS MANAGEMENT PLAN

Rev.	Status	Date (dd/mm/aa)	Document status Description	Issued by	Checked by	Approved by	TANAP Approval
P3-A	DIC	16/03/15	Discipline Internal Check	ARAO	KURV	TENP	
P3-B	IDC	16/03/15	Inter Discipline Check	ARAO	KURV	TENP	
P3-C	IFR	16/03/15	Issued for Review	ARAO	KURV	TENP	
P4-D	Re-IFR	06/04/15	Re Issued for Review	ARAO	KURV	TENP	
P4-E	Re-IFR	18/05/15	Re Issued for Review	ARAO	KURV	TENP	
P4-0	IAAC	21/05/15	Issued As Approved for Construction	ARAO	KURV	TENP	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P3-A	DIC	16/03/2015	Discipline Internal Check
P3-B	IDC	06/04/2015	Inter Discipline Check
P3-C	IFR	16/03/2015	Issued for Review
P4-D	Re-IFR	06/04/2015	Re Issued For Review
P4-E	Re-IFR	18/05/2015	Re Issued For Review
P4-0	IAAC	21/05/15	Issued As Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

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APPENDICES

LIST OF ABBREVIATIONS

CLO	Community Liaison Officers
EPCM	Engineering Procurement and Construction Management
ESMS	Environmental and Social Management System
IFC	International Finance Corporation
ISO	International Standards Organization
KPI	Key Performance Indicator
OHSAS	Occupational Health & Safety Advisory Services
SEP	Stakeholder Engagement Plan
SYA	Sicim, Yüksel and Accord Consortium
TANAP	Trans Anatolian Natural Gas Pipeline
WHO	World Health Organization

LIST OF DEFINITIONS

EPCM	Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi
TANAP	TANAP Natural Gas Transition Incorporation

1. PURPOSE AND SCOPE

The intention of the Local Recruitment and Training Plan is to ensure that local employment is maximized during the TANAP project by setting local employment targets and through trainings, all personnel (including the personnel of SYA and its subcontractors) are aware of their responsibilities in Environmental and Social Management System and understand the requirements of the TANAP Project requirements.

Besides for maximising the opportunities for local employment, the Plan will ensure a fair distribution of jobs to all affected settlements. This is vital for establishing a good relationship between the Project and the local settlements.

This plan outlines the skills development and training process to ensure that local settlements can benefit from this project in the longer term by developing skills that can help them find employment once the Project is completed.

2. LEGISLATION FRAMEWORK

2.1. Compliance with Statuary and Regulatory Requirements

According to Article 3.7 of Host Government Agreement between the Government of Turkey and TANAP Natural Gas Transmission Inc. (hereafter referred as TANAP) “Environmental and Social Standards shall comply with National Laws and shall also take due account of international standards and practices generally prevailing in the Natural Gas Pipeline industry, including relevant Performance Standards of the International Finance Institutions.”

SYA, therefore, will ensure that its activities comply with all relevant Turkish legislation and international requirements. SYA will also ensure that other Project standards and best practices in natural gas pipeline industry stipulated in ESIA report of the project are complied with.

SYA will also perform the recruitment and workers management process in line with the following national and international legislation,

- Turkish Labour Law No. 4857 and its pertinent regulations,
- Turkish Workers Health and Safety Law No. 6331 and its pertinent regulations,
- Performance Standard 2 of International Finance Corporation.

2.2. Compliance with TANAP Policy, ESIA and ESMS Requirements

SYA and all project personnel employed by SYA shall be individually and collectively responsible for adherence to, and effective application of the policies and principles contained in health, safety, environmental and social policies of TANAP.

Furthermore, SYA will be responsible for implementation of, and adherence to, all relevant mitigation measures and requirements outlined in TANAP’s ESIA and Environmental and Social Management Plans.

3. OBJECTIVES

The operational objectives, indicators and targets given in Table 1 are defined for the implementation of this plan in line with the social objectives of the TANAP Project as defined in ESIA Report.

Table 3.1: Key Performance Indicators (KPIs) for Local Recruitment and Training Plan

Measure*	Rationale	KPI**	Target	Reporting
Training completed vs. planned	Monitoring implementation of agreed commitment	KPI	100%	Weekly/ Monthly
% of unskilled staff employed from affected provinces	Gives an indication of how well we are meeting the commitment to regional employment	KPI	100%	Monthly
Out of 100 % unskilled stuff employed from affected province, % that is employed from affected district	Gives an indication of how well we are meeting the commitment to regional, employment	KPI	90%	Monthly
Out of 100 % unskilled stuff employed from affected district, % that is employed from affected villages	Gives an indication of how well we are meeting the commitment to local employment	KPI	80%	Monthly
% of semiskilled staff employed from affected provinces	Gives an indication of how well we are meeting the commitment to regional, employment	KPI	100%	Monthly
# of semiskilled staff employed from affected m villages		Measure	N/A	Monthly
% of semiskilled staff employed from a national level	Gives an indication of how well we are meeting the commitment to national employment	KPI	80%	Monthly
# of community complaintsorelating to recruitment issues	Gives an indication of how well we are meeting the commitment to TANP requirements	PI	Negative trend	Monthly
# of worker grievances	Gives an indication of how well we are meeting the commitment to TANP requirements	Measure	N/A	Monthly
# of worker strikes	Gives an indication of how well we are meeting the commitment to TANP requirements	Measure	N/A	Monthly
Actual recruitment awareness meetings versus planned	Monitoring implementation of recruitment awareness meetings	KPI	100%	Weekly/ Monthly
Grievances related to recruitment process	Gives an indication of how well the recruitment process is performed	KPI	0%	Weekly/ Monthly
Worker grievances - open (pending assessment, pending corrective action), closed (accepted, rejected), number per category	Gives an indication of how well the workers management is applied	KPI	0%	Weekly/ Monthly
Number of demobilisations as per plan	Monitoring the demobilisation	KPI	100%	Weekly/ Monthly

* Measure: Parameters that are monitored to measure progress but not necessarily linked to performance

** KPI: Parameters that are monitored, reported on to measure performance – expectation is that target should be met.

4. ROLES AND RESPONSIBILITIES

SYA will have primary responsibility for the implementation of this plan and the measures presented in Table 1 and for ensuring that they are passed down to all sub-contractors.

Moreover, SYA will establish a Community Relation Team (CRT) during pre-construction phase, who will be responsible for managing relations with related local communities on site. The recruitment process will be conducted and led by SYA CRT in conjunction with SYA HR department.

Social Manager:

- Managing SYA CRT and HR department conducting the recruitment process in compliance with Local Recruitment and Training Plan (SYA-PLN-SOC-GEN-004) and the requirements of TANAP and EPCM documents.
- Managing the worker complaints were received, recorded, followed up, closed and reported by SYA CLO's in accordance with grievance mechanism.
- Managing employment contracts for each worker were signed, salaries, overtime payments and rate of insurances were stated and paid on time.

Community Liaison Officer:

- Conducting the recruitment process in compliance with Local Recruitment and Training Plan (SYA-PLN-SOC-GEN-004) and the requirements of TANAP and EPCM documents in conjunction with SYA HR department.
- To maintain the spread's up-to date complaint register
- Announcing the work schedule to the local people on a weekly and monthly basis in directly affected settlements for increasing public awareness.
- Conducting grievance mechanism by receiving, recording, following up, closing and reporting worker complaints in monthly basis.

SYA HR Department

- Conducting the recruitment process in compliance with Local Recruitment and Training Plan (SYA-PLN-SOC-GEN-004)
- Ensure all recruitments and implementations were conducted in accordance with Turkish legislations and international requirements
- Ensuring employment contracts for each worker were signed, salaries, overtime payments and rate of insurances were paid on time, including the workers working for subcontractors of SYA.
- Ensure all personnel records including subcontractors of SYA were kept in Çadırkaya and Hafik camps and declared to local governmental authorities on time
    - Ensure the subcontractors recruitment processes were also conducted in compliance with Local Recruitment and Training Plan (SYA-PLN-SOC-GEN-004)

5. LOCAL RECRUITMENT AND TRAINING PLAN

SYA aims to enhance local development and capacity building through its activities in compliance with the vision of TANAP, thus maximizing the local content of the Project.

The opportunities for creating local employment represent one of a number of means for the project to deliver positive benefits to the local communities that could be impacted by the project and it should provide equal opportunities for all settlements along Lot2 section of the pipeline route.

The main principle of the recruitment process is to perform the process on merit on the basis for fair and open competition. Merit means the appointment of the best available person judged against the essential criteria for the role. Fair means there must be no bias in the assessment of candidates. Selection processes must be objective, impartial and applied consistently. Open means that job opportunities must be advertised publicly.

While the employment will be performed from the local residents' as much as possible[1], equitable and transparent employment methods will be preferred covering the local residents as candidates. SYA will prepare an employment strategy to identify the employment needs, to understand what work skills are available locally and what actions should be implemented to increase local employment opportunities. The recruitment processes will be transparent, public and non-discriminatory, providing equal opportunities with respect to ethnicity, religion, language, gender and sexuality and will represent the only official system to be employed in the Project.

SYA will provide clear information on the recruitment process and the employment opportunities including unskilled, semi-skilled and skilled positions. The planned number of workers at each construction camp is 700-800 at peak times (approximately 50 unskilled, 60 semiskilled and 590-690 skilled). This number will be finalized by SYA. SYA will prepare lists of positions available with required skills (unskilled, semi-skilled and skilled positions) and availability, divided into the "preferential" categories: directly affected settlements, affected districts, affected provinces and these lists will be reviewed by EPCM.

Job descriptions will be clearly communicated in advance and will contain complete information on working conditions such as collective bargaining, working hours, wage levels, maternity leave, etc.

The disclosure of recruitment process and the employment opportunities will be provided by SYA through different channels such as settlement heads, local associations, national, local newspapers and letters, community notice boards via leaflets, posters, brochures, etc. to ensure wide distribution of information for the provision of equal work opportunities. Moreover, SYA will be conducting recruitment awareness meetings with local authorities together with EPCM Community Liaison Officers (CLOs) on project activities on a regular basis as specified on Stakeholder Engagement

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[1] In order to have the local employment at maximum level, the Governor's Office, National Directorate of Education, Public Training Directorate and Municipalities will be contacted previously.employment

Plan (WRP-PLN-ENV-GEN-003) (SEP) and will give information on the employment and procurement process.

In the course of the application process, the work applications collected from the local candidates by SYA CLO's will be considered firstly.

The employment application forms will include personal details (see Appendix-1). For unskilled employment, local residents will submit employment application forms to the SYA CLO's or SYA representatives from HR department in villages or in SYA camps. The application forms including personal details will be provided and collected only by SYA.

Each applicant will receive a registered receipt of their application. This receipt will indicate that the registration is free of charge.

When applying for employment, applicants will present an appropriately authorised document showing location of residence of at least six months (this document, which is authenticated by the Mukhtar is commonly required in Turkey, e.g. to obtain utility services).

After the application deadline, the list of applicants will be signed by a notary public to verify its authenticity. The list of applicants will be posted in public places for a three day period. At the end of process SYA will develop an employment register including list of applicants' names, positions, village of origin and employment category (unskilled-semiskilled-skilled), which EPCM / TANAP can audit. The local employment status will report to EPCM monthly. This mechanism will create a fair and transparent system that will ensure that each applicant has been registered.

An applicant may notify SYA within these three days if he/she is not on the posted list, while the receipt will be provided as evidence. No late applications will be accepted.

SYA will be responsible for the selection of employees from the identified disadvantaged group. Interviewing of applicants will be carried out by SYA in their offices and exact locations will be determined by SYA. No applicant (from a directly affected settlement) will be required to travel more than a three hour journey by public transport.

Following the selection of applicants, SYA will notify the selected personnel and forward their names to EPCM.

All the application forms and related documentation will be kept as records at SYA's offices.

6. MONITORING AND REPORTING

The recruitment process will be monitored by third party organizations or institutions to ensure that it is done according to the TANAP's General Policies and Management Plans. This external monitoring will be organized by TANAP.

The contracts between the employer and the worker will comply to Turkish legal requirements and shall include the job description, working hours, working conditions, wage level (normal and overtime), rules including drugs and alcohol policy and workers code of conduct. A copy of the contract will be signed by both parties and will be provided to the worker. All local recruitment records will be kept and reported regularly to EPCM, including the skills and HSE training in addition to all training program applied for the workers.

SYA shall assure that salary payments of all employees (including its subcontractor employees) will be done on time, in compliance with the national legislations.

Further communication between the management of SYA and its employees will be provided through CRT and by the use of notice boards provided in camp area. All information related with work force as mentioned in HSSE like trainings, overtimes, camp rules etc. will be announced on notice boards in camp areas.

The temporary nature of work opportunities will be highlighted during all recruitment phases to ensure that people manage salary wisely and understand consequences of leaving a previous job or farming activities to work on the Project. In case of collective dismissals, a retrenchment plan will be prepared by SYA to reduce impacts on workers once opportunities will end and will be put into application by CRT of SYA. 30 days before the dismissal process starts, National Employment Service will be informed with a complete dismissal list to ensure the all legal rights of workers are under protection of Turkish legislations.

In summary, the following issues and steps will be considered and followed in recruitment process:

- Local residents will be employed to the extent possible in consideration of the employment needs and available local work skills;
- Local employment process will start with affected villages in 5km corridor, then extent to district level, then province level;
- Transparent, public and non-discriminatory recruitment process will be carried out providing equal opportunities with respect to ethnicity, religion, language, gender and sexuality;
- Employment opportunities will be disclosed including unskilled, semi-skilled and skilled positions through distinct channels to ensure wide distribution of information;
- Comprehensible information will be provided on the job descriptions, working conditions and possible duration of the work;

- Employment opportunities such as part time jobs will emerge as the pipeline construction proceeds along the route, the recruitment for this part time jobs will be conducted from the nearby residential areas, until the construction activity moves to another location.
- Candidates will fill out job application forms including personal details;
- A fair screening process will be executed while assessing the application forms;
- Face-to-face interviews will be made with the candidates that pass the first screening;
- Contract will be signed with the workers subsequent to recruitment;
- All contracts and employment records of the workers including the training records will be kept.

The human resources policy of SYA is conducting recruitment process in accordance with best international practises, Turkish national legislations and TANAP requirements.

Table 6.1. Steps of SYA's Recruitment Process

Requirement	Implementation	Responsibility
Community awareness	• Conduct community meetings in all directly affected settlements along the right of way at least 15 days before the recruitment process starts to explain the principals of recruitment process	CRT of SYA
Announcements	• Announce work schedule in all directly affected settlements along the right of way. • Ensure the announcements were made at least one week before the recruitment process starts. • Announce the notarised complete candidate list in settlements for complaints • Announce the time and place for face to face interviews. • Ensure in case of collective dismissals Public Employment Service was informed at least 30 days before the dismissal process starts.	CRT of SYA
Priority	• Ensure the priority was given to people living in directly affected settlements by recruiting • Ensure that all candidates were evaluated before extending the recruitment process to district and province level	CRT of SYA
Transparency	• Explain the employment categories (skilled-semi skilled and unskilled) and job descriptions (with needed documents, tests and licences) clearly. • Ensure a fair and non-discriminatory recruitment process carried out • Ensure legal contracts were signed with all employers including job descriptions, working conditions and possible duration of the work • Ensure the code of conduct was read and understood by all workers	CRT of SYA & SYA HR dep.
Documentation and audits	• Ensure a complete documentation including contract, resident permit and job application form with personal details for each employer (including subcontractors) is available. • Ensure all documents related with recruitment process including the training records were kept in SYA's Çadırkaya and Hafik camps for external audits of EPCM or TANAP	CRT of SYA & SYA HR dep
Reporting	• Ensure the items regarding with recruitment process and KPI's were reported to EPCM monthly	CRT of SYA

In compliance with the training plans to be prepared by SYA, the environmental and social training program will be developed and put into application to ensure that all personnel of SYA (including subcontractor personnel) are aware of their responsibilities in ESMS and understand the requirements of the Project.

First of all, training needs for the employees will be identified and the means for providing trainings to the personnel will be defined. The aim is to satisfy the training needs at maximum effective way. The training program will be submitted to EPCM for review and approval.

A regular training program will be planned and implemented and it will be updated regularly and include the schedule for refresher training. The workers will receive the compulsory trainings and will not start working before completing induction training and also they will receive the work-place and work-task specific trainings to advance their skills in addition to specific trainings such as noise control, waste management, road safety, etc.

In addition to that the staff employed for working in special duties or activities or have managerial responsibilities will be provided with additional trainings. In case of employing any expatriates, they will be trained about Turkish customs and traditions.

A Code of Conduct containing rules that workers are to follow both during working hours and in campsites will be prepared by SYA to keep according to local customs and on approach to be used when interacting with local communities and individuals. It will also cover recommendations on behaviour during spare time. This Code of Conduct will be provided together with the contract and will be further explained during induction training.

Environmental and social based trainings to be given to all SYA personnel and subcontractor's staff will provide the followings:

- Understanding all the aspects of environmental and social requirements of the project particularly in terms of the environmental, social and cultural sensitivities of the areas through which the pipeline and other facilities will be constructed,
- How the management and monitoring requirements of the project will be handled and how they will be implemented in line with the ESMS,
- Fully understand the potential impacts of the Project, the mitigation measures that have been adopted to address those impacts and how and where to apply these measures,
- Fully understand the content and scope of the environmental and social management plans/procedures to be followed, environmental and social policy of TANAP,
- Fully understand the procedures to be followed in the event of a non-compliance with the environmental and social requirements,
- Fully understand the procedures for responding to unauthorized visitors to the site, and enquiries from the public,
- Fully understand any media procedure includes full and prior consultation and permission of TANAP

- Understanding the emergency response procedures and actions required in case of unforeseen incidents,
- Being aware of the roles and responsibilities of SYA staff and EPCM representatives,
- Fully comprehend the workers' health and work safety issues, including the use of personal protection equipment.

Training will be provided by appropriate people (professional trainers or experienced employee) and the records of training will be made available.

A grievance mechanism will be set up for communities and individuals to formally communicate their concerns, complaints and grievances to SYA and facilitate resolutions that are mutually acceptable by the parties. The Grievance Register Forms to be filled out is presented in Appendix-4 of Community Relations Management Plan (SYA-PLN-SOC-GEN-002). As for the interaction between the workers and the community, the complaint received and any corresponding corrective measures taken thereafter, are recorded by the CRT of SYA. These findings will then be reported and submitted to the EPCM Management and Monitoring team during the first week of every month. The reports assigned by the CRT of SYA will be reviewed by EPCM Management. If necessary, additional research will be performed. Upon further review and additional research, SYA will be informed about anticipated measures to be taken, if applicable. SYA is obliged to take any necessary measures as instructed.

This mechanism will also be open to workers. But the complaints received from workforce will be evaluated and followed up separate from community complaints for providing confidentiality. By induction training grievance mechanism will explained to workforce for increasing their awareness. Complaints of workforce will received and evaluated directly by SYA CLO's. SYA CLO's will follow up worker complaints individually. After negotiating with related department heads for making a decision, SYA CLO will inform the complainant to close the complaint. If complainant will be not satisfied, SYA CLO will arrange a meeting with complainant and related department head to close the complaint. Complaints received from workforce will record as a different category and report EPCM monthly.

This generic Local Recruitment and Training Plan has been submitted by SYA before the pre-construction surveys and it will further be detailed before the launch of site activities under the framework and policies of TANAP and the Turkish Labour Law numbered 4857 by SYA and submitted for approval to EPCM. The responsible personnel of SYA will regularly update its Local Recruitment and Training Plan as the project needs change or requirements are identified in detail.

Necessary audits related with employments will be conducted for the subcontractors of SYA in monthly basis by SYA CLO's and SYA HR representatives, who will be conducting the construction works, to obey the approved plan by the project owner. Furthermore, all training records will be kept by SYA and will be submitted to EPCM/ TANAP when required for auditing purposes. Moreover, training of staff shall be recorded in personnel records.

Consequently, Local Recruitment and Training Plan is connected to all management plans in terms of specific training needs and implementations. This plan should be considered jointly with all other plans.

7. REFERENCES

Community Relations Management Plan (SYA-PLN-SOC-GEN-002)
Local Recruitment and Training Plan (SYA-PLN-SOC-GEN-004)
Stakeholder Engagement Plan (WRP-PLN-ENV-GEN-003)

Appendix-1: Employment Application Form

EMPLOYMENT APPLICATION FORM/
İŞ BAŞVURU FORMU

PERSONAL INFORMATION / KİŞİSEL BİLGİLER

Name – Surname / Adı-Soyadı: .....

Place and Date of Birth / Doğum Yeri ve Tarihi: .....

Name of Father / Baba Adı: .....

Place of Register / Nüfusa Kayıtlı Olduğu Yer: .....

Province / İli: ..... District / İlçesi: .....

Quarter or Village / Mah.veya Köyü: ..... Household No / Hane No:.....

Volume No / Cilt No: ..... Page No / Sayfa No:.....

Permanent Address / Sürekli Adres: .....

..... Tel: ..... Mobile / Cep tel:.....

Military Service / Askerlik Durumu: ..... Blood Type / Kan Grubu: .....

Marital Status / Medeni Hal: .....

EDUCATION LEVEL / EĞİTİM DURUMUNUZ

School Name / Okulun Adı	Place / Yeri	Years / Yıllar
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

Courses, Training Programs, Certificates / Kurslar, Eğitim Programları, Sertifikalar:

Name / Adı: ..... Date / Katılım tarihi: .....

Name / Adı: ..... Date / Katılım tarihi: .....

Name / Adı: ..... Date / Katılım tarihi: .....

Foreign Languages-Level / Bildiğiniz Yabancı Diller-Derecesi:

.....

.....

WOR EXPERIENCE / İŞ DENEYİMİ

Date / Tarih	Place / Yer	Company/ İşveren Firma	Duty / Göreviniz	Salary / Ücretiniz	Reason to Quit / Ayrılma Nedeni
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....

Position Applied for / Başvurduğunuz görev:

……

FURTHER INFORMATION / İLAVE BİLGİLER

Driving License / Sürücü belgesi …… Class / Sınıfı: …… Date / Tarihi: .....

Pasaport / Pasoport …… Number / Numarası: .....

Registration Number / Sigorta Sicil No. ……

Disability / Bedeni Arızalar: ……

Memebership to Association, Chamber / Üye olduğunuz dernek, oda: .....

.....

.....

Hobies / Hobileriniz:

.....

.....

.....

To the authorized personnel / Sayın Yetkili,

My above statements are true. / Yukarıdaki beyanlarım tamamen doğrudur.

Sincerely, / Saygılarımla,

(Date / Tarih – Signature / İmza)

Appendix-2: Workers Code of Conduct

SYA requires that all personnel abide by the following Site Code of Conduct at all times while on the work site, at the camp or travelling to and from work sites.

Failure to adhere to the Site Code of Conduct will lead to disciplinary actions, which may include immediate termination from employment.

All Personnel must:

- Adhere to national laws and regulations at all times.
- Display respectful behaviour toward colleagues (nationals and expats) at all times. Threatening, intimidating or violent behaviour toward any colleague will not be tolerated and will be grounds for immediate dismissal.
- Abide by SYA policies and procedures at all times, including Drug and Alcohol policy, Driving Policy, Health and Safety Policies and Environmental Policies.
- Practice safe and considerate use of vehicles on public roads and in communities.
- Respect company assets, including vehicles, electronic equipment, furniture etc.
- Respect others who are living in the camp by respecting quiet time, respecting privacy etc.
- Speak with supervisors/foreman or the CLO if you have question or concern. Taking strike action without speaking to foreman or CLO first is illegal.

Personnel must not:

- Engage in threatening, intimating or violent behaviour toward any colleague (national or expat) or visitor.
- Fight for any reason
- Possess weapons of any kind within the camp or other work sites. Weapons include knives, firearms, machetes or any item which could reasonably be constructed as presenting a danger of others.
- Engage in illegal activities, including illegal strikes.
- Engage in prostitution, gambling, or bribery (accepting or requesting gifts from any third party).
- Retaliate in any way against a colleague who has raised a health and safety or other type of concern.
- Be under the influence of alcohol during work hours and/or on any work site.
- Engage in political campaigning or other political activities during work hours or at any work site.

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	**TKF-PLN-ENV-PL3-016**	**Rev**	**Status**
		P4-0	**IAAC**
Document Title :	**Tekfen Employment and Training Plan**		
Tag Nos.			
Contractor:	**Tekfen Construction and Installation Co., Inc.**		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

TEKFEN CONSTRUCTION	**TEKFEN EMPLOYMENT AND TRAINING PLAN**	TANAP

TEKFEN EMPLOYMENT AND TRAINING PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP PIPELINE PROJECT Approval
P4-A	DIC	27.02.2015	Discipline Internal Check	ZDEM	MASL	MKOP	
P4-B	IDC	04.03.2015	Inter-Discipline Check	ZDEM	ASON	MKOP	
P4-C	IFR	28.05.2015	Issued for Review	AGUN	AGUN	MKOP	
P4-0	IAAC	08.06.2015	Issued for Approval For Construction	AGUN	SBAG	MKOP	

DOCUMENT REVISION HISTORY

REV.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	27.02.2015	First issue
P4-B	IDC	04.03.2015	Issued for IDC incorporating DIC comments
P4-C	IFR	28.05.2015	Issued for Review
P4-0	IAAC	08.06.2015	Issued for Approval For Construction

HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1. INTRODUCTION

1.1 PURPOSE & SCOPE

This plan will assure that local employment is maximized during the construction phase of the TANAP project.

This Plan will include the social commitments of the project.

The recruitment processes of the Project will be transparent, public and non-discriminatory, providing equal opportunities with respect to ethnicity, religion, language, gender and sexuality.

Local Recruitment and Training Plan has been developed;

- To identify the employment needs;
- To identify the trainings needs of the personnel;
- To define the means for providing trainings to the personnel;
- To satisfy the training needs at maximum effective way;
- To maximize the local employment for the unskilled and semi-skilled workforce requirements during construction and operation phases of TANAP project.

TEKFEN will ensure that information/adverts regarding employment do not raise unrealistic expectations by providing clear information on the recruitment process and the employment opportunities including unskilled, semiskilled and skilled positions.

In case of collective dismissals, a retrenchment plan will be prepared by TEKFEN to reduce impacts on workers once opportunities will end and will be put into application by HR of TEKFEN. 30 days before the dismissal process starts, National Employment Service will be informed with a complete dismissal list to ensure the all legal rights of workers are under protection of Turkish legislations. Employees will be given 4, 6 or 8 weeks notice, according to the duration of their employment, before demobilisation and will get their compensation for dismissal in accordance with the relevant Turkish laws and legislations.

1.2 REFERENCES

- Project Environmental and Social Management Plan (TKF-PLN-ENV-PL3-001)
- Construction Camp Management Plan (TKF-PLN-ENV-PL3-012)
- Community Safety Management Plan (TKF-PLN-ENV-PL3-014)
- Procurement and Supply Management Plan (TKF-PLN-ENV-PL3-014)
- E&S Training Plan (TKF-PLN-ENV-PL3-003)
- Community Relations Plan (TKF-PLN-ENV-PL3-015)
- Traffic Management Plan (TKF-PLN-ENV-PL3-020)
- Project H&S Plan (TKF-PLN-HSM-PL3-001)
- TANAP Lot 3 Pipeline Construction Direct Manpower Deployment Chart

This Plan should be read in conjunction with;

•ESIA Report – English language (TNP-REP-ENV-GEN-002)
•ESIA Report – Turkish language (TNP-REP-GEN-001)
•Grievance Management Procedure (TNP-PCD-SOC-GEN-001)
•Appendix 5.3. "Community Relations Plan" of ESIA REPORT (TNP-REP-ENV-GEN-002-APPENDIX 5-3)
•Appendix 5.4. "Employment and Training Plan" of ESIA REPORT (TNP-REP-ENV-GEN-002-APPENDIX 5-4)
•CHAPTER 6 "Stakeholder Engagement" of ESIA REPORT (TNP-REP-ENV-GEN-002-06)
•CHAPTER 4 "Legal, Political and Institutional Framework" of ESIA Report (TNP-REP-ENV-GEN-002-04)
• Appendix 4.6 "Legislation Registers" of ESIA Report (TNP-REP-ENV-GEN-002-APPENDIX 4-6)
• INTEGRATED ESIA REPORT –Appendix 4-7 Commitment Register (TNP-REP-ENV-GEN-002-APPENDIX 4-7)
• Grievance Management Procedure (TNP-PCD-SOC-GEN-001)
• Turkish Labour Law

1.3 ABBREVIATIONS

HS Health and Safety
ES Environmental and Social
CLO Community Liaison Officer
ESIA Environmental and Social Impact Assessment
PAC Project Affected Community

2. METHOD

2.1. GENERAL REQUIREMENTS

TEKFEN will implement following commitments:

- Job descriptions will be clearly communicated in advance and will contain information on working conditions: duration, salary, working hours, conditions, skills required, etc.
- Two copies of contracts will be prepared in compliance with the existing legal requirements, will be signed mutually and a copy will be provided to the future employee.
- The temporary nature of work opportunities will be highlighted during all recruitment phases to ensure that people manage salary wisely and understand consequences of leaving a previous job or farming activities to work on the Project.
- Job vacancies created during the construction phase will be communicated locally through systems like those used during the recruitment process.
- Training needs for the employees will be identified and workers will receive the compulsory trainings and will not start working before completing induction training.
- Workers will receive work-place and work-task specific training; a training program will be planned and implemented throughout the entire phases.
- Training will be provided by professional trainers or experienced employees.
- All employment records will be kept and provided to the EPCM as requested.

2.2 EMPLOYMENT STRATEGY

TEKFEN commits to enhance local job opportunities and will undertake the following commitments:

- Unskilled labour will be preferentially recruited from the Project Affected Communities
- Applications for employment will only be considered if submitted via the official application procedure
- TEKFEN will prepare a retrenchment plan, with the aim of reducing the impacts of cessation of employment contracts
- TEKFEN will explain the temporary nature of jobs during the recruitment process and explain to workers the need to prepare for losing jobs and to manage their income wisely while employed
- The Project will give priority to people from the construction camp PACs for employment opportunities within the camp where suitably qualified (e.g. cook, housekeeper, etc.)
- TEKFEN will ensure that salary payments of all employees (including its subcontractor employees) will be done on time, in compliance with the national legislation.

EPCM has been submitted the live document, Direct Manpower Chart, which includes the categories of manpower during all phases of construction. At peak there will be 1607 workers and total number of the manpower will be 28092 at Lot 3 part when construction is completed.

Local Recruitment

TEKFEN will maximise employment opportunities for people from Project affected communities that is within 5 km. corridor of pipeline, 5 km. diameter around the camps and facility construction sites, communities which have lands on the pipeline route and have significant traffic impacts.

TEKFEN's community relations advisor and CLO will meet with communities to explain that all employment for work on the Project will use fair and transparent recruitment procedures, favouring applications from the Project-affected communities, and will explain the procedures by which local people may apply for employment.

TEKFEN will provide for EPCM access for the purposes of monitoring the recruitment process.

TEKFEN will undertake the following commitments:

- Recruitment process will be transparent, public and non-discriminatory and open with respect to ethnicity, religion, sexuality, disability or gender
- Clear job descriptions will be provided in advance of recruitment and will explain the skills required for each post
- All workers will have contracts describing conditions of work and will have the contents explained to them

- Job vacancies will be advertised in the PAC through appropriate and accessible media as detailed in the below section.
- All workers will receive at least the minimum wage as defined by Labour Law and relevant regulations.
- Workforce contracts will be available in their native language.
- TEKFEN employment records will be open for inspection by TANAP or appointed representatives. The process and outcomes of all recruitment, including the number of applications, the numbers accepted for interview and the numbers offered employment – identifying at each stage the numbers from the local area and the numbers from outside the local area will be recorded by TEKFEN.
- TEKFEN will at all times recruit the person who is most suited to the particular post, based on the applicant's abilities, qualification, experience and merit as measured against the job description and person specification.
- Employment strategy to be passed down to sub-contractors. TEKFEN will monitor the compliance of sub-contractors regarding implementation of employment principles.
- TEKFEN will ensure that information/adverts regarding employment do not raise unrealistic expectations. Extent and duration of employment to be accurately communicated such that the limitations to employment opportunities are known.
- TEKFEN will implement the grievance process for managing all community complaints related to the recruitment process, and will report monthly to EPCM on the complaints received and on grievance resolution and redress as stated in the Community Relations Plan (TKF-PLN-ENV-PL3-015). Workers' grievances will be recorded and followed up in accordance with the Employee Grievance Mechanism as explained below sections. Community Relations and Human Resources Department will co-operate for workers' complaints to be handled in accordance with the employee grievance mechanism, Turkish laws and legislations; and TANAP employment policy.
- TEKFEN will ensure that all employees receive information about Code of Conduct that includes the behaviours which may result in disciplinary actions, during induction training. Code of Conduct shall also be posted in the construction camps in the areas that are used widely by the employees.

Recruitment Process

Mechanisms for preferential recruitment of local workers will be explained below.

Process of employment for unskilled positions

Those residents in directly affected settlements to have priority for unskilled employment. At least two weeks prior to the beginning of recruitment CLOs will inform project affected settlements about the application process, projected numbers and duration of employment opportunities, recruitment procedures, locations where the interviews will take place, dates of recruitment and conditions for employment. Appropriate communications channels will be used to ensure that directly affected settlements are informed through village leaders, through the mosque, posters in Muhtars office notice board, coffee shops, community notice boards etc. to ensure wide distribution of information for the provision of equal work opportunities. Interviewing of applicants will be done in the TEKFEN construction camps or allocated suitable places if necessary. HR personnel and/or CLO's will be in the interview panel to ensure the selection of employees have priority

from affected communities and identified disadvantaged group; considering the applicants meet the necessary employment requirements.

Process of employment for semi-skilled positions

Depending on the positions, job description and job specification; and expected availability of the suitable candidates in the affected settlements, districts and provinces media for announcement of the semi-skilled positions to be chosen. TEKFEN web site, employment websites, local press, local employment offices, sub-governors' and governors' office notice boards, community notice boards, mukhtar's office notice boards in the villages may be used as appropriate. Positions to be announced minimum two weeks in advance of recruitment. TEKFEN will ensure that information/adverts regarding employment do not raise unrealistic expectations. Extent and duration of employment, recruitment process to be accurately communicated such that the limitations to employment opportunities are known. Selection of the candidates for interview shall be done by the relevant department representative. HR personnel and CLO's will co-operate to ensure applicants from the affected settlements, districts and provinces have priority in employment considering that they meet the employment requirements. Semi-skilled workers to be recruited from the provinces through which the pipeline "Lot " will cross such that workers in each province have an equal opportunity to apply. Those resident in directly affected settlements again to have priority for semi-skilled employment, followed by those living in the districts and then the provinces through which the pipeline passes.

Process of employment for skilled positions

Skilled workers to be recruited on a nationwide basis in line with the employment targets. Depending on the positions, job description and job specification; and expected availability of the suitable candidates in national level, media for announcement of the skilled positions to be chosen. National press, TEKFEN website, employment websites, employment offices may be used as appropriate. Positions to be announced minimum two weeks in advance of recruitment. TEKFEN will ensure that information/adverts regarding employment do not raise unrealistic expectations. Extent and duration of employment, recruitment process to be accurately communicated such that the limitations to employment opportunities are known. TEKFEN will ensure applicants from the affected settlements, districts and provinces have priority in employment considering that they meet the employment requirements. Turkish nationals to be given priority over expatriates. Expatriates only to be used where their particular skills and experience cannot be supplied by Turkish nationals.

TEKFEN will at all times recruit the person who is most suited to the particular post, based on the applicant's abilities, qualification, experience and merit as measured against the job description and person specification. In order to manage the high employment expectations TEKFEN will use the pool of the applicants if necessary.

3. PROVISION OF TRAINING

TEKFEN will provide various types of training for the employees. TEKFEN will undertake the following commitments:

- Relevant construction personnel will be trained in use of spill kits and disposal practices
- Wildlife sensitivity to disturbance will be included in workforce training

- All drivers will undergo safety and environmental and social awareness training; driving performance will be assessed and monitored with additional training provided if necessary
- The workforce training will include advice on minimising energy consumption
- Driver training will include advice on behaviours to reduce the potential for disturbance, including use of horn, loud radios with windows open, switching engines off when not in use, strictly observing speed limits and not accelerating or braking aggressively
- Issues relating to archaeological awareness (such as ownership of finds, notification of finds and protection of archaeological sites) will be included in induction training
- When appropriate, on-the-job training will be provided to enable local employees gain new and/or improved skills while working on the Project
- The workforce training programme will include refresher and induction training to with the aim of ensuring that all recruits have the necessary understanding and knowledge levels for each job, in particular with regard to HS issues
- Environmental and social issues will be included in workforce and visitor induction training
- Additional on-the-job informal training sessions and discussions will be provided as necessary during construction
- Relevant training will be provided to those with responsibilities for monitoring of effluent discharges and emissions,
- Information will be incorporated into the Site induction process and will outline the role of personnel in the management of waste and emissions from site and spill response procedures
- Site induction training will be supplemented by regular 'toolbox' talks with relevant personnel if inspections or audits highlight failings in waste management
- The local people will be trained to increase safety awareness of the local community in the near vicinity of the construction activities. Meetings will also be held prior to the start of construction with the local people about the Project Health and Safety issues. Please refer to Community Safety Management Plan (TKF-PLN-ENV-PL3-014).
- Training will be provided to the adults and children in the settlement areas along and around the pipeline route in order to increase traffic awareness within the scope of the Traffic Management Plan (TKF-PLN-ENV-PL3-020).

Prior to commencing any site work, all CONTRACTOR personnel, including subcontractors and suppliers, should complete an HS&ES induction training to ensure that the Project HS and ES expectations are met and should undertake any essential skills training to ensure competence and safe performance of duties, appropriate to the work being performed.

Training should include general and task-specific training (i.e. that which is necessary for the performance of the duties to which the person is assigned).

TEKFEN will analyse training requirements and initiate a training programme to demonstrate that all person's employed, including subcontractors, are suitably qualified, competent and fit. This should include:

- The HS&ES induction training programme to be delivered to all personnel in the workforce,
- A specification of qualifications, competency and training requirements for key personnel
- A matrix of training requirements, covering general, task–specific and HS&ES-related training, showing the training frequency and interval between refresher courses
- Assessment and recording of training needs

- A system for assessing new hires e.g. previous training
- A means of confirming that the system is effective
- Timely delivery of training courses.

3.1 INDUCTION TRAINING

Camp Induction:

The requirements for camp induction are given in Construction Camp Management Plan (TKF-PLN-ENV-PL3-012).

HS&ES Induction:

TEKFEN will ensure that all TEKFEN and subcontractor personnel, regardless of position, receive HS&ES induction training before being given access to any worksite. Induction content will be approved by EPCM.

TEKFEN's HS&ES training will include information about employee complaints mechanism and location specific constraints and risks as identified in the ESIA.

Where directed, TEKFEN personnel will attend EPCM environmental and social inductions.

TEKFEN will develop a pocket-size HS&ES booklet, which will be subject to review by EPCM, and issued to all personnel who attend the induction training and successfully complete the competency assessment.

For more details please refer to E&S Training Plan (TKF-PLN-ENV-PL3-003). Below Code of Conduct will be included in the induction training.

Code of conduct

It is required that all personnel abide by the following Site Code of Conduct at all times while on the work site, at the camp, or traveling to and from work sites. Failure to adhere to the Code of Conduct will lead to disciplinary actions which may include immediate termination from employment.

All Personnel must:

- Adhere to national laws and regulations at all times.
- Display respectful behavior toward colleagues (nationals and expats) at all times. Threatening, intimidating or violent behavior toward any colleague will not be tolerated and will be grounds for immediate dismissal.
- Abide by TEKFEN policies and procedures at all times, including Drug and Alcohol policy, Driving Policy, Health and Safety Policies and Environmental Policies.
- Practice safe and considerate use of vehicles on public roads and in communities.
- Respect company assets, including vehicles, electronic equipment, furniture, etc.,
- Respect others who are living in the camp by respecting quiet time (after 9 pm), respecting privacy, etc.
- Speak with Supervisors/Foreman or the HR Officer if you have a question or concern. Taking strike action without speaking to Foreman or HR officer first is illegal.

Personnel must not:

- Engage in threatening, intimidating or violent behavior toward any colleague (national or expat) or visitor.
- Fight for any reason.
- Possess weapons of any kind within the camp or other work sites. Weapons include knives, firearms, machetes, or any item which could reasonably be construed as presenting a danger to others.
- Engage in illegal activities, including illegal strikes.
- Engage in prostitution, gambling or bribery (accepting or requesting gifts from any third party).
- Retaliate in any way against a colleague who has raised a health and safety or other type of concern.
- Be under the influence of alcohol during work hours and/or on any work site.
- Engage in political campaigning or other political activities during work hours or at any work site

4. EMPLOYEE GRIEVANCE MECHANISM

TEKFEN will implement the Employee Grievance Mechanism as explained in this plan. Employee grievance process as described in the following chart, which is in line with TANAP employment policy, to provide opportunity for TEKFEN and sub-contractor employees to raise concerns. Information on how to make grievance will be provided to employees during induction training and request, suggestion and complaint forms will be provided in the areas where employees use in the construction camp like social units and dining area. A grievance register will be used to document all employee grievances, corrective actions and outcomes. The grievance system will include all employee grievances. All employee grievances will be registered to TANAP Online Stakeholder Interaction Database (OSID) which will be used to record, track, report and evaluate all grievances including third parties, employees and sub-contractor employees and responses.

TEKFEN's HR officer will hear any complaints made by the employees and sub-contractor employees; take action in co-operation with the relevant departments to resolve them and co-operate with the CLO to register the complaint in the grievance log. TEKFEN and sub-contractor employees will be provided request, concern and complaint form and a drop box where filled forms can be left; in the areas where employees use in the construction camp like social units and dining area. CLO will record the date and time, source, location and nature of each request, suggestion or complaint in OSID when received from HR officers.

Employee Grievance Resolving Process

STEP 1 **Receiving & Registering the grievance**	**STEP 2** **Assessment of the Grievance**	**STEP 3** **Resolving the Grievance**	**STEP 4** **Close Out the Grievance**
• Request, concern and complaint boxes to be checked weekly by the HR officer. • Inform Project Social	• HR officer to classify the grievance (and requests, suggestions) • Define the related departments • Get contact	• Human Resources Department to get the corrective actions • To evaluate employee's disagreements if occurs	• Human Resources personnel to sign the close out part of the request/suggestion/complaint form • To collect photos; written documents; comments;

Team (PST) when there is a form filled in for request, suggestion or complaint by an employee • Registry to OSID by CLO	with the employee • Establish a team to investigate complex issues • Inform the employee if the investigation takes more time than planned.	• All parties should get a reasonable agreement on the corrective actions	MOM; meeting attendee list; • To get employee's signature • Community Relations personnel to be informed about the corrective actions and copies of the proof documents to close out the complaint on OSID.

Objectives of grievance management

TEKFEN aims to establish the process and responsibilities for handling and monitoring of grievances received from employees including sub-contractor employees in the context of TANAP Project. TEKFEN commits to comply with TANAP's below mentioned social objectives:

- To enable a mechanism for all employees including sub-contractors' employees to raise their views, concerns and complaints regarding working conditions
- To ensure that the repetition of complaints related to the same issues will be prevented.
- To have an active and transparent engagement with employees aiming for solving concerns at an early stage of dispute.

Grievance targets

- Discussions on corrective action and manner of addressing complaint will be discussed with the employee within 10 working days;
- Complaints will be closed after the reasonable satisfaction of the complainant within 30 working days unless an alternative agreement is made with the complainant. Note that, this alternative agreement must be reached within these 30 days.

Receiving & registering of grievance

TEKFEN's HR officer will hear any complaints made by the employees and sub-contractor employees, take action to resolve them in co-operation with relevant and co-operate with the CLO to register the complaint in the grievance log. TEKFEN and sub-contractor employees will be provided request, concern and complaint form and a locked box, where filled forms can be left; in the areas where employees use in the construction camp like social units and dining area. CLO will record the date and time, source, location and nature of each complaint when received from HR officer, in OSID. All corrective actions suggested by the employee should be taken under registration when responded within 10 days. All received information by the request, concern or complaint form will be uploaded to TANAP Online Stakeholder Interaction Database by social team.

Assessment of the grievance

- Employee requests, concerns and complaints will be responded in accordance with relevant Turkish laws, regulations and project social requirements.
- All employee grievances received through direct phone calls, emails, and face-to-face meetings/communications shall be recorded to employee request, concern or complaint form and registered on OSID. HR team shall get contact with the employee within 10 business day in order to explain the Project Response Process to employee grievances.
- TEKFEN HR has ten business days to investigate and respond the complaints, being aware of that complex matters may require a longer time. If the case requires a more complex investigation, updated information will be provided to the complainant explaining the actions required to resolve the grievance, and the likely timeline.

Response should be aligning with relevant Turkish laws, regulations and project social requirements.

Resolving the grievance

Necessary corrective actions should be agreed with the employee considering that they are in line with Turkish laws, regulations and project social requirements. When the complainants disagree on the suggested strategy, their comments should be evaluated according to Turkish laws, regulations, TANAP Project social mitigation measures and project standards. All parties should get a reasonable agreement on the corrective actions during solution process. TEKFEN HR team in co-operation with the related department aims to respond and solve each complaint within 30 business days.

Close out the grievance

The proof documents of the corrective actions taken (evidence documents) will be collected and uploaded to OSID by Community Relations personnel. Confirmation such as the employee's signature should be received to the back of the original version of Request, Suggestion and Complaint Register Form that has been filled out while taking the registry of the grievance.

The proof of close outs should be;

- Signed Closed Request, Suggestion and Complaint Register Form
- Related written documents or comments from related parties
- Minutes of meeting, meeting attendee lists, training list etc.
- Hard copies of the proof documents should be filed in accordance with the OSID complaint number.

5. MONITORING AND REPORTING

The monitoring and reporting activities that will be conducted by TEKFEN are specified as follows:

- TEKFEN will monitor and report on the recruitment process and numbers of local/national employees at different levels in a format agreed with EPCM.
- TEKFEN records on the process and outcomes of all recruitment; including the number of applications, the numbers accepted for interview and the numbers offered employment – identifying at each stage the numbers from the local area and the numbers from outside the local area; will be open for inspection by EPCM, TANAP and their appointed third party consultants.
- The monthly report to be prepared by TEKFEN will include below KPI and measures.

EMPLOYMENT KPIs	Type	Period	Target
% of unskilled staff employed from affected provinces	KPI	Monthly	100%
Out of 100% unskilled staff employed from affected province, % that is employed from affected district	KPI	Monthly	90%
Out of the 90% of unskilled staff employed from affected district, % that is employed from affected villages	KPI	Monthly	80%
% of semi skilled staff employed from affected provinces	KPI	Monthly	100%
# of semi skilled staff employed from affected villages	Measure	Monthly	N/A
% of skilled staff employed from a national level	KPI	Monthly	80%
# of community complaints relating to recruitment issues	PI	Monthly	negative trend
# of worker grievances	Measure	Monthly	N/A
# of worker strikes	Measure	Monthly	N/A

6. RESPONSIBILITIES

Project Manager:

- To maximize the local employment for unskilled and semiskilled workforce,
- To make sure that there is non-discriminatory, transparent, open to all and fair recruitment process.

HR Manager:

- To provide transparent, public and non-discriminatory and open recruitment process with respect to ethnicity, religion, sexuality, disability or gender
- To provide clear job descriptions in advance of recruitment
- To ensure all workers have contracts describing conditions of work
- To advertise job vacancies through appropriate and accessible media
- To ensure that all workers will receive at least the minimum wage as defined by Labour Law and relevant regulations.
- To ensure that workforce contracts will be available in native language
- To keep all employment records
- To make sure all the subcontractors are aware of the requirements of this Plan and audit their performance in co-operation with the community relations manager for compliance with requirements set by this plan

- To ensure employee grievance mechanism is implemented in co-operation with the Community Relations Department.

Social Manager:

- To ensure provision of clear information on the recruitment process, with particular emphasis on informing local communities of employment opportunities through different channels such as settlement heads, and local associations
- To prepare and submit Monthly Social Report including employment KPIs to EPCM
- To implement the grievance process for managing all community complaints related to the recruitment process
- To co-operate with the HR manager regarding workers' grievance and implementation of local employment targets.

Social Advisor/ Community Liaison Officer (CLO):

- To carry out personnel trainings regarding social requirements of TANAP Project
- To distribute communication material such as posters and brochures locally for recruitment process
- To raise community awareness of safety issues through village meetings and classroom lessons
- To take part in the recruitment process in order to maximise employment from the affected settlements and disadvantaged groups
- Record employee complaints on Online Stakeholder Interaction Database and follow up the resolution of the complaints in co-operation with the Human Resources Department
- Include employment KPIs on monthly social report
- Keep records for semi-skilled and unskilled employment process in co-operation with the Human Resources Department.

7. RECORDS

- Training Register
- Records regarding KPIs will be kept by Human Resources and Community Relations Department as appropriate
- Records of training topic, hours and attendees; completed for the reporting month and planned for the next month will be kept by Training Department and Community Relations Department as appropriate
- Records of the employees such as social security details, payroll details, contracts etc. will be kept by the Human Resources Department.
- Manpower Deployment Chart will be kept by the Planning Department
- Employee Complaints register and records will be kept by Human Resources and Community Relations Department as appropriate

8. ANNEX

Annex 1 Personnel Request, Suggestion, Complaint Register Form

TEKFEN CONSTRUCTION	TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT TRANS ANADOLU DOĞAL GAZ BORU HATTI PROJESİ Personnel Request, Suggestion, Complaint Register Form /Personel İstek, Öneri, Şikayet Kayıt Formu		
Çalıştığı Yer / **Work Location**		**Tarih /** Date:	
Çalıştığı Firma / **Work Location**		**Title/** **Görevi**	
1 - PERSONEL HAKKINDA BİLGİ / 1 - PERSONNEL INFO			
Ad Soyad / Name Surname :			
T.C. Kimlik No / Identification Number			
Telefon / E-posta Telephone / E-mail :			
Adres / Address**:**			
2 - İSTEK, ÖNERİ veya ŞİKAYET DETAYLARI / 2 - DETAILS OF REQUEST, SUGGESTION OR COMPLAINT			
İstek, öneri veya şikayeti Açıklayın / Define request, suggestion or complaint **:**			
Acil Gerekli Eylemi Belirtiniz / Define the Urgent Action :			
Personelin ad soyad ve imzası / Name Surname and Signature of the Personel			

Annex 2 Personnel Request, Suggestion, Complaint Register and Closure Form

TEKFEN CONSTRUCTION

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
TRANS ANADOLU DOĞAL GAZ BORU HATTI PROJESİ
Personnel Request, Suggestion, Complaint Register and Closure Form/Personel İstek, Öneri, Şikayet Kayıt ve Takip Formu

Çalıştığı Yer / Work Location		**Tarih /** Date:	
Çalıştığı Firma / Work Location		**Title/ Görevi**	

1 - PERSONEL HAKKINDA BİLGİ / 1 - PERSONNEL INFO

Ad Soyad / Name Surname :		**Konunun geliş yolu /** Form of raising the issue :
T.C. Kimlik No / Identification Number		☐ **Telefon-Ücretsiz Hat /** Phone-Free Phone Line
Telefon / E-posta Telephone / E-mail :		☐ **Personel Toplantısı /** Community Meeting
Adres / Address:		☐ **Drop box form/ İstek kutusu formu**
Köy - İlçe - İl Village -District -Province:		☐ **Diğer (Açıklayın) /** Other (Specify)

2 - İSTEK, ÖNERİ veya ŞİKAYET DETAYLARI / 2 - DETAILS OF REQUEST, SUGGESTION OR COMPLAINT

İstek, öneri veya şikayeti Açıklayın / Define request, suggestion or complaint :

Acil Gerekli Eylemi Belirtiniz / Define the Urgent Action :

Kayıt eden İK yetkilisinin imzası / Signature of the Registerer:	**Personelin imzası / Signature of the Complainant:**

3 - DÜZELTİCİ FAALİYET DOĞRULANMASI VE İSTEK, ÖNERİ VEYA ŞİKAYETİN SONLANDIRILMASI
3 - VALIDATION OF CORRECTIVE ACTION AND REQUEST, SUGGESTION AND COMPLAINT CLOSURE

Düzeltici Eylem Basamakları Corrective Action Steps	Sonlandırma Tarih Closure Date	Sorumlu Kişi / Bölüm Responsible Person / Section

Kayıt eden İK yetkilisinin ad soyad ve imzası / Name Surname and Signature of the Registerer	**Personelin ad soyad ve imzası /** Name Surname and Signature of the Personnel

Annex 3 Training Register

TRAINING REGISTER - LOT 3						
Reporting Period:						
Date	**Subject**	**Duration (min)**	**Location**	**Attendees (who)**	**Number of attendees**	**Total Manhours**

Annex 4 – Employment Summary Register

EMPLOYMENT SUMMARY REGISTER - LOT 3
Reporting Period:

	Unskilled		Semi-Skilled		Skilled		Total No of Employees (employed to date)	Total No of Local Employees	Total % of Locals
	No of Unskilled Employees	% from directly affected villagers*	No of Semi-skilled employees	% Locals*	No of Skilled Employees	% Locals*			
TOTAL									

Notes:
"Local" employee is a person from the village, district or province through which the pipeline is passing.

Unskilled	No specific skill required to perform the job
Semi skilled	Partly skilled or trained, but not sufficiently skilled to perform specialised work
Skilled	Possessing and/or demonstrating accomplishement, skill or specialised training

Annex 5 – Demobilization Statistics Register

DEMOBILIZATION STATISTICS REGISTER - LOT 3
Reporting Period:

	Nationals Terminated									TOTAL
Month	Absenteeism	Drug & Alcohol	Other Misconduct	Safety Violation	Performance	Other	TOTAL Disciplinary	End of Activity	Resigned	**NATIONALS**

	Expatriates Terminated									TOTAL
Month	Absenteeism	Drug & Alcohol	Other Misconduct	Safety Violation	Performance	Other	TOTAL Disciplinary	End of Activity	Resigned	**EXPATRIATES**

WorleyParsons resources & energy	TANAP

TANAP

TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Document No.	**PLK-PLN-ENV-PL4-002**	Rev	Status
		P4-2	**Re-IAA**
Document Title	**EROSION, REINSTATEMENT AND LANDSCAPING PLAN**		
Tag No's			
Contractor	**PUNJ LLOYD – LİMAK - KALYON JV**		
Contractor Document No.	PLK-PLN-ENV-PL4-002	Contractor Rev.	**P4-2**

Tick Box	Descriptions	Signature & Date
☐	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
☐	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
Comment Reponse Sheet

Document Title	EROSION, REINSTATEMENT AND LANDSCAPING PLAN	Originator	PLL JV
Document Number	PLK-PLN-ENV-PL4-002	Rev	P4-1

Except for the following identified comments, all other comments on this document have been resolved or incorporated.

* O - Open, C - Closed

No.	Section/ Page	Comment	By	Response	By	Date	O/C *	Remarks
1	1.2	Please reword as follows 'This Erosion, Reinstatement and Landscaping Plan (ERLP) intends to outline the required measures proposed by Punj Lloyd-Limak Joint Venture (CONTRACTOR) CONTRACTOR for reinstatement of the RoW and AGI's and other associated campsite facilities to stabilize terrain and to re-establish the vegetative cover and blend it with the surrounding environment and to minimize and to prevent erosion and more importantly to restore the lands to the original contours and states. Moreover, the plan establishes the minimum requirements for temporary and permanent erosion control and the related measures for revegetation (bio-restoration). Establishing a vegetative cover is the most effective means to combat erosion. This ERLP highlights the various engineering and bio-engineering methods to achieve the said purposesrequirements.	TANAP	Revised	YOGD	01.07.2016		
2	1.4	Please add: ESA(s) Ecologically Sensitive Area(s)	TANAP	Revised	YOGD	01.07.2016		
3	1.5	Please add Specification for Restoration and Reinstatement (BCH-SPC-PPL-PLG-014) as commented before.	TANAP	Revised	YOGD	01.07.2016		
4	2.0	CLIENT/EPCM	TANAP	Revised	YOGD	01.07.2016		
5	2.5	Please reword: To be responsible for conducting ecological surveys, determine the needs for protecting critical habitats, wildlife and sensitive habitats,	TANAP	Revised	YOGD	01.07.2016		
6	7.0	Please add: In case of failure to store seed at Gene Bank, Contractor will fulfill all thre requirements to arrange appropriate and required storage areas considering temperature, humidity and other requirements of inside conditions to store seed to comply with Project requirements.	TANAP	Revised	YOGD	01.07.2016		
7	8.0	• side slopes; • steep slopes; • side cuts; • narrow ridges and areas prone to landslides; • ecological sensitive areas, critical habitats; • karstic areas; • volcanic tuff and marl; • above ground installation sites; • Areas of Contaminated Land, • Side cuts and critical habitats	TANAP	Revised	YOGD	01.07.2016		

Additional Notes (if any)

Distribution	

Punj Lloyd / Limak / kalyon	**TANAP** **TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT** **48" ONSHORE PIPELINE CONSTRUCTION LOT 4**	TANAP / WorleyParsons resources & energy

EROSION, LANDSCAPING AND REINSTATEMENT PLAN

Rev.	Status	Date	Status Description	Issued by	Checked by	Approved by
P4-A	DIC	23/4/2016	Discipline Internal Check	YOGD	ASOV	DHAG
P4-B	IDC	25/4/2016	Inter-Discipline Check	YOGD	BHAG	DHAG
P4-C	IFR	26/4/2016	Issued for Review	YOGD	SDUT	KKSA
P4-0	IAA	11/5/2016	Issued as Approved	YOGD	KALF	MALB
P4-1	Re-IAA	6/6/2016	Re-Issued as Approved	YOGD	KALF	MALB
P4-2	Re-IAA	1/7/2016	Re-Issued for Approval	YOGD	KALF	MALB

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P4-A	DIC	23/4/2016	Discipline Internal Check
P4-B	IDC	25/4/2016	Inter-Discipline Check
P4-C	IFR	26/4/2016	Issued for Review
P4-0	IAA	11/5/2016	Issued as Approved
P4-1	Re-IAA	6/6/2016	Re-Issued as Approved
P4-2	Re-IAA	1/7/2016	Re-Issued for Approval

HOLDS

No	Section	Description	Input from	Planned Date

Table of Contents

1 INTRODUCTION

1.1 Background

The Trans Anatolian Natural Gas Pipeline will be built to transport natural gas emanating from the South Caucasus Pipeline Company Pipeline in Georgia to the Trans-Adriatic Pipeline in Greece. In addition to the mainline termination, dedicated off-takes will be provided to BOTAŞ at strategic points in the Republic of Turkey. Contract of Lot 4 of this project is awarded to PUNJ LLOYD – LİMAK Joint Venture and consists mainly of a 48" Onshore Pipeline Construction and also other Above Ground Installations.

1.2 Scope

The provisions in this plan are applicable to the temporary used areas such as construction corridor, access roads, pipe lay down areas, construction camp sites, other additional lands utilized during the construction of the Project, as well as the permanent facilities such as above ground installations (AGI).

CONTRACTOR will be responsible for the following items, in the scope of this ERLP:

- Management of surplus soil and rocks,
- Preserving seed bank through topsoil,
- Re-laying the topsoil to its original location and the subsoil,
- Temporary measures to minimize erosion and maximize sediment control during construction
- Permanent erosion control berms, drainage for long term stability against erosion,
- Retaining the hydrologic regime as before and reinstatement of the natural drainage of the site,
- Restoration of the land to the original contours or maintaining a landscape visually compliant to the adjacent landscape,
- Restoration of the impacted habitats and ecological processes to their original states where it is technically applicable,
- Re-vegetation of sites with appropriate native plant types; re-seeding,
- Prevention of forbidden or dense access to the areas that cannot be accessed before via removal of the temporary construction roads,
- Utilization of engineering solutions and bioengineering techniques to attain the best environmental outcomes,
- Taking the measures to minimise erosion and maximize sediment control during construction

1.3 Purpose

This Erosion, Reinstatement and Landscaping Plan (ERLP) intends to outline the required measures proposed by Punj Lloyd-Limak Joint Venture (CONTRACTOR) CONTRACTOR for reinstatement of the RoW and AGI's and other associated campsite facilities to stabilize terrain and to re-establish the vegetative cover and blend it with the surrounding environment and to minimize and to prevent erosion and more importantly to restore the lands to the orginal contours ans states Moreover, the plan establishes the minimum requirements for temporary and permanent erosion control and the related measures for revegetation (bio-restoration).

Establishing a vegetative cover is the most effective means to combat erosion. This ERLP highlights the various engineering and bio-engineering methods to achieve the said purposes and requriements.

1.4 **Definitions**

CLIENT	TANAP DOĞALGAZ İLETİM A.Ş.
PROJECT	Trans Anatolian Natural Gas Pipeline Project (TANAP)
EPCM	WorleyParsons Proje Yönetimi ve Mühendislik Limited Şirketi
CONTRACTOR	PUNJ LLOYD – LİMAK Joint Venture
CONTRACT	48" Onshore Pipeline Construction Contract for Trans-Anatolian Natural Gas Pipeline Lot 4
Biorestoration	Reinstatement of the biotic, or living, component of the environment, achieved through habitat recreation. In this report biorestoration is the third phase of the 3-phased reinstatement process.
Erosion	Action of surface processes (such as water flow or wind) that remove soil, rock, or dissolved material from one location on the Earth's crust, then transport it away to another location
Flora	All the plant species that make up the vegetation of a given area from a particular geological time
Fauna	All the animal species of a region or geological period
Habitat	Terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the nonliving environment
Reinstatement	To bring back into previous condition or position
Topsoil	The top, fertile layer of material on the land surface, which is capable of supporting plant growth
Vegetation	Disregarding the regions in the classification of the plants, the plant cover of a region
Wetlands	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

1.5 **Abbreviations**

TANAP	Trans Anatolian Gas Pipeline Project
EPCM	Engineering, Procurement and Construction Management
ROW	Right of Way
H&S	Health and Safety
E&S	Environment and Social
QA/QC	Quality Assurance / Quality Control
CLIENT	TANAP Doğalgaz İletim A.Ş.
BAP	Biodiversity Action Plan
CONTRACTOR	Punj Lloyd-Limak JV responsible for the procurement, construction, installation, pre-commissioning, testing and commissioning assistance of the Lot 4 section of TANAP Project
ERLP	Erosion, Reinstatement and Landscaping Plan

ESIA	Environmental and Social Impact Assessment that was prepared by TANAP
Project	procurement, construction, installation, pre-commissioning, testing and commissioning assistance Lot 4 section of TANAP Project
USLE	Universal Soil Loss Equation
ESA(s)	Ecologiacally Sensitive Area(s)

1.6 References

	Document Number	Document Title
1.	TNP-REP-ENV-GEN-001– Turkish and TNP-REP-ENV-GEN-002 – English	ESIA Report
2.	TNP-PLN-ENV-GEN-001	TANAP Environmental and Social Management Plan
3.	PLK-PLN-ENV-PL4-010-P4-C	CONTRACTOR's Environmental and Social Monitoring Plan
4.	PLK-PLN-ENV-PL4-005-P4-C	CONTRACTOR's Pollution Prevention Plan
5.	PLK-PLN-ENV-PL4-006-P4-C	CONTRACTOR's Waste Management Plan
6.	PLK-PLN-ENV-PL4-003-P4-C	CONTRACTOR's Construction Impact Management Plan
7.	WRP-SPG-EGG-PLG-001-PL4	Specification for Reinstatement
8.	WRP-DGA-PPL-PLG-044	Typical Slope Breakers
9.	WRP-DGA-PPL-PLG-045	Typical Outlet Of Slope Breakers
10.	WRP-DGA-PPL-PLG-046	Typical Cross Section Of Slope Breakers
11.	WRP-DGA-PPL-PLG-047	Typical Drawing - Erosion Protection - Typical Lined Chute
12.	WRP-DGA-PPL-PLG-050	Typical Erosion Control Matting Installation
13.	WRP-DGA-PPL-GEN-004-01-P4-0	Typical Working Strip -Standard
14.	WRP-DGA-PPL-GEN-005-01-P4-0	Typical Working Strip -Reduced
15.	WRP-DGA-PPL-PLG-005-01-P4-0	Typical Working Strip Side Slopes (18 °-30°)
16.	WRP-DGA-PPL-PLG-002-01-P4-0	Typical Working Strip-High Groundwater Conditions
17.	WRP-DGA-PPL-PLG-003-01-P4-0	Typical Working Strip Highway/Main Road/Railroad Crossings
18.	WRP-DGA-PPL-PLG-006-01-P4-0	Typical Working Strip Forest & Environmentally Sensitive Sections
19.	WRP-DGA-PPL-PLG-020-01-P4-0	Typical Highway Crossing (Bored with Casing)
20.	WRP-DGA-PPL-PLG-021-01-P4-0	Typical Road Crossing (Open Cut)
21.	WRP-DGA-PPL-PLG-023-01-P4-0	Typical Railroad Crossing (Bored with Casing)
22.	WRP-LST-PPL-PLG-003	Typical River Crossing Reinstatement and Scour Protection Schedule
23.	WRP–SPC-EGG-PLG-001	Specification for Reinstatement
24.	WRP-REP-EGG-GEN-004	Reinstatement and Erosion Control Requirements
25.	WRP-SPC-PPL-PLG-001	Pipeline Construction Specification
26.	WRP-SPC-PPL-PLG-030	Pipeline River Crossing Civil Protection Works Specification

27.	WRPLST- PPL-PLG-003	River Crossing Reinstatement and Scour Protection Schedule
28.	WRP-DGA-PPL-PLG-036-01	Typical Drawing Riverbank Protection Bio Restoration
29.	WRP-DGA-PPL-PLG-036-02	Typical Drawing River Riparian Restoration
30.	WRP-SPC-PPL-PLG-001	Construction Specification
31.	WRP-REP-EGG-PLG-010-P3-D	Slope Assessment Report
32.	WRP-TNO-EGG-PLG-00	Technical Note for Design of Pipelines in Karst
33.	BCH-SCH-PPL-PLG-014	Restoration and Reinstatment

2 RESPONSIBILITIES

CONTRACTOR will be responsible for the implementation of all erosion and reinstatement works in accordance with the requirements of this ERLP. CONTRACTOR will also be responsible for the training and performance of all sub-CONTRACTORs with respect to the ERLP and will comply with all relevant project standards, statutory requirements, permit and license conditions and secure all applicable permits and licenses.

CONTRACTOR will prepare site specific method statement for specific activities relevant to the erosion and reinstatement issues and submit to Client/EPCM for approval.

CONTRACTOR will conduct pre-construction surveys along the Right of Way (RoW) to facilitate the development of site-specific reinstatement method statements for all special areas particularly for erosion and sediment control and seeding-planting of indigenous vegetation.

2.1 Project Manager

- Overall responsibility for implementation and of this plan,
- To provide necessary resources for the Erosion Control and Reinstatement activities.

2.2 Construction Manager

- Will be responsible for ensuring that all site staff, including Sub-CONTRACTORs and activities comply with the this ERLP,
- Will ensure that ERLP is executed during pre, on and after construction activities effectively
- Will ensure that all related personnel are aware of the ERLP

2.3 Environmental Manager

- Will be responsible for the development and oversight of erosion control and reinstatement activities,
- Will update the Plan in conjunction with EPCM if required,
- Will be responsible for preparing environmental procedures, method statements and work instructions as required and implementing amendments to the system identified by audits,
- Will supervise Soil Experts, Environmental Inspectors and Biologist/Ecologist
- Will provide monthly report to EPCM.
- To monitor Reinstatement and Erosion control measures to achieve the erosion control and stabilization targets until the end of the Contract Warranty Period,
- Will ensure that all remedial action identified by inspections and non-conformities are closed out,
- Will ensure related trainings are given to personnel
- Will coordinate inspections, audits
- To consult with local experts, specialist organisations and government authorities in order to ensure the Reinstatement, Erosion control and stabilization works are appropriate to the local, worksite-specific conditions,

2.4 Environmental Inspector(s)

- Will monitor the biologist/ecologist for their performance in the implementation of ERLP and ESIA,
- Will monitor site applications related to the Erosion control and stabilization and their compliance with environmental plans, procedures and instructions,
- Will ensure that all remedial action identified by inspections and non-conformities are closed out,
- Will ensure that Environmental Manager is fully informed on every environmental issues,
- Will implement the environmental management system on site and provide as necessary toolbox talks on impact mitigation method,
- Will give trainings to all CONTRACTOR's personnel regarding with environmental issues,
- To report all steps related to Erosion control and stabilization practices in RoW and temporary areas

2.5 Biologist / Ecologist

- Will carry out site inspections related to the topsoil/ subsoil storage, erosion and stabilization structures,
- Will remove erosion and stabilization structures that are no longer required,
- Will keep and maintain records of the depths stripped by the use of topsoil stripping register,
- Will be responsible for seed and bulb collection, collection, storage and replantation,
- To be responsible for conducting ecological surveys, determine the needs for protecting critical habitats, wildlife and sensitive habitats,
- To conduct all the ecological monitoring including reinstatement (biorestoration and seeding), species translocations, erosion control, pollution prevention and waste management,
- Planning of reinstatement activities, giving ecological expertise on site during all relevant activities within ESAs (e.g. route clearance, re-vegetation) to provide advice and supervision to implement the environmental monitoring program,
- Will be responsible for the biorestoration activities; including detailed scheduling, plant species protection of plant materials, aftercare, monitoring and corrective action.

2.6 Soil Expert

- Will define the depth of top soil to be stripped,
- Will be responsible for monitoring of topsoil, subsoil stripping and storage
- Will give trainings regarding with soil management
- Will define the ground conditions
- Will be responsible for right application of slope breakers, drainage channels, and other related project requirements
- Will be responsible for excavated materials' managements like storage, disposal, and etc.
- Will ensure that soil management will comply with project requirements

3 REINSTATEMENT AND CLEAN UP PRINCIPLES

3.1 Construction Support Facilities (Camp sites, pipe stockyards etc.)

The selection of any proposed construction support facility will depend on the following factors, though not necessarily in the order presented

- Ease of construction; easy access to the RoW;
- Permit requirements and ease of land acquisition;
- Transport conditions and related transport safety; and
- Environmental considerations;
- Social considerations.

The strategy to be followed by CONTRACTOR and the sequence of events that lead to the ultimate selection of any construction support facility from the environmental point of view are as follows:

A baseline assessment will be made on the proposed location and will form the basis for the go-ahead. Any kind of construction support facility will be avoided in the special areas as mentioned in section 8.0 of this document.

An environmental assessment will be undertaken to assess the suitability of any construction facility proposed by CONTRACTOR, before commencing the activity. The area will be well photo-documented and video recorded for the sensitive areas to document the existing condition, as it were before the commencement of the project activity.

As soon as the site is de-commissioned, reinstatement will be undertaken, to achieve a condition, which is as good as or better than the condition it was in before construction or will be reinstated as per the owners wishes as much as practicable. CONTRACTOR will also verify that all environmental impacts are mitigated to meet projects requirements.

3.2 Third Party Activities

CONTRACTOR is responsible to reinstate any and all areas disturbed during the project works irrespective of their location or proximity to the RoW.

CONTRACTOR will fully reinstate any land disturbance due to third party assets/activities where that disturbance is:

- within the TANAP RoW in the scope of Lot 4, or
- close to the TANAP RoW in the scope of Lot 4 or project area where reinstatement is necessary in order secure the effective reinstatement of the project area.

The above principle applies to third party pipelines, railways, roads and buildings but is not limited to these examples.

The reinstatement will also be based on applicable sections of the ESIA (Document No. TNP-REP-ENV-GEN-001 and TNP-REP-ENV-GEN-002).

3.3 Clean-up of Sites

CONTRACTOR will, after backfilling and before replacement of topsoil, clean-up all areas affected by construction operations. That will include removal of all plant, equipment and materials not required for replacement of soil and subsequent bio-restoration. The clean-up of the sites will be managed considering the CONTRACTOR's Waste Management Plan and project requirements.

In pre-developed areas (either for agriculture or industry) the cleaned condition will be reinstated in accordance with the Specification for Reinstatement (WRP-SPC-EGG-PLG001). The strategy for the remediation of contaminated lands identified within the ESIA and the Contract Documents are not covered by the Specification for Reinstatement and reference should be made to Contract Documents.

Clean-up will be accomplished to the specification of EPCM and will as a minimum be to the documented standard and quality of the adjacent and adjoining land, and will be of suitable materials reused and or replaced in accordance with the land use.

3.4 Third Party Properties

The pipeline will encounter numerous third party properties, services and facilities over its length. The CONTRACTOR is responsible for identifying properties, services, and facilities, marking and protecting them, and reinstating them to the third party owner's (TPO) requirement as agreed between the TPO and the EPCM. The CONTRACTOR's responsibilities for third party properties, services, and facilities are set out in the Pipeline Construction Specification, Document No. WRP-SPC-PPL-PLG-001.

Reinstatement of any damaged or relocation of third party properties will be done in accordance with the access to site agreements and be to satisfaction of the appropriate regulatory authority.

3.5 Critical Habitats

Critical habitats were identified in the Environmental and Social Impact Assessment (ESIA) (TNP-REP-ENV-GEN-002) and Biodiversity Action Plan (BAP) (Document No. CIN-REP-ENV-GEN-017). The BAP provides the description of 10 terrestrial and 9 freshwater critical habitats in Lot 4 boundary, as well as mitigation and reinstatement measures to be applied in the areas.

In those areas and along water courses and in locations prone to erosion, CONTRACTOR will backfill and re-instate immediately after installation of the pipeline. Also in these areas, CONTRACTOR will fully re-instate in accordance with this plan. This applies to, but is not limited to: new/upgraded roads and tracks, including bridges, helicopter pads, construction camps, maintenance bases and borrow pits / aggregate quarries.

CONTRACTOR will obey the measures committed to in the BAP in relation to scope of work, including pre-construction measures, (i.e. seeds collection, plants translocation, time period specified), topsoil stripping and storage, and reinstatement measures. There will be no construction activities of stripping or etc. during closed construction period. CONTRACTOR will also obey the construction constraints (closed construction periods) specified in BAP. Additionally, pre-construction survey shall be executed on period specified in the BAP.

3.6 Soil Erosion, Principle and Classification

The loss of soil through the action of natural and manmade processes is termed soil erosion. Soil erosion is both a risk to the pipeline through reduction of cover / support, and a risk to the environment through the relocation of large quantities of sediment causing changes in drainage patterns, soil fertility et cetera. Inaddition the visual impact of soil erosion on the RoW is a concern.

Erosion during the construction (i.e. from vegetation clearance to completion of reinstatement) will be managed and mitigated as required by the CONTRACTOR. This management will require the separate consideration, using specific and separated handling systems and protocols, for areas of the pipeline corridor which have been identified to be or which are suspected to be contaminated lands, whether by historical use of influence and/or by actions of incidents under the works. The CONTRACTOR will ensure that water courses and ecologically sensitive sites are not affected by soil erosion and the migration of soils. Methods for control of sediment movement during construction and performance criteria are discussed in Section 4.5 of this plan.

Following completion of the reinstatement the CONTRACTOR will start the monitoring of the reinstated areas. This monitoring period, described in Section 7.9, will depend on the type of reinstatement and mitigation measures employed at each site. The CONTRACTOR will undertake repair and supplementary works as required to ensure the reinstatement is successful. Where ecological restoration is not achieving prescribed rates of establishment the CONTRACTOR will take appropriate measures such as reseed, fertilize, irrigate or change plant type as required.

Table 1.1 below gives the definition of erosion severity classes for overland areas based on historic pipeline projects in similar conditions (i.e. not specific to TANAP). For the temporary as well as permanent case erosion class 2 or better will be achieved for all slopes where sediment may discharge into a watercourse or ecologically sensitive area, i.e. <5t/ha/year. For other slopes an erosion class of 3 or better (<10 t/ha/year) will be achieved for reinstatement along the pipeline RoW.

Table 1.1. Erosion Severity Classes (*)

Erosion Class		**Erosionrate (t/ha/y-)**	**Visual assessment**
1	Very slight	<2	No evidence of compaction or crusting of the soil. No wash marks or scour features. No splash pedestals or exposed roots or channels.
2	Slight	2 -5	Some crusting of soil surface. Localized wash but no or minor scouring. Rills (channels < 1m2 in cross-sectional area and < 30cm deep) every 50100m. Small splash pedestals where stones or exposed roots protect underlying soil.
3	Moderate	5 -10	Wash marks. Discontinuous rills spaced every 20-50m. Splash pedestals and exposed roots mark level of former surface. Slight risk of pollution problems downstream.
4	High	10 -50	Connected and continuous network of rills every 5-10m or gullies (> 1m2 in cross-sectional area and > 30cm deep) spaced every 50-100m. Washing out of seeds and young plants. Reseeding may be required. Danger of pollution and sedimentation problems downstream.

5	Severe	50 -100	Continuous networks of rills every 2-5m or gullies every 20m. Access to site becomes difficult. Re-vegetation work impaired and remedial measures required. Damage to roads by erosion and sedimentation.
6	Very severe	100 -500	Continuous networks of channels with gullies every 5-10m. Surrounding soil heavily crusted. Integrity of the pipeline threatened by exposure. Severe siltation, pollution and eutrophication problems.
7	Catastrophic	> 500	Extensive network of rills and gullies; large gullies (> 10m2 in cross-sectional area) every 20m. Most of original surface washed away exposing pipeline. Severe damage from erosion and sedimentation on-site and downstream.

Where there is a risk of sediment contaminating water bodies, sediment control devices and measures will be installed (see Section 4.5 and 4.6).

As a minimum the following standards will be achieved:

- very low risk to the pipeline cover; maintain pipeline cover over the design life of the pipeline;
- very low risk of off-site pollution and sedimentation as described in erosion severity class 2 for sensitive sites and severity class 3 for normal sites; and
- low risk of damage to biorestoration by washing-out of seeds and plants as described in erosion severity class 2.

4 METHOD FOR REINSTATEMENT

4.1 Topsoil Stripping and Storage

Topsoil is the top, fertile layer of material on the land surface, which is capable of supporting plant growth. Along the TANAP RoW the depth of the topsoil will be established by soil expert of CONTRACTOR and decision of EPCM's soil expert will be sought. Procedures will be developed by soil expert of CONTRACTOR for topsoil stripping in advance of all work fronts. Typically, stripping will be done to a depth of between 100 mm and up to a maximum of 300mm according to the type of soils. If topsoil depth is more than 30 cm, topsoil will be stripped up to 30 cm. If topsoil depth is less than 30 cm., topsoil will be stripped to its full depth. In areas where little or no topsoil is present the CONTRACTOR must agree the depth (if any) of topsoil to be stripped with the EPCM's soil expert.

Topsoil stripping must be undertaken by earthmoving equipment using a toothless cutting edge and no excavator buckets with teeth will be permitted. The CONTRACTOR will use equipment which will minimise the impact on the topsoil structure or has a detrimental effect on the efficiency of the vegetation recovery. The topsoil will be carefully stripped to its full depth and stored separately from any other soil or materials. Both for stripping and storage, where plant is operating on topsoil it should be preferably low ground pressure equipment. Topsoil will be stored where it is not compacted by vehicles or contaminated and will be stored in a manner that minimises its loss and / or degradation. Topsoil will not be mixed with subsoil, and

will be stored on the opposite side of the RoW to subsoil; other than in restricted areas where mixing will be prevented by physical means, e.g. geotextile sheeting. Isolated piles of topsoil will be clearly signed as 'Topsoil' in Turkish and English. Labeled stripped topsoil will indicate originally stripped location including KP's.

Topsoil and subsoil will be stored away from surface waters in line with ESIA requirements and related legislations.

All soils will be visually and olfactory inspected prior to stripping and a watching brief will be maintained during all excavation works for potentially contaminated soils / materials by soil expert of Contractor. All soils suspected or confirmed to be contaminated will be removed from site and disposed of to a suitably licensed facility by fulfilling Project requirements. All materials will be sampled and tested prior to reuse in accordance with the agreed limits of USEPA guidance and Dutch Standards for Soil Contamination."

Stripped topsoil will be kept free from the passage of vehicles and plant following stockpilling. Topsoil and subsoil stacks will be placed to ensure that they are free draining. Gaps will be left in the topsoil stack to permit reasonable access across the Project ROW.

Topsoil will be stored in a stockpile not more than 2.5 m high with side slopes <45°, drained with open ditches, and 1 m high in critical habitats (ref: BAP). In areas of very limited working space, extra lands and camp sites topsoil stockpiles of up to 3m high and <45° slope may be permitted with EPCM's soil expert approval. The surface of the stockpile will be lightly compacted (a single pass of light hand compaction equipment) to reduce rainfall penetration but not enough to promote anaerobic conditions. Drainage will be provided which prevents standing water on or against the stockpile. Where necessary, the stockpile will be protected from flooding by placing berms/diversions around the perimeter and other sediment control devices. Under no circumstances will stockpiled topsoil be used as padding material or other purposes except reinstatement of original locations.

During handling, damage to soil structure will be avoided. Soil handling under wet conditions is to be avoided other than in areas having obviously sandy soils (river banks and possibly locations containing tuff). Construction handling of topsoil is to be delayed 24 hours following a rainfall of 10mm or more during the preceding 24 hour period, after which soil conditions will be reassessed. Topsoil will not be handled during very wet conditions or at the t'mes when the ground or topsoil is frozen unless approved by soil expert of EPCM. The CONTRACTOR will ensure integrity, fertility and quality of topsoil throughout the stripping, storage and reinstatement. If there are degredations in topsoil's quality, CONTRACTOR will bring quality to original situation.

4.2 Subsoil Removal or Management and Storage

4.2.1 Objective

The objective is to manage the subsoil so that it is not subjected to, nor is the cause of, excessive erosion.

The RoW will be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of subsoil is essential to achieving this objective.

Any area of subsoil suspected or confirmed through ESIA or on site testing to be contaminated will be stockpiled separately and either removed from site or reused following an appropriate risk assessment of the subsoil to determine the suitability of its reuse in accordance with the agreed limits of USEPA guidance and Dutch Standards for Soil Contamination for the identified land use locally required.

4.2.2 Requirements

The subsoil will be excavated from the pipe trench and, in some cases, from ridge-top widening or cutting of benches on sides of slopes and stockpiled separately. Topsoil and subsoil will not be mixed and stored on over another under any circumstances. In general, subsoil will be returned to the excavated area. However, in Special Areas (refer to Section 8) subsoil may be required to be removed.

4.2.3 Management of Subsoil

Subsoil that will be reused, (i.e. returned to the trench or corridor RoW) will be placed in stockpiles as shown on the typical drawings. In some areas, particularly where there is limited working width, temporary or permanent removal of subsoil from the RoW may be required, to approved locations only (see the Pipeline Construction Specification for details of grading).

CONTRACTOR method statements will prove his stated maximum allowable height and any compaction requirements for temporary stockpiles to ensure safe working. All maximum heights will conform to the commitment made in the ESIA." with "Height of the subsoil stockpile or any excavated materials will not be higher than 3m.

Removed subsoil will be kept free from the passage of vehicles and plant, and segregated from topsoil stockpiles. Subsoil stockpiles will be placed to ensure that they are free draining. Gaps will be left in the stockpile to permit reasonable access across the RoW and at low areas where surface water may be held against the stack.

The surface of the stockpile will be lightly compacted (a single pass of light hand compaction plant) to reduce rainfall penetration but not enough to promote anaerobic conditions. Where necessary, the stockpile will be protected from flooding by placing berms/barriers around the outside.

CONTRACTOR will maintain the integrity of the stockpile during the storage period to the satisfaction of project requirements. CONTRACTOR is responsible for the placement of suitable drainage and erosion control measures as necessary.

All subsoil will be visually and olfactory inspected prior to stripping and a watching brief will be maintained during all excavation works for potentially contaminated soils / materials. All soils suspected or confirmed to be contaminated will be removed from site and disposed of to a suitably licensed facility. All materials will be sampled and tested proper prior to reuse in accordance with the agreed limits of USEPA guidance and Dutch Standards for Soil Contamination.

4.3 Trench Excavation and Padding

4.3.1 Excavated Material

The creation of surplus excavated material will be minimized as far as practicable since it is significant in terms of waste management. All material that is excavated will be re-used to the maximum extent practicable. CONTRACTOR will produce a waste minimization statement justifying the extent to which surplus material will be minimized and reuse maximized. In case of left over excavated material exists, related legislation will be complied to dispose.

4.3.2 Blasting

Blasting will be performed in accordance with WRP-SPC-PPL-PLG-001 Pipeline Construction Specification and BCH-SPC-PPL-PLG-012 Specification for Blasting.

Blasting will only be used where other excavation methods are considered technically infeasible or uneconomic, and it shall be demonstrated to, and approved by, EPCM, that the blasting will minimize over-break of ground and minimize the generation of spoil material.

Special reports will be generated related to sections where balsting will be executed including information of blasting methodology and related calculations and etc. Blasting can be performed after EPCM's approval.

4.3.3 Backfilling and bedding

Padding and backfill operations will be performed in accordance with WRP-SPC-PPLPLG-001 Pipeline Construction Specification.

Bedding is required in areas where the stones and other materials inside the pipeline trench can damage the coating of the pipe and the surrounding soil is not convenient for bedding. When the surrounding soil is considered unsuitable for bedding, the bedding material will be imported by the CONTRACTOR upon approval of EPCM. Imported material used for bedding will be sand and will be salt free (to be verified by sampling and analysis before selecting the material quarry) and will not contain clay, roots, stones or other material which is likely to cause damage to the pipe coating.

Backfilling and bedding materials must be approved by EPCM before backfilling and bedding and have to be in accordance with project requirements and shall not cause any damage to pipes.

4.3.4 Management of Excess Soil and Rock

Generally, all soil and rock will be returned to the excavated areas. In some locations, however, there will be surplus subsoil or rock that cannot be returned, and this must be disposed of both safely and in line with the environmental requirements of the contract and in accordance with the requirements of the "Waste Management Plan (PLK-PLN-ENV-PL4-006).

Any new borrow (e.g. padding material, rock) and disposal (e.g. excess soil, excess rock, tree stumps) sites will be identified and evaluated to support project activities.

All borrow sites will be evaluated to determine if they can be used as disposal sites for waste soil and rock. For those that can be used as disposal sites, method statements will be developed for EPCM approval.

For existing borrow or disposal areas, CONTRACTOR will evaluate operations to identify corrective actions required for current operations to meet project standards. Only those portions of existing operations that meet or can be adjusted to meet project requirements will be used. CONTRACTOR will provide information to the facility operators on the actions needed to bring their total facility operations into compliance with project requirements, and will assist them in making necessary changes.

All surplus materials will be visually and olfactory inspected, sampled and tested prior to reuse in accordance with the agreed limits of Dutch Standards and USEPA guidance, All soils suspected or confirmed to be contaminated will be removed from site and disposed of to a suitably licensed facility. CONTRACTOR retains the same responsibilities for excess soil and rock as for any other waste material as specified in the project

documentation and Waste Management Plan.

The priorities for managing excess soil and rock are as follows:

1st: Reuse at a project facility or RoW section (e.g., trench backfill material, erosion control)

Where generated spoil is suitable for use as a construction material it will be first considered for reuse on the project facility or RoW for Project infrastructure works materials; stability, erosion control, AGIs, etc.

2nd: On TANAP-RoW Disposal

- For restoration purposes e.g. simulation of rock streams/glaciers in adjacent areas, hillside contour blending.
- Localized increase in finished surface height of TANAP-RoW where approved by EPCM.

3rd: Off TANAP-RoW Reuse

Transfer to third Party for re-use purposes as raw or semi-finished materials, e.g. crushed andesite that may be suitable for road construction materials or for rail ballast.

CONTRACTOR will enter into negotiations and agreements with third parties regarding the feasibility, material specifications, terms and conditions for supplying spoil materials off the TANAP-RoW as materials acceptable for reuse. Notification of such agreements will be duly noted and reported to EPCM.

4th: Off TANAP-RoW Disposal (permanent soil and rock)

All off RoW disposal sites are to be agreed prior to use with EPCM and are to be in accordance with the project Waste Management Plan (PLK-PLN-ENC-PL4-006).

Spoil will not be deposited:

- in valley bottoms, creeks, gully crossings, or sink holes;
- where they will potentially interrupt concentrated overland flow;

Earth works management will be engineered particularly in contour restoration.

4.4 Reinstatement of Soils

The RoW will be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of all soil is essential to achieving this objective.

General reinstatement will achieve:

- Final surface will be within +100mm of the level of undisturbed adjacent ground and blended to the existing contours (excluding slope breakers). In certain locations such as side slopes or along narrow ridges site specific reinstatement will be applied as shown on the AFC drawings or approved by the EPCM representative.
- Planting within pipeline permanent RoW to be approved by EPCM.
- In barren areas, a semi- natural appearance is required: rocks or processed rock may be distributed over the final surface provided the particle size distribution is similar to that of adjacent undisturbed rocks.
- Erosion control measures (if any) may remain visible.

- Water drainage has adequate outfalls and avoids ponding water on the RoW.

Upon completion of reinstatement, disturbed areas shall be inspected jointly by CONTRACTOR and EPCM for slope stability, relief, topographic diversity, acceptable surface water drainage capabilities, and compaction.

4.4.1 Reinstatement of Subsoil

Two situations are considered: standard reinstatement and special re-instatement.

4.4.1.1 Standard Reinstatement

On return of the subsoil to the trench, the subsoil will be compacted to a similar compaction to that in the adjacent undisturbed area. The depth of subsoil after settlement will not be above the level of the surrounding ground. After the subsoil has been returned and the land levelled, the subsoil will be rendered to a loose and workable condition to a depth of 300 - 400 mm and contoured in keeping with the adjacent undisturbed ground. Both the Environmental Inspectors of EPCM and CONTRACTOR will regularly monitor subsoil replacement and contouring.

CONTRACTOR will provide a detailed method statement for standard reinstatement for approval prior to mobilisation.

4.4.1.2 Special Reinstatement – Side Slopes

Special reinstatement is applied where it has been necessary to cut a bench into hillside in order to establish a flat working area from which to lay the pipe. It is the intention where possible to restore the original slope by filling-in the bench, thereby removing any scar in the landscape.

Side-cut topsoil will be stripped and removed from the area and stockpiled as described in Section 4.1. Both the topsoil and subsoil will be stored separately. The side slope cut will be restored, as far as practicable, to the original contours, so that the cut surface blends with the original contours (see Section 8.1). The subsoil layers will be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account should subsoil extend beyond the original line of slope or a new slope be created which is steeper than the original slope. Following compaction of the subsoil, the topsoil will be spread over the site, harrowed and reseeded. The reinstatement of side sloped RoW section will include drainage measures to avoid erosion taking place across the reinstated RoW. Compaction of the backfilled subsoil will be sufficient to ensure long term stability of the slope and will as a minimum match the existing density of the surrounding ground. The reinstatement will be carried out in accordance with the typical drawings for side slopes unless otherwise approved by the EPCM. In exceptional circumstances where full reinstatement is not possible and the created cut slope will remain, CONTRACTOR will prepare a methodology statement proposing an alternative slope reinstatement solution subject to EPCM approval. This will set out as a minimum how the long term slope stability, visual impact, and environmental project requirements are met.

4.4.1.3 Reinstatement of Topsoil

Topsoil will be segregated and will not be mixed with spoil material before or during replacement. Topsoil will be re-spread over the surface of the subsoil. Topsoil will not be used for bedding material in the trench, and topsoil from unstrapped / undisturbed areas will not be used to cover adjacent disturbances. Topsoil will not be handled during excessively wet conditions or at times when the ground or topsoil is frozen, unless agreed otherwise with EPCM's representative.

Once the disturbed areas have had subsoil compacted and have been re-contoured, topsoil will be re-distributed over the entire disturbed areas from which it was stored.

All disturbed areas will be subject to final grading as specified in Section 4.5; however, measures will be taken prior to seeding to ensure areas of reinstated topsoil remain rough / tilled, to help protect the stability of topsoil against erosion. On sites where harrowing etc. is not practical (e.g. steep slopes, rocky areas), the sites should be dozer-tracked perpendicular to the slope or otherwise left with adequate roughness following topsoil placement. When the topsoil is replaced over the RoW, a slightly rough, loosely consolidated texture will be achieved in order to promote vegetation growth.

Topsoil should be seeded following the seeding regime identified in Table 7.1. In general, this will be undertaken using hydroseeding and/or any other applicable method, but for steep slope locations, other techniques and measures will apply, see Section 4.6.

All slopes which in the post construction state would be above the soil loss threshold willl be hydroseeded or hydromulched as appropriate.

CONTRACTOR will provide a detailed method statement for topsoil reinstatement for approval prior to mobilisation.

4.5 Protection of Soils During Construction

CONTRACTOR will be responsible for employing any temporary erosion and sediment control measures in order to protect the RoW and adjacent areas during construction activities. In the event that the pipeline ditch remains open, CONTRACTOR will ensure trench integrity and employ such measures as temporary ditch breakers, silt fences, straw bales, etc. as necessary.

4.5.1 Temporary Erosion Control

The following temporary erosion control measures will be incorporated along the RoW in order to protect the environment and to achieve the performance standards as set out in Section 3.5.

On longitudinal slopes with open trenches, plugs of unexcavated material will be left in the trench to interrupt surface flow and prevent scouring of the trench bottom.

Tree stumps should be left in place wherever possible to provide soil stabilization.

Drainage channels will be installed on all longitudinal and transverse slopes as required. Where slopes require cutting, flumes will be installed across the RoW. These will carry water from drainage sumps on the upslope.

The RoW will be monitored and repairs made immediately throughout construction to prevent:

- subsidence of the pipeline trench (below natural grade);
- breaching of diversion berms and slope breakers;
- slope wash from improperly placed berms and slope breakers;
- slumping and soil movements from cut and fill slopes;
- loss of stored topsoil, subsoil or cuttings;
- Pollution of sensitive sites, including watercourses, with displaced sediment as a result of erosion on the RoW.

4.5.2 Sediment Interception

Where the RoW intersects or is parallel to a watercourse sediment interception will be provided to prevent

sediment entering the water. Sediment interception will be provided for runoff that may occur during construction and reinstatement activities until the reinstatement has been in place and is achieving the requirements of Section 3.5.

Sediment interception devices may take the form of a Silt Fence, Wooden Fence or Straw Bale Barrier. The removal of sediment caught by these measures will be the responsibility of the CONTRACTOR. It should be noted by CONTRACTOR that these forms of construction may be subject to vandalism in some rural areas where the resources used are of value, and as such selection of approach should consider location and access.

4.5.2.1 Silt Fence

Silt fences or other suitable sediment barriers will be installed in areas of low sheet flow and are installed to intercept runoff on eroding slopes.

The filter cloth is draped over the fence and secured in a 15-cm-deep trench dug one metre uphill. Filter fences installed across the working width should follow a slight gradient towards a natural outlet, waterway, or lined chute, into which they drain.

The following requirements will be satisfied:

- ponding will not be allowed behind a silt fence;
- drainage area will not exceed 0.1 hectares per 30m of fence length;
- for slopes between 2% and 20%, the maximum allowable upstream flow path length will be 30m;
- for slopes steeper than 20%, the maximum will be 6m;
- maximum upslope grade perpendicular to the fence line will not exceed 100%; silt fences will be used for sheet flow only.

Filter fabric will meet the following criteria contained in Table 4.1 as a minimum:

Table 4.1 Filter Fabric Criteria

Physical Property	Minimum Requirements
Filtering efficiency	%75 - %80
Tensile strength at 20% (maximum) elongation	90kg/ linear metre minimum
Slurry flow rate	0.11 liters/m3/min

Synthetic fibre will contain ultraviolet inhibitors and stabilisers and meet the performance criteria for the entire length of installation and the environments encountered. Filter fabric will be installed in continuous lengths.

Silt fences will be inspected daily during periods of prolonged rainfall, immediately after each rain event, and weekly during periods of no rainfall. Any repairs required will be made immediately.

Sediment will be removed prior to the sediment reaching 1/3 of the height of the silt fence. Care will be taken during sediment removal to ensure integrity of the fence is maintained. Sediment collected will be disposed of in an approved manner.

The silt fence will not be removed until the upslope area has been permanently stabilised. Any sediment

deposits remaining in place after the fence has been removed will be dressed to conform to the existing grade, prepared and re-vegetated.

4.5.2.2 Straw bale barrier

Straw bale barriers (the term can include hay or other baled vegetative matter) will be installed in areas where small amounts of temporary sediment interception are required.

The requirement for locations of straw bale barriers along the RoW is to be established during the work jointly between CONTRACTOR and EPCM representative. Generally, these sediment control areas with slopes >10% will include:

- areas of protection for longitudinal down slope to water bodies and roads;
- edge of ROW with adjacent down slope water bodies or roads; and
- edge of ROW with adjacent down slope to defined environmentally sensitive areas.

Straw bales will be bedded into the ground and anchored with reinforcing stakes. Anchors are driven at an angle towards the neighbouring bale so as to tie them firmly together.

The drainage area will be no greater than 0.1 hectares for each 30m of bale barrier. Straw bale barriers will not be used in areas of rock or other hard areas, where full and uniform anchoring is prevented.

Straw bale barriers will be inspected daily during periods of rainfall, immediately after each rain event and bi-weekly during periods of no rainfall. Any repairs required will be made immediately. While the life expectancy of bales is not more than 3–6 months, deteriorated bales can be broken up and used as straw mulch or are often left to decompose in place. If non-biodegradable plastic or wire ties are used to bind the bales, these should be removed and disposed of. Straw bales will not be left in the trench from the point of backfilling.

4.5.2.3 Wooden Fence

Typically, subsoil will not be stored in working areas constrained by side slope or narrow ridges, spoil will instead be removed from the working strip and stored in approved temporary stockpiles. The use of wooden fences in areas of side slope and ridge construction to retain cuttings during construction and reinstatement of the TANAP RoW will be considered and used in communication with EPCM.

CONTRACTOR will ensure by calculation that fences are capable of safely supporting the loads imposed. Fences will be regularly inspected to ensure safe operation and structural integrity. CONTRACTOR will be aware that the use of wooden fences may pose localized problems. In certain areas, firewood is a valuable commodity therefore the fence material may be attractive to locals for firewood.

4.5.2.4 Water Disposal

Pipeline trenches commonly collect water during construction. Because it may be turbid and sediment laden, trench water will require filtering before it can be discharged.

Trench water is commonly removed using a pump connected to a 7–10cm diameter flexible hose. Disposal of trench water will be in accordance with the requirements set out in the CONTRACTOR's), CONTRACTOR'S Waste Management Plan (PLK-PLN-ENV-PL4-006), Pollution Prevention Plan (PLK-PLN-ENV-PL4-005) and the ESIA.

Appropriate measures to prevent erosion and sediments during the disposal of trench water, hydrotest water, or any other water will be adopted. Such measures are specified in the CONTRACTOR's ESMP and all

water discharges will be undertaken in accordance with the requirements of that plan.

4.5.2.5 Crushed Rocks

Crushed rock may be required as a temporary measure it serves to reduce muddy conditions and sediment production during construction. In case of crushed rocks usage, there will be barrier like geotextile or else in order to prevent laying crushed rocks on the bare soil and grounds.

Crushed rock is applicable to locations where vegetation cannot be established and where erosion poses a risk to the pipeline or sediment threatens nearby streams. This also applies to stone dressings outside of the working width: e.g. camps, temporary roads, pipe storage locations, and crew quarters.

As required by local conditions, crushed rock may be used for temporary roadways, turning areas, and other locations from where sediment discharge poses a problem.

Following project completion, temporary areas dressed with crushed rock will be ripped, fertilized and seeded or planted. Before the fertilizing and biorestoration, crushed rock collection process will be made in following three steps;

- First, the surface rock will be collected,
- Second, ripping will be done,
- Finally, rocks rised after the ripping will be collected.

Erosion Control Devices for Reinstated Slopes

Careful construction and reinstatement can reduce soil erosion and sedimentation to within manageable limits. Bioremedial and mechanical (hydraulic) methods of controlling soil erosion and sedimentation will be implemented.

Stabilisation practices are essential on all steeply sloping lands disturbed by construction. Steep sloping ground is considered to be ground inclined at >15% to the horizontal, or shallower ground which through the nature of its topography is expected to be subjected to significant surface water flow.

Mechanical methods of stabilisation include the use of slope breakers, containment ponds, and lined chutes. Slope breakers cross the RoW and serve to contain and remove water runoff from the working width and other disturbed areas. They discharge into soakaway / containment ponds, natural channels, or lined chutes, depending on the situation. Dissipation of the energy anticipated from the flow is necessary. The breakers reduce the length of slope over which water can travel without interruption, but typically require the presence of vegetation to effectively limit the transportation of sediment from the slopes. The bioremedial measures include hydroseeding and hydromulching to revegetate the slopes. For some situations a seed impregnated jute matting will also be utilised to allow the establishment of the specified flora.

4.6.2 Slope Breakers

Slope breakers are channels constructed across the working width. Their purpose is to remove surface runoff and, acting with vegetation, to protect against soil erosion. Slope breakers can be temporary or permanent.

Temporary slope breakers are required to be functional for the first 5 years after the pipeline reinstatement takes place, and the construction must allow maintenance to ensure this is the case. Five years is considered sufficient time for the vegetation to be fully established provided suitable reinstatement is undertaken.

Permanent slope breakers (diversion ditches) will be in the form of stone dressed or rock formed slope breakers. These permanent structures and their associated outlets are required to remain functional for the design life of the pipeline (25 years), and the construction must allow maintenance to ensure this is the case. The shape and dimensions of the slope breakers will be, where necessary, altered to suit the local topography and runoff situation, following approval from the EPCM's representative. If a spring is intercepted, it should be diverted to a lined chute and provision made to drain the slope appropriately.

4.6.3 Erosion (Jute) Matting

Erosion matting, consisting of jute, will be installed to provide an immediate protection to the slope against erosion, prevent washing-out of seeds and enhance the micro-climatic conditions in the soil for plant growth.

Erosion matting will provide temporary protection to the soil surface until sufficient vegetation cover has been established to control erosion and meet the performance criteria. The erosion matting will be Geojute or similar. The mat will be biodegradable, open weave 11 mm x 18 mm mesh size and 2 mm thick fibres with a mass/area ratio of 500 g/m2. The mat will absorb water to 500% of its dry weight on saturation. The mat should rot in approximately two years. For river crossings reinstatement, rip-rap application will be done. CONTRACTOR will submit data sheets and samples of the proposed erosion matting for EPCM approval.

Where revegetation is taking place topsoil preparation and grass seeding work will be undertaken prior to laying erosion matting. The seeding will match the planting regime described in Section 7.

The erosion mat will be unrolled from the top of the slope, allowing it to lay naturally on the soil surface over all the local undulations. On no account will the material be taut or stretched so that it forms 'bridges' over local soil mounds and stones. Matting will be fastened to the slope surface as described on typical drawing WRP-DGA-PPL-PLG-050. Unless properly anchored, mats are liable to slip. Uphill ends are to be buried in a 15 cm deep slot and stapled per the manufacturer's recommendation at maximum 30 cm centres across the width of the mat. At joints, the downhill end should be overlapped shinglefashion for 30 cm. The uphill end of the new roll is inserted into a 15 cm trench and stapled as before. On slopes steeper than 25 % check slots should be used every 30 m. These are 15cm deep trenches into which a tight fold of matting is inserted. The slot is filled and tamped, and staples are punched.

Following installation, mats should be rolled, if the slope allows, with a smooth hand-roller to bring them into close contact with the soil and to consolidate the seedbed.

Erosion mats, once installed will be regularly inspected for degradation and installation integrity. Where matting has remained in place for longer than 12 months, CONTRACTOR will be responsible for maintaining and replacing matting as required through the construction and maintenance period.

4.6.4 Crushed Rock

Crushed rock may be required as a permanent erosion control measure at locations where it is impossible to establish vegetation and with prior approval of EPCM. Crushed rock will be used, if necessary, to recreate the surface covering of rock on the adjacent and pre works slope. If possible the rock used will be that recovered in the top soil stripping and pipe trench excavation.

4.6.5 Lined Chutes

Lined chutes are channels created to collect and convey runoff to where it can be safely disposed of without erosion. Chutes or waterways serve to receive and concentrate runoff from slope breakers, from small gullies that cross the pipeline right-of-way, and from other areas that require water disposal. Their design is such that channel velocities remain nonerosive, even on steep slopes. The discharge point is to be designed and

installed sufficiently to dissipate discharge energy and avoid erosion at the discharge point. Lined chutes will be applied where shown on the alignment sheets or as directed by the EPCM representative.

Commonly, lined chutes are designed to convey water from where springs emerge in the vicinity of the pipeline RoW.

On steep slopes (>25%) lined chutes will contain wicker dams to reduce the potential for high velocity water flow down the slopes. The chutes, including wicker dams where utilised, will be inspected and maintained at the same time as the slope breakers

4.6.6 Gully Remediation

The objective of gully remediation is to prevent existing gullies from increasing in size and extent through continued erosion.

The structures described in this specification reduce the velocity of concentrated storm water flows and thus reduces erosion of the swale or ditch. They also trap small amounts of sediment flowing in the gully.

Gabions in combination with a geotextile and rock fill will ensure that further erosion will be mitigated and gully head migration and

Gully head remediation will be applied as shown on the alignment sheets or directed by the EPCM representative. Final design of the gully head mitigation measures will be proposed by the CONTRACTOR subject to EPCM approval.

4.6.7 Geotextile

Geotextile will be as defined in the Pipeline River Crossing Civil Protection Works Specification WRP-SPC-PPL-PLG-030 (or EPCM-approved equivalent).

Geotextile will be handled and installed according to the manufacturer's recommendations, and/ or as shown on the Drawings. Geotextile will not be stored in direct sunlight. Construction equipment and/ or vehicles will not be allowed to operate directly on geotextile.

Where geotextile is joined with overlapping joints, a minimum 500 mm overlap will be allowed at adjoining borders. For geotextile placed on slopes, the geotextile will be secured at the top of slope by embedding in an anchor trench, as shown on the Project Drawings.

Proposed Measures

Using slope geometry and assumptions where necessary, mitigation measures have been proposed for each slope using the USLE (see Section 8.3) These measures are presented on the alignment sheets using two codes, one for Bio-remedial measures, and one for the engineered referred to as 'slope breakers'. The codes present predicted measures required to reduce soil erosion to an acceptable level for each slope. The codes are in the following format:

Table 4.2 Bioremediation Code

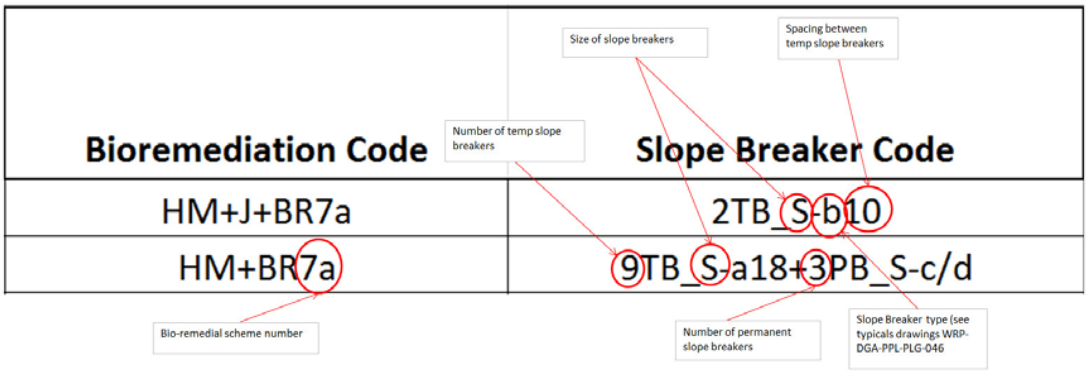
CODE	Description
HM	Hydromulching of slope surface
HS	Hydroseeding of slope surface
BR	BioRemedial scheme, Number identifies which BR from list in Specification for Reinstatement

Table 4.3 Slope Breaker Code

CODE	Description
TB	Temporary Slope Breaker
PB	Permanent Slope Breaker
-a	Slope Breaker type A
-b	Slope Breaker type B
-c	Slope Breaker type C
-d	Slope Breaker type D
-L	Large breaker dimensions
-S	Standard breaker dimensions
J	Jute Matting

Figure 4.1 gives an example of the codes provided on the alignment sheets, and some explanatory notes, to be read in conjunction with Table 4.2 and Table 4.3.

Figure 4.1 Alignment Sheet Code Example



The first example given in Figure 4.1 identifies that the slope will be hydromulched, and have Jute Matting, making use of the seed mix BR7a as described in Table 7.1. It also identifies that 2 temporary slope breakers, of standard dimensions and type 'b' will be constructed at 10m spacing down the slope.

The second example given in Figure 4.1 has 9 temporary slope breakers of standard size, type 'a' at 18 m spacing down the slope. It also has 3 permanent slope breakers, type 'c' or 'd' as appropriate for the slope, and of standard size.

Permanent slope breakers are always used to divide the slopes into equal parts. In the case of the Figure 4.1 second example this is 3 slope breakers subdividing the slope into 4 sections. The temporary slope breakers are spaced between permanent breakers, with an additional breaker included at the crest of the slope which has been included to take count of situations where the surrounding topography may result in discharge onto the steep slope. The requirement for T* temporary breakers will be judged by the CONTRACTOR to the satisfaction of the contract requirements.

The mitigation measures, both bioremedial and engineering, are provided on the IAAC alignment sheets and drawing WRP-DGA-EGG-PLG-001. These require verification at each location by CONTRACTOR and the

EPCM', through validation or updating of the design assumptions.

CONTRACTOR will establish steep slope areas and provide procedures and methodology statements as part of the site-specific Special Area Reinstatement Method Statements for EPCM approval. The procedure will establish all planned temporary and permanent erosion measures in line with Reinstatement specification and Project Drawings.

Construction in steep slope areas requires an increased awareness of safety and stability issues. CONTRACTOR will utilise proven construction techniques specific to such areas. CONTRACTOR will demonstrate that increased safety measures are planned and these measures are to be followed on site.

CONTRACTOR will follow particular requirements for drainage control as noted on AFC alignment drawings and DGA-EGG-PLG-001.

Assumptions and Site Validation

Where information was not available to undertake the USLE as described in Section 8.3, assumptions were made such that the initial proposed soil erosion mitigation measures could be generated for each slope. As not all slopes were visited, these assumptions are significant and relevant to almost all slopes, and must be validated accordingly by site observations. The following list of assumptions should be considered for each slope, and the mitigation measures reconsidered if the assumptions are found to be invalidated by the site observations:

- Slope start / endpoint identified using GIS
- Slope angle attributed based on averaging from GIS
- The percentage of slope surface covered by rock-mulch
- Potential for sediment discharge into a watercourse or sensitive site, identified from GIS
- Soil class mix (gravel, sand, silt, clay), currently assumed to be a silt for all sites
- Local topography (is RoW likely to be impacted by flowing groundwater), including requirement for slope creast temporary breaker (see section 4.7)

The assessment of the validity of the assumptions made will be undertaken by the CONTRACTOR, and EPCM representatives on site, and the USLE assessment reworked by the EPCM representative where necessary to modify the mitigation measures to be installed, for the approval of the EPCM.

Marking of Erosion Control Works

CONTRACTOR and EPCM's representative are to walk the pipeline RoW for each steep slope, to validate the design assumptions in the erosion assessment. Following validation, or update of the prescribed erosion mitigation measures, the CONTRACTOR and EPCM will agree the site specific arrangement of mitigation measures, and jointly stake the route with the agreed upon measures immediately prior to clearing and grading of the RoW. Due to the length of the TANAP pipeline and the lot allocation, multiple teams will be required to perform this function.

Rip Rap

Rip rap will be required to reinstate specific river crossings. The minimum installation locations are defined in the River Crossing Reinstatement and Scour Protection Schedule Document No. WRP-LST-PPL-PLG-003.

This document will not limit the location of rip rap installations. CONTRACTOR will identify any additional areas and propose them to EPCM for review and approval.

Rip rap may also be used in areas along the right of way other than at river crossings, CONTRACTOR will install rip rap wherever deemed necessary and suitable to achieve the erosion control requirements or for slope stabilisation.

Rip rap will be as defined in the Pipeline River Crossing Civil Protection Works Specification WRPSPC-PPL-PLG-030.

Rock filled Gabions

Gabions will be required to reinstate specific river crossings. The minimum installation locations are defined in the River Crossing Reinstatement and Scour Protection Schedule Document No. WRP-LST-PPL-PLG-003.

This document will not limit the location of gabion installations. CONTRACTOR will identify any additional areas and propose them to EPCM for review and approval.

Gabions may also be used in areas along the right of way other than at river crossings CONTRACTOR will install gabions wherever rip rap is not suitable control measure and deemed necessary to achieve the erosion control requirements or for slope stabilisation.

Rock-filled gabions will be as defined in the Pipeline River Crossing Civil Protection Works Specification WRP-SPC-PPL-PLG-030.

5 TRENCH BREAKERS

Trench breakers will be installed within the pipeline ditch at locations along the pipeline route where the natural profile, drainage pattern and backfill materials may cause the trench to act as a drain resulting in the washing out of the bedding material etc. Where the slope is steep trench breakers will assist in the backfilling operation, breaking the trench into shorter sections. Anticipated spacing requirements for slope breakers are identified on typical drawing WRP-DGA-PPL-PLG-041.

CONTRACTOR will install the trench breakers per design. The final installation will require approval from the EPCM. Allowance for water movement through the trench breaker will be made by installing pipes through the trench breaker as shown on the typical drawing.

Additionally, impermeable trench breakers are required to control the lateral/horizontal migration of groundwater and/or fluids:

- at bases of slopes adjacent to wetlands and where needed to avoid draining of wetlands,
- to prevent contamination migration, and/or
- reduce suffosion risk in karst terrain

If trench breakers are used for this purpose the drainage pipes will be omitted.

The materials of construction will be polyurethane bags filled with sand and cement 10:1 as detailed in the referenced Project Drawings, polyurethane foam (subject to Client approval), or alternative (subject to Client approval).

6 RIVERS

Where required the design of riverbed and riverbank protection will be in accordance with Project Drawings.

Specific method statements will be produced by CONTRACTOR for all river crossings, i.e. RVX1, RVX2, RVX3A and RVX8, generic method statements will be produced by CONTRACTOR for each type of minor river crossing i.e. RVX3B, RVX4 to RVX7 for TANAP approval, as per Appendix 5.9, Section 1.3.11 of the ESIA Report. The method statement will detail all construction and restoration procedures.

Riparian vegetation (Plant habitats and communities along the river margins and banks) are of high importance to the long term stability of the river. CONTRACTOR will minimise riparian disturbance wherever practicable. Where riparian vegetation consists of shrubs and trees greater than 1m height, CONTRACTOR should transplant the plants wherever possible for replanting during reinstatement works. Where it is not practicable to transplant or translocate the trees then new trees of the same species mix will be planted. Nursery trees of minimum 2 years old up to 5-year-old will be planted in order to restore the riparian environment, subject to the restrictions of the Planting Proximity Zones.

The Planting Proximity Zones are defined by the following:

- there will be no trees planted within 6 m of the pipeline centreline,
- trees such as Willows (Salix) and Poplar (Salicaceae) or other native species with similarlydeep and aggressive root structures will not be planted within 10m of the pipeline centreline.
- other tree species such as Ash/ *Crataeagus monogyna* , Alder/ Alnus, Lebanon cedar/ *Cedrus libanii*, larch/ *Larix* sp., beech/ *Fagus orietalis*, elm/*Ulmus minor*, sweet chestnut/*Castanea* sp.*,* hornbeam/*Carpinus betulus*, Pinus brutia, scotts pine/*Pinus slyvestris*, black pine/*Pinus nigra*, Kermes oak/*Quercus coccifera*, Cilician Fir/*Abies cilicica*, sycamore/*Platanus orientalis*, apple/*Malus* sp., plum/*Prunus* sp., cherry/*Cerasus* sp., pear/*Pyrus* sp., and also included in this category are most conifers may be planted at a distance of 6 m or greater from the pipeline centreline.

CONTRACTOR will plant sufficient density of vegetation to achieve the original plant densities subject to the restrictions of the Planting Proximity Zones. The planting density will take consideration of dieback rates of each plant. Besides, cultivated plants will not prevent the flow of water.

Where originally present native shrubs will be re-planted above the pipeline and within the riparian zone, if no shrubs are originally present, CONTRACTOR will introduce shrubs native to the region to provide vegetative stabilisation and erosion protection to the cleared riparian zone 6 m either side of the pipeline centreline.

Acceptable plant types, suggestion of planting density and their location relative to the pipeline are outlined in drawings WRP-DGA-PPL-PLG-036-01 – Typical Drawing Riverbank Protection Bio Restoration and WRP-DGA-PPL-PLG-036-02 Typical Drawing River Riparian Restoration.

Bioremediation of river banks will be undertaken to re-establish vegetation to the equivalence of the adjacent untouched areas. This may include juvenile trees and shrubs the selection of, placement and planting will be supervised by an ecologist.

Unless stipulated on project documentation river banks will be restored to their original condition and contours. Where this is not practicable, CONTRACTOR will propose site specific solutions with engineering justification; this will be included within EPCM approved method statements.

For gravel bed rivers, the armoured bed (the sediment forming the surface layer that is coarser than the underlying sediment) will be recovered to a minimum depth of 300 mm at the start of crossing excavations, stored in a segregated area and replaced as the top layer of bed material during reinstatement.

The backfill over the pipe will be at least as scour-resistant as the original bed material. Where rock is present the backfill material will be coherent and with similar properties to the adjacent undisturbed ground, the trench should not create a natural channel for preferential erosion or water run-off nor should it create localised hard areas, with the potential to increase future erosion rates across the watercourse.

The disturbed portion of the river bed will be returned to pre-construction contours where possible and in compliance with Project Drawings. Any deviations will be subject to EPCM approval.

Erosion protection and stabilisation measures will be provided to prevent acceleration of and / or increase in the erosion as a direct or indirect result of the construction activities. Other than sites where civil protection measures are designed e.g. riverbank revetments and riverbed protection, erosion and soil stabilisation measures, when implemented, will not be intended to permanently alter the pre-construction hydrologic and environmental regimes including natural erosion of the rivers. Trench backfill materials will meet the requirements of the Pipeline Construction Specification. Any material too wet to be suitable for reinstatement of the banks will be dried as required to ensure stability during reinstatement.

Erosion and sediment control devices will be installed and maintained until re-vegetation and/or selected stabilisation measures shown in Project Drawings are sufficiently established and functioning to meet the requirements of “no accelerated” or “increased erosion”. CONTRACTOR will detail erosion and sediment control measures to be used in the method statements for EPCM approval and these will be compliant with the project documentation. Where erosion matting and/or bio-restoration cannot achieve the project reinstatement performance requirements, or where otherwise indicated on Project Drawings, or as otherwise deemed necessary, erosion protection will be achieved by the installation of civil protection measures (see Section 4).

Where permanent river bed scour and riverbank protection is required it will generally be specified on site specific detail drawings and in the River Crossing Reinstatement and Scour Protection Schedule Document No. WRP-LST-PPL-PLG-003. Protection measures will be implemented as specified. CONTRACTOR is required to validate the river crossing reinstatement and scour protection schedule document and where additional protection requirements become apparent during either construction and/ or re-instatement, CONTRACTOR will propose additional measures, in accordance with project requirements.

Requirements for riprap, geotextile, gabions, sills, bunds, groynes etc, including but not limited to material specifications, placement and testing will be in accordance with Project Drawings, and meet the minimum requirements of the Pipeline River Crossing Civil Protection Works Specification WRP-SPC-PPL-PLG-030.

7 BIORESTORATION

The presence of vegetation reduces the susceptibility to soil erosion, providing canopy cover to the soils and having roots binding the soil. Revegetation in the project area means returning the land to its use prior to construction of the TANAP pipeline. This will mean planting grasses on highly erodible landscapes, or planting alpine plants and trees if the land is unsuited to grass, to be determined by an ecologist on site prior to stripping and grubbing, and to be approved by the EPCM. Privately owned land will normally be replanted to the pre-existing condition or as agreed with the landowner and EPCM.

Trees will not be planted within a 16 m wide strip centred over the pipe. However, trees may be planted in areas suitable for reforestation, such as the verge of the right-ofway. In addition to the TANAP’s working

width, its temporary roads and other disturbed areas will be reinstated by CONTRACTOR to the satisfaction of the Landowner and EPCM. The collected seeds then will be sent to Ministry of Agriculture's seed gene banks in Ankara and vegetative propagules will be used in order to start an ex situ cultivation for the reintroduction of populations in suitable habitats within the species range. In case failure to seed at Gene Bank, Contractor will fulfill all the requirements to arrange the appropriate and required storage areas considering temperature, humidity and other requirements of inside conditions to store seed to comply with project requirements. Seed transportation and providing the records will be responsibility of CONTRACTOR's biologist/ecologist.

All biorestoration programs will be approved by EPCM. Landowners will be consulted by CONTRACTOR to assist in developing these programs. Where Landowners requirements cannot be achieved, CONTRACTOR will consult with EPCM to agree final resolution of the issue.

7.1 Objectives

The objectives are: (1) to establish sufficient vegetation cover to reduce erosion to meet the performance requirement of Erosion Class 3 (and in sensitive locations Class 2) or better through restoration of the local plant community, (2) to reinstate with sufficient variety and distribution of appropriate plant species such that over time the local species will re-establish themselves across the RoW.

The long-term cover will be the native flora with the exception of areas that were planted with crops or other non-native species prior to construction. The biorestoration strategy is based on supplementing the seed bank of local species to remain in the topsoil when it is replaced. These supplementary seeds will be of fast growing species, sensitive to the local ecology, and that will rapidly provide soil surface cover and limit erosion. All biorestoration materials including seeds and plants are to be supplied by CONTRACTOR.

7.2 Requirements

7.2.1 Agricultural / developed areas

In agricultural (defined as arable land) and other developed areas CONTRACTOR will leave the land in the condition specified in the pre-entry agreements. Except where agreed otherwise, CONTRACTOR will assume that the land is to be made ready for re-planting with crops: the land will be graded and tined to remove compaction. Application of fertilizer and other soil amendments (if needed), and planting on permanent growing areas will be carried out by the landowner or tenant. CONTRACTOR will, however, seed and maintain all topsoil storage areas as required by Section 3.1, and irrigate all areas to the extent required to suppress dust formation.

7.2.2 Undeveloped areas

A minimum of 70% or the pre-works cover of ground vegetation (based on 100% total without overlapping cover) will be established within one year of planting. This will minimise surface erosion and provide a sustainable, self-generating plant community under virtually all conditions.

Fertiliser will be applied where necessary to achieve these target growth rates, as described in Section 7.5.

In areas where third party activities have affected the level of vegetative cover, the original cover will be determined by reference to adjacent, unaffected areas of similar topography and soil type.

Original percentage cover will be estimated from CONTRACTOR's photographic record of the route, or, in case of doubt, by reference to adjacent undisturbed areas.

The vegetation cover will be composed of either:

- Species (for example, fast growth types) that are suited to the local environment and indigenous to the region; (The selection of species which do not belong to the same area will be aligned with sensitivity of the area. For example, for critical habitats, there may be certain restriction of importing alien species to the area.), as proposed in Section 7.5
- species originally found in each route section or project area, as determined by ecologist on site;
- or an ecologically compatible mixture of those two groups.

The biorestoration maintenance, including weeding and grazing control, will be CONTRACTOR's responsibility for a period defined within the Contract.

7.3 Scheduling

CONTRACTOR will carry out biorestoration work in the appropriate growing seasons. Sowing or planting must take place in the appropriate season for the applicable plant types. CONTRACTOR will identify from historical meteorological data suitable weather 'windows' for each area of the route. Biorestoration schedule will be provided before starting biorestoration works and be approved by EPCM.

CONTRACTOR will produce a Biorestoration Schedule including pre-construction transplanting or cultivation in addition to post-construction soil preparation, planting and aftercare. Scheduling of the biorestoration will be aligned with the ESIA requirements and management plans and will be issued to EPCM for confirmation before being applied.

7.4 Selection of Plant Species

This section refers to the species and form of materials (seed, seed-mix, bulb, or plant etc.) chosen to supplement the seed bank of the topsoil. This section does not apply to agricultural or other developed areas. The selection of species will be designed to achieve the objectives defined in Section 7.1. Seed mixes based on localised assessment for all regions along the pipeline are presented in Table 7.1, but must be verified at each location by a competent ecologist to ensure suitability and compatibility with pre-works and adjacent ecology. This is of particular importance in critical habitat areas.

CONTRACTOR will be responsible for the final choice of species and form of materials for each project area and section of TANAP ROW. CONTRACTOR will refer to specialist advice provided by Specialist CONTRACTOR on existing species and their distributions.

CONTRACTOR will produce Site Specific Special Area Reinstatement Plans and Generic Reinstatement Plans describing the quantity of plants/seeds and material forms to be planted for approval by EPCM. This plan will include certain mitigations and limitation for critical areas in terms of selection of species and seeds to be used.

7.4.1 Rare Plants

Rare plants will be dealt with in accordance with the mitigation measures detailed in the BAP. In addition to flora, there may be certain fauna which make a habitat critical; in this case certain limitations will be applied to the seed selection.

7.4.2 Species Selection

Where rapid growth is necessary for erosion control or other reasons, the species selected for initial planting will have the following be compatible with the area required to be erosion controlled:

- dense, fibrous horizontal root structure close to the surface;
- dense uniform ground cover, particularly during the season of the most intense rainfalls;
- resistant to damage by high-velocity run-off;
- resistant to damage from trampling by people and animals; not persistant – to allow the original species to re-colonize the area;
- if possible, not clumpy or tussocky as this may lead to concentration of run-off between the plants.
- Not to be invasive, or harmful to grazing farmstock.

The species selected for long-term growth will reflect the variety and distribution pattern of the preconstruction flora.

Table 7.1 Proposed Seeding Combinations

Seeds of the species to be collected	Kilometer Point From (m)	Kilometer Point From (m)	Region	Seed Collection Time
Thymus leucostomus	1362+917	1363+753	Eskişehir	15 June-15 July
Salvia tchihatcheffii	1366+493	1366+692	Eskişehir	1 June-1 July
Cephalaria aytachii, Gypsophila osmangaziensis, Scabiosa hololeuca	1372+340	1372+683	Eskişehir	1 July-August (Cephalaria aytachii, Gypsophila osmangaziensis, Scabiosa hololeuca) and 15 July-15 August (Alyssum niveum and Salvia tchihatcheffii)
Erodium sibthorpianum ssp. sibthorpianum and Astragalus densifolius ssp. ayashensis	1430+920	1432+305	Kütahya	1 June-1 July
Onosma briquetii	1477+452	1477+83	Bursa	1 June-1 July
Alyssum dudleyi, Verbascum n.sp., Dianthus goekayi	1491+767	1496+340	Bursa	1 June-1 July (Alyssum dudleyi) and 15 June-15 July (Verbascum n.sp. and Dianthus goekayi)

7.5 Fertiliser

Fertilizer will be applied to disturbed surfaces, as necessary, where vegetation is to be seeded or planted.

Fertilization should be applied during hydroseeding and hydromulching process. The fertilizer should contain 4.0 % Fe, 3.0 % Mn, 0.1% Mo, 2.0 % Zn. The amount of fertilizer should be 25 kg per 1000 m 2. The CONTRACTOR will ensure that this fertilizer is appropriate for each location, or vary the fertilizer if necessary following approval from the EPCM. Local advice (universities, agronomists, and landowners) and advice from the Ministries of Agriculture or Forestry should be obtained to confirm or revise the stated fertilizer application rates at specific locations.

Fertilizer varies chemically and physically, with its greatest variability occurring among nitrogen fertilizers. Fertilizers having high solubility and motility are unsuited to highly mobile construction as practiced by the pipeline industry. The project requires fertilizer that can be applied during reinstatement and that remains active during periods of maximum plant requirements, especially during periods of rapid vegetative growth. Fertilizer broadcast as a top dressing during seeding is generally unsuited for the following reasons:

1. Seedlings during their growth establishment period have low soil nutrient requirements.

2. Autumn-sown wheat does not enter rapid vegetative growth until spring following snowmelt, about 100 days following sowing.

3. Urea, an amide-type fertilizer, may volatilize if applied to the surface. (Biuret, an impurity occasionally found in urea, may be toxic to some plants.)

4. Fertilizers not adsorbed by soil colloids may leach. Fertilizer types particular prone to leaching include nitrate types (sodium nitrate, calcium nitrate) and urea. Ammoniacal types (ammonium sulphate and ammonium chloride) adsorb onto soil colloids but have low nitrogen content and high production costs compared to other forms.

The TANAP project is best suited to combination fertilizer types, such as ammonium sulphate nitrate or calcium ammonium nitrate. Market conditions and local advice is crucial to selecting the type of fertilizer to be applied. Landowner requirements must also be taken into consideration. Reinstatement practices may require adjustment if fertilizer application is to be effective.

Placement of Fertilizer

Problems can be avoided if fertilizer is mixed into the topsoil. This effect would be similar to injecting fertilizer into the soil, albeit its depth if broadcast would be deeper than injection as it is currently practiced. Indeed, in-depth placement or mixing may be the only practical way of applying urea if that is the only fertilizer available to the project.

7.6 Procedures to be followed by CONTRACTOR

Depending on the type of vegetation being reinstated, one or more of the following procedures for revegetation can be adopted:

- sowing of grass seeds - procedure ‘G1’;
- planting of shrubs / tree whips at 1m centers - procedure ‘P1’;
- planting shrubs/tree whips at 2 m centers in a lunette (micro basin) - procedure ‘P2’.

The procedure for each of the above is described in "Specification for Reinstatement" document (WRP-SPC-EGG-PL6-001).

7.7 Reforestation

Forests reduce runoff due to the canopy cover to the soils, soil cover through fallen debris, and their beneficial effect on soil infiltration. They reduce erosion by the effects of plant roots binding soil particles together and of humus protecting the surface. Reforestation of the RoW with juvenile trees / saplings may be considered necessary wherever a forest existed before construction of the pipeline. This will be dependent on the judgement of the ecology specialist and with the EPCM approval, where the proposed planting regime (see Section 7.4 and Section 6) is considered unlikely to result in suitable long term ecological diversity. For the purposes of this specification a forest is defined in accordance with Article 1 of the Forest Law that states 'trees and small trees, naturally or artificially grown, together with their surrounding area are considered as forest areas'. The reforestation strategy will be to successfully replace every tree felled during RoW clearance. The planting zones along I proximity of the pipeline are given in Section 6. It is noted that the revegetation strategy in all sections of the ROW will be to reinstate the pre-construction vegetation in terms of both composition and density.

A 24 m working width is adopted in forest locations. A strip 8m wide above the pipeline is to remain fallow. Beyond this a 3m strip on either side is to be seeded; the outermost 4m on either side is reforested with trees if deemed necessary. See typical drawing WRP-DGAPPL-PLG-006.

Two planting methods will be adopted (including for river bank reinstatement):

1. When trees from the RoW are less than 1 m high, they are to be carefully excavated, including roots, by an excavator. The earth and trees are then removed to a storage place where they are supplied with water. During reinstatement the same types of trees are replanted.
2. When trees on the RoW are higher than one metre and cannot be replanted, 3 years to 5-year-old plants from plantations are reforested. Bailed or container plants are to be used and planted in a spacing of 2x2 m for softwoods and 1.5 x 1.5 m for hardwoods. In poor soils (as on tuff or sandstone) a dressing of fertilizer is to be placed in the planting hole.

Shrubs will be reforested with tree species as per the pre-works slope and adjacent slopes.

CONTRACTOR will provide a detailed reforestation strategy as part of the Reinstatement Plan and Method Statements as required which specify in detail how the project objectives will be met. Reforestation strategy will be provided and approved by TANAP 12 weeks prior to clearance of RoW. The following information should be included in the reforestation strategy:

- species to be used and where;
- specific planting methods;
- detailed requirements for fertilizer use;
- detailed requirements for aftercare and monitoring;
- and supervision of reforestation activities.

Reforestration activities will be performed by Contractor's biologist/ecologist and soil expert. If conducting these studies with the supervision of a forest engineer is required by the relevant authority, Contractor will provide supervision services from a forest engineer.

7.8 Protection of Planted Materials

In sections where livestock or wild animals may be present, precautions will be taken to protect theseeds and plants from damage. Some or all of the following techniques should be employed:

- security patrols and procedures;
- liaison and agreements with livestock managers;
- erection of stock-proof fencing (designed/installed to discourage theft), along the project area boundaries;
- supplement boundary fencing by internal area fencing to give double protection to particular areas;

7.9 Aftercare, Monitoring and Corrective Action

CONTRACTOR will carry out the necessary aftercare (watering, further application of fertilizer, weed control, etc.) during the Contract maintenance period in order to meet the revegetation requirements.

Where necessary, CONTRACTOR will provide and maintain appropriate fencing to prevent access by grazing animals and vehicles. Fences will be fitted with signs in Turkish indicating the purpose, i.e. the enclosure is a TANAP biorestoration project area and fencing is required for protection.

Appropriate levels of irrigation/watering will be provided for revegetated areas (See Section 6.7 of in "Specification for Reinstatement" document (WRP-SPC-EGG-PL6-001)). The quantity and timing will be dependent on local climatic conditions, soil type and species requirements. Although recommendations have been provided in this specification local advice should be sought where possible.

Reinstated slopes will be monitored for the condition of the engineering measures, such as slope breakers, and will be monitored for the effectiveness of the biological reinstatement.

- If seeding had been carried out in spring, first biological monitoring study should be conducted in May-June, and then every 3 months subsequently until the target cover is achieved.
- If seeding had been carried out in summer, then the first monitoring study should be conducted in March to April.
- If seeding had been carried out in autumn, first monitoring study should be conducted in April-May which is the flowering period of the next year.

If the percentage of the germination remained less than expected (see Section 7.2), then the seeds will be replanted in the next year. In this case, the same monitoring procedure is carried out in the next year. If after the first year the required vegetation cover was established monitoring will be reduced to annually, to take place in July-August until 5 years after the initial reinstatement. During this period reduction to the established cover will be addressed by further seeding, fertilizer application and watering.

Where shrubs and or trees have been included in the reinstatement these will be monitored on the same frequency as the rest of the seeded slope (as above). If during this monitoring it is observed that >30% of plants or trees have failed further planting will be undertaken, along with watering and use of fertilizer.

8 SPECIAL AREAS

The TANAP pipeline project contains topographical, geological and ecological features, which are characterized on the project as Special Areas; these require particular attention throughout construction and reinstatement.

Method statements for these areas will demonstrate sufficient awareness and intent to minimize construction impact. A high level of importance is attached to the satisfactory reinstatement of these areas, therefore an increased level of EPCM inspection, prior to acceptance, is planned. These Special Areas are as follows:

- side slopes;
- steep slopes;
- site cuts
- narrow ridges and areas prone to landslides;
- ecological sensitive areas;
- karstic areas;
- volcanic tuff and marl;
- above ground installation sites;
- Areas of Contaminated Land,
- Side cuts and critical habitats

In addition to specialized construction techniques and increased levels of inspection, these areas are to be specifically considered by CONTRACTOR during planning and project control. Consideration of schedule constraints within these areas (weather, planting seasons, animal breeding periods etc.) will be clearly identified by CONTRACTOR on associated documents. Construction planning will achieve a 21-day period from the time when a Special Area is entered to the completion of reinstatement (to a level specified in EPCM approved Special Area Reinstatement Method Statement) unless otherwise approved by EPCM.

The general construction philosophy will address completion of these identified Special Areas with minimum delay. The back-end of the spread will follow directly behind the lowering-in crew. CONTRACTOR will minimize the exposure of these areas to inclement weather.

CONTRACTOR will provide suitably qualified and experienced specialists to assist in the reinstatement engineering and re-vegetation procedures and method statements for the entire route and with particular consideration of these Special Areas. Such specialists will include geotechnical engineers (and/or engineering geologists) and ecological specialists in relation to the reinstatement of critical habitats (as specified in the BAP), who work for incountry specialist organizations. EPCM may also provide specialists to oversee and audit these activities.

CONTRACTOR will ensure that specialist subCONTRACTORs are appointed to provide both advice and specialist skills for reinstatement planning and execution in Special Areas.

8.1 Side Slopes and Spoils

The contour restoration strategy is to 'contour blend'. The side slope cut will be restored, as far as practicable, to the original contours, so that the cut surface blends with the original contours through the implementation of engineered spoil management. The subsoil layers will be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account should subsoil extend beyond the original line of slope or a new slope be created that is steeper than the original slope.

Topsoil will be stripped from the area and stockpiled at designated spoil storage areas which will be subject to EPCM approval. Both the topsoil and subsoil will be stored separately. Both stockpiles will be consolidated and adequately drained. Drainage from the spoils will be provided and a safe outlet established. See Section 4.

On completion of all pipe installation, the subsoil will be replaced in layers. CONTRACTOR will prove that the thickness of the layers, conditions of the soil and number of passes of the compactor will be sufficient to produce a density of 95%-105% of the highest compaction measured in the adjacent undisturbed area. In-situ and laboratory density testing will be carried out as required to confirm that the compaction requirements are met. In exceptional cases this may require compaction trials on request of the EPCM. Alternatively, CONTRACTOR may prove 95% of the maximum dry density at ± 2% optimum moisture content as determined by the standard Proctor test.

Compaction will be carried out in accordance with the Pipeline Construction Specification WRPSPC-PPL-PLG-001-P3-. Care will be taken when compacting above and surrounding any pipework or drainage to ensure the integrity of the pipe and adequate compaction is achieved.

Particular consideration should be given to the adequate drainage solutions and the appropriate 'keying-in' of the placed backfill material into the existing temporary cut slope in order to prevent any future slip surfaces along the boundary between newly placed and insitu material. Final slope measures and reinstatement details will be subject to EPCM approval.

Following compaction of the subsoil, the topsoil will be spread over the site, harrowed and reseeded (refer to Section 4.4.4). Erosion mats will then be laid (refer to Section 4.6.2). In the event that side cuts are to remain as a permanent restoration feature. CONTRACTOR will prepare a methodology statement on the proposed works including (but not limited to) the degree of reinstatement, proposed drainage measures, process of slope inspections and programme of the works. The method statement will clearly state how the overall environmental project and stability requirements are adhered to.

CONTRACTOR will carry out site inspections with EPCM in order to define required design measure to ensure long term stability of the slope and that the environmental requirements are met.

Adequate drainage will be applied to assure stability and controlled water runoff. Final cut slope angles will be defined based on ground conditions encountered. Final slope angles and stabilisation measures (such as geotechnical slope drainage, scaling, rock netting or catchment benches, crest drains etc.) will be proposed by CONTRACTOR for EPCM preapproval.

The reinstated condition of side slopes is not expected to have any significant inclination perpendicular to the pipeline, and only have a maximum slope length of the width of the RoW. Additionally, drainage measures are typically implemented upslope of any sections of side slope the pipeline encounters. As such the anticipated slope erosion is considered minimal, and the prescribed mitigation measures for these lengths of pipe will be based on their downslope fall.

Where there is a cross-fall oblique to the pipeline resulting in an increase of slope angle (compared to the gradient parallel to the pipeline) the slope erosion measures as defined on the alignment sheets will be reviewed. For such slopes the CONTRACTOR and EPCM representative will determine any additional mitigation measures on a site specific basis in order to ensure that the slope erosion requirements are met. The reinstatement solution will be based on the standard reinstatement approach, with breakers across the RoW. The slopes as described above will be identified in the field and details for soil erosion measures verified by the CONTRACTOR subject to EPCM approval.

For the fully reinstated case (i.e. if the slope is reinstated to its original contours) the slope erosion will pose a negligible hazard to the pipeline due to the short distance of exposure of the pipe (main gravitational transport perpendicular to the pipe) and considerable cover depth. Final erosion measures will need to be determined on site during construction based on the slope geometry and materials placed.

8.2 Narrow Ridges and Areas Prone to Landslides

Along certain sections the pipeline route crosses hilly terrain and is routed along narrow ridges in order to avoid pre-existing landslides or potentially unstable ground which is typically on steep side slopes with backscarps reaching in some areas up close to the ridge line.

The construction in these areas will be carried out in accordance with the Construction Specification WRP – SPC – PPL – PLG - 001 and strategy set out in the Slope Assessment Report WRP-REP-EGG-PLG-010-P3-D. For the works in this area CONTRACTOR will prepare a methodology statement subject to EPCM approval detailing how the project and stability requirements are met.

For certain areas along narrow ridges site specific designs and reinstatement requirements will be developed as set out in the AFC documents. For these cases the CONTRACTOR will ensure that all site specific design requirements are met subject to EPCM approval.

CONTRACTOR will assess and determine any requirements for additional earthworks and excavation. For any deviation from the overall project strategy to reinstate back to ‘original contours’ CONTRACTOR will detail these proposed changes in a methodology statement subject to EPCM approval.

CONTRACTOR will ensure that the following aspects are complied with:

The stability of the RoW will be proven following the clearance of the RoW and prior to construction works by geotechnical inspection by the CONTRACTOR and EPCM. These stability inspections will be carried out at regular intervals throughout the construction works and will focus on any signs of potential slope movement.

In sections where topography, geohazards (such as landslides) and proximity to 3rd party pipelines will require a reduced working width, CONTRACTOR will propose an appropriate working method for these areas.

CONTRACTOR will choose appropriate plant and assess stability of RoW taking into account effects of plant surcharge.

No side casting will be allowed without the approval of EPCM in order to minimise the width of the construction corridor and avoid surcharge and uncontrolled drainage into potentially unstable ground. Spoil storage areas are to be proposed by CONTRACTOR for approval by EPCM to avoid any storage on potentially unstable ground and to prevent triggering ground movements.

Temporary and permanent surface water run-off should be carefully managed. Appropriate measures (such as appropriate falls, bunds, selection of outlet points from the RoW etc.) will be implemented in order to avoid ponding, seepage of water into RoW or uncontrolled run-off into potentially unstable ground.

In case of signs of instability (such as tension cracks, backscarp, seepage on the slope etc.), CONTRACTOR will propose remedial measures (including dewatering, soil nail stabilisation, rock anchoring or preventing RoW from further inundation) subject to approval by EPCM.

8.3 Steep Slopes

Steep slopes are those slopes with inclination >15% and >20m slope length that are predicted to exceed soil loss tolerance rates as defined in this specification. The following factors should be considered when assessing the erosion potential of slopes:

- Rainfall Intensity. This parameter is a measure of the erosive force and intensity of the rain in a normal year. The rainfall intensity is based on rainfall records and probability statistics for risk evaluation. For the purpose of erosion assessment, the parameter is determined using a 1 hour 10 year return period storm.
- Soil Erodibility. This parameter is a measure of the susceptibility of a soil particle becoming detached and transported by rainfall runoff. Soil parameters, which control soil erodibility are soil texture, structure soil space, organic content and hydraulic conductivity. Information from a particle size analysis (PSD) is used to estimate the soil erodibility using nomograms and correction factors.
- Slope Angle and Length. Erosion potential increases proportionally to increases in the length and angle of slope, simply because runoff flow rates increase with increasing gradient and slope length.
- Vegetation Cover. The effect of vegetative cover on soil loss is well researched. Bare soil represents high erodibility potential, whilst native vegetation can give maximum protection. Vegetation cover can be directly related to management options ie mulch, erosion control matting etc.
- Erosion Control Practice. Further practices that influence erosion potential are roughening of the soil surface by tractor treads, or by rough grading, raking or disking.
- Temperature. Temperature is another climatic factor affecting the potential for erosion to occur. Consolidation by freezing of exposed soils during winter months and accumulation of precipitation (snow) until periods of thaw, result in rapid melting and high levels of runoff. This situation exists in Central and Eastern Anatolia.

The Universal Soil Loss Equation used in the soil loss assessment predicts the long-term average annual rate of erosion on a slope based on rainfall intensity, soil type, topography, vegetation cover and management practices. This erosion model, originally developed to predict soil loss in agriculture, is also applicable to non-agricultural conditions such as construction sites. The USLE can be used to compare soil losses from a particular construction site with a specific management system to 'tolerable soil loss' rates. The equation is written as follows:

$$A = R \times K \times LS \times C \times P$$

Where, A is potential long-term average annual soil loss in tons per ton ha-1 y-1, R is rainfall and runoff factor by geographic location, K is soil erodibility factor, LS is slope length-gradient factor, C is vegetation and management factor, and P is support practice factor.

- The slope geometry has been considered using GIS assessment of the DEM data. This has been used to extract average slope length and angle data and develop the slope length and steepness input parameter 'LS'.

- The soil erodibility factor 'K' has been assessed from erodibility mapping of Turkey. The mapping considers the possible soil composition and uses published relationships to generate a K value for each slope.
- The rainfall –runoff erosivity factor 'R' was assessed based on rainfall mapping for Turkey held by Ankara University.
- The cover management factor 'C' was selected for a backfilled trench situation assuming the surface would be rough
- The support practice factor 'P' is dependent on deliberate rutting of the slope surface and is more appropriate to maintained agricultural land. As such for this assessment no benefit from this parameter has been taken.

This methodology was used to determine the estimated removal rates and recommend appropriate mitigation measures required to meet the soil loss tolerance rates described in Section 3.5 of this document. The mitigation measures, both bioremedial and engineering, are provided on the alignment sheets (see Section 4.7). These require verification at each location by the CONTRACTOR and the EPCM', through validation or updating of the design assumptions.

CONTRACTOR will establish steep slope areas and provide procedures and methodology statements as part of the site-specific Special Area Reinstatement Method Statements for EPCM approval. The procedure will establish all planned temporary and permanent erosion measures in line with this specification and Project Drawings.

Construction in steep slope areas requires an increased awareness of safety and stability issues. CONTRACTOR will utilise proven construction techniques specific to such areas. CONTRACTOR will demonstrate that increased safety measures are planned and these measures are to be followed on site. An increased level of Safety Engineer presence will be required at these locations.

The requirement for temporary RoW erosion/stabilization techniques will be dependent upon the season. However, CONTRACTOR will be prepared to provide all resources necessary to avoid incipient soil erosion and stabilization issues, regardless of season, in order to be prepared for unforeseen inclement weather.

8.4 Critical Habitats

The Biodiversity Action Plan (BAP) identified 10 terrestrials and 9 freshwater critical habitats, ecologically sensitive areas with the presence of endangered or threatened species and their habitats, along the pipeline route. Refer to the BAP and KP Table for the BAP (CINREP-ENV-GEN-017) for the following information for each of the critical habitats:

- topsoil depth removal and storage for each critical habitat;
- species identification for seeds collection;
- translocation of plants and animals depending on a season;
- appropriate species for revegetation;
- planting methods;
- removal and replacement of turfs.

Table 8.1. List of Terrestrial and Freshwater Critical Habitats identified in the BAP

KP Start	KP End	ID	Type of Critical Habitat
1362+917	1363+753	*CH58*	*Terrestrial Habitat*
1366+493	1366+692	*CH59*	*Terrestrial Habitat*
1372+340	1372+683	*CH60*	*Terrestrial Habitat*
1430+920	1432+305	*CH61*	*Terrestrial Habitat*
1477+452	1477+833	*CH62*	*Terrestrial Habitat*
1491+767	1496+340	*CH63*	*Terrestrial Habitat*
1736+000	1738+300	*CH64*	*Terrestrial Habitat*
1741+100	1741+500	*CH65*	*Terrestrial Habitat*
1788+300	1788+500	*CH66*	*Terrestrial Habitat*
1800+600	1805+000	*CH67*	*Terrestrial Habitat*
1396+221	1396+237	*FCH 19*	*Freshwater Habitat*
1461+293	1461+349	*FCH 20*	*Freshwater Habitat*
1553+697	1553+730	*FCH 21*	*Freshwater Habitat*
1565+865	1565+885	*FCH 22*	*Freshwater Habitat*
1590+290	1590+362	*FCH 23*	*Freshwater Habitat*
1605+400	1605+425	*FCH 24*	*Freshwater Habitat*
1613+360	1613+419	*FCH 25*	*Freshwater Habitat*
1651+548	1651+598	*FCH 26*	*Freshwater Habitat*
1689+784	1689+838	*FCH 27*	*Freshwater Habitat*

CONTRACTOR will provide site specific Reinstatement Management Plans that will further develop and clearly specify the means by which the measures committed to in the BAP and in this specification will be implemented in relation to their scope of work, including preconstruction measures, (i.e. seeds collection, plants translocation) topsoil removal and storage and reinstatement measures. See Pipeline Construction Specification.

8.5 Karstic Areas

Karst is the topography that develops in soluble rocks in which fissures may be enlarged (ultimately to form caves) by flowing groundwater. This may occur in areas of gypsum and limestone bedrock. Gypsum is more soluble than limestone, therefore karstic areas develop relatively rapidly in areas of gypsum (see Section 5 of the ESIA for further information).

Restoration in the karstic areas will proceed as follows:

- soils from the dolines will be stockpiled separately;
- mixing of the doline soil and the ridge material is prohibited, unless agreed with the Client;
- continuous environmental inspection will follow construction;
- excess rock material from ridges will be disposed of in accordance with the project Waste Management Plan;

- spreading of rock is prohibited, unless agreed with the Client;
- discovery of subsurface voids (greater than 50 mm in plan dimension) during construction will be reported to EPCM, measures detailed on the IAAC alignment sheets and drawing WRPDGA-EGG-PLG-001 will be applied, alternative remediation of voids may be used if agreed with EPCM and Client.

Temporary and permanent erosion measures will be employed in accordance with the requirements of this specification and Project Drawings.CONTRACTOR will employ trench filtration and drainage control measures as necessary to ensure that suffosion (transport of soil from the trench and from subsoil beneath the trench into karstic voids) does not occur during the design life of the pipeline.

Drainage plans in karstic areas will be submitted to the EPCM for approval prior to construction. Plans should consider special requirements described in WRP-TNO-EGGPLG-001 (Technical Note for Design of Pipelines in Karst). At the least, CONTRACTOR drainage plans will consider:

- preventing the pipeline becoming a new drainage conduit,
- preventing loss of pipe backfill into karst fissures,
- maximizing the use of existing natural drainage (i.e., sink holes >20m from the pipeline alignment) in a controlled manner.

CONTRACTOR will follow particular requirements for drainage control as noted on AFC alignment drawings and DGA-EGG-PLG-001.

8.6 Erodible Soils, Volcanic Tuff and Marns

Specific care is required for the reinstatement of areas underlain by volcanic tuff or marls in particular to ensure the re-establishment of a natural vegetation following the construction works due their thin topsoil cover.

Similar issues regarding the reinstatement may arise in other areas of highly erodible soils and soils with thin topsoil or other site specific ramifications. The CONTRACTOR's Soils Specialist will identify these areas during the clearance of the RoW and give advice on any additional measures as required. The specific examples of Volcanic Tuff and Marls are outlined below which should be applicable to any other soil reinstatement as deemed necessary by the CONTRACTOR's Soils Specialist an as agreed with the EPCM representative.

Details are given in "Specification for Reinstatement" document no. WRP-SPC-EGG-PLG001.

9 REINSTATEMENT OF LAND OTHER THAN ROW

9.1 Land at Construction Support Facilities

The following requirements apply to all construction support facilities such as construction camps, pipe yards etc. They do not apply to permanent facilities such as AGIs. The fate of construction support facilities is to be agreed with EPCM before starting any activity connected with reinstatement.

Reinstatement of the land will commence immediately on removal of each individual facility. The reinstated condition will be to a condition at least as good as that prevailing before establishment of the facilities, depending on the post construction landuse and Project's access agreement.

Construction support facilities will be avoided in Special Areas (see Section 8). Should this become unavoidable prior approval of EPCM is required. CONTRACTOR will prepare all necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority.

CONTRACTOR will reinstate the area to the satisfaction of EPCM, the regulatory authority or landowner and will obtain written approval from EPCM, the appropriate regulatory authority or the landowner of the level of reinstatement. Notwithstanding such approval, all reinstatement will be to the satisfaction of EPCM. CONTRACTOR's photographs of the condition of the area prior to construction may be used for reference.

There will be no waste remaining after removal of the facility and upon return of the site to the landowner. Except for new roads, facilities will be removed and the land restored so that it is suitable for its original function. New roads will be handed over as part of the completed project with shoulders finished in keeping with the local environment. Excess rock or stumps may only be left with the agreement of the landowner. Any new roads, not appreciated by EPCM and/or relevant stake holders, will be dismantled and the area will be reinstated to the required conditions.

9.2 Permanent Above-Ground Installations (AGIs)

All permanent aboveground installations are to be reinstated in accordance with the Project Drawings and specifications.

CONTRACTOR will reinstate the area surrounding AGIs to the satisfaction of EPCM and the appropriate authority or landowner and will obtain written approval from EPCM and the appropriate regulatory authority or the landowner of the level of reinstatement. Notwithstanding other such approvals, all reinstatement will be to the satisfaction of contract requirements. CONTRACTOR's photographs of the condition of the area prior to construction may be used for reference.

Measures that will be adopted to minimize the visual impacts of the permanent buildings and facilities at AGI sites include the following:

- landscape planting within the site boundary where appropriate;
- opportunities to retain existing landform screening will be maximized, i.e. site levelling will be avoided, if possible, if existing hollows or mounds may be used to integrate built features within the landform;
- new landform screening (e.g. bunds and mounds) will be introduced where this might complement the existing landform character;
- the use of appropriate colour schemes to minimise the visual impact of buildings;
- external lighting will be minimized to that necessary for safety and operational purposes and downward facing lighting and lighting of the same colour will be used to minimise spill and offsite impacts.

CONTRACTOR's site-specific Reinstatement Method Statements for AGI sites will address the following:

- maximising opportunities to retain existing landform screening, i.e. site levelling will be avoided, if possible, if existing hollows or mounds may be used to integrate built features within the landform;
- new landform screening (e.g. bunds and mounds) will be introduced where this might complement the existing landform character.

9.3 Spoil and Excess Rock / Stump Disposal Sites

CONTRACTOR will close, cap, and landscape all (except as otherwise agreed with EPCM) excess rock/stump disposal sites by the completion of the Contract. Sites will be dealt with in accordance with the relevant project requirements. CONTRACTOR will develop site-specific plans that are to be approved by EPCM. Biorestoration, where appropriate will be carried out in accordance with requirements defined in Section 6 and EPCM approved Special Area Reinstatement Method Statements.

Spoil and excess rock/stump disposal sites will be avoided in ecologically sensitive areas. Should this become unavoidable, prior approval of EPCM is required. CONTRACTOR will prepare all necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority.

The excess rock/stump material will be compacted to a minimum of 75% of the Proctor value; the surface will be landscaped to resemble local conditions and will not extend more than 2 m in height above the natural contour; the slopes of the surface will not exceed 60°. The site will be covered with soil and an erosion mat and planted with appropriate species.

9.4 Existing Roads and Access

CONTRACTOR will exercise care when using both public and private roads for travelling to and from the TANAP RoW and will upgrade and maintain roads during the works as necessary for safe operations. No side casting will be allowed unless otherwise instructed by EPCM.

The reinstatement of roads will be to their original upgraded condition or better following completion of construction activities.

CONTRACTOR will provide for such work all hard-core, tarmac, asphalt, and other materials as required.

Details of the requirements for the use and construction of existing roads and access Roads are set out in the Pipeline Construction Specification.

9.5 Quarries

CONTRACTOR will ensure that all borrow material will only be sourced from (both existing and new) licensed and authorized sites or sources. Where new quarries need to be opened CONTRACTOR will obtain the necessary permits and licenses and conduct any necessary environmental impact assessments.

Reinstatement of the quarries will be carried out to the satisfaction of the respective landowners and local authorities.

For the general selection and approval process for quarries the Pipeline River Crossing Civil Protection Works Specification WRP-SPC-PPL-PLG-030 should be referred to.

9.6 Areas of Contaminated Land

The remediation of contaminated land is not covered by this specification and reference should be made to the Contract Documents.

Any area of the pipeline corridor in which material excavated is not suitable to be reused will be reinstated with suitable material in accordance with the agreed limits of the USEPA guidance and Dutch Standards for soil contamination for the identified land use locally required.

10 RESTRICTING ACCESS

In order to prevent rutting, subsequent erosion problems, and damage to riparian areas, measures should be taken to prevent unauthorized use of the TANAP RoW as a roadway. Access should be blocked, at locations specified by EPCM representatives, through the construction of barrier berms of sufficient height (minimum 1.5 m high) to provide a barrier to vehicles. Where possible, the berms should be tied to vegetation or rocks adjacent to the RoW to prevent traffic from circumventing the barrier. Rocks excavated during construction, 0.3 m in diameter or larger, may be used instead of the earthen berms. Timber cleared during the construction may also be staggered across the RoW so as to deter off-road vehicle use.

11 HANDOVER AND POST – CONSTRUCTION MAINTENANCE

CONTRACTOR will obtain sign-off of the pre-entry form from the landowner agreeing on the standard of reinstatement. CONTRACTOR will notify EPCM prior to such meetings and allow for EPCM attendance/monitoring. CONTRACTOR will not attend such meetings without EPCM presence unless agreed in writing by EPCM.

CONTRACTOR, upon completion of reinstatement, will accompany EPCM on an inspection of all project areas, before demobilizing from site. EPCM will notify CONTRACTOR of any insufficiencies in the reinstatement of the TANAP ROW / project areas. CONTRACTOR will carry out any further reinstatement to the satisfaction of EPCM.

During the contract maintenance period, CONTRACTOR will be responsible for maintaining the standard of reinstatement and for ensuring that the Civil Protection Works remain effective and in good condition, and that the stated erosion class and biorestoration requirements are met. As a minimum CONTRACTOR will carry out inspections every three months and immediately after any significant rainfall event (1 in 2 year return period) and snow melt and implement corrective measures as required to the satisfaction of EPCM.

12 POST – CONSTRUCTION ACTIVITIES

12.1 Restricting Access

In order to prevent rutting, subsequent erosion problems, and damage to riparian areas, unauthorized use of the construction corridor as a roadway will be prevented. Access should be blocked at locations specified by EPCM representatives, through the construction of barrier berms of sufficient height (minimum 1.5 m high) to provide a barrier to vehicles. Warning tapes/berms should be tied to vegetation or rocks adjacent to the pipeline corridor to prevent traffic. Rocks excavated during construction, may be used instead of the earthen berms. Timber cleared during the construction can also be staggered across the pipeline corridor so as to deter off-road vehicle use.

12.2 Handover and Post – Construction Maintenance

CONTRACTOR will carry out the required aftercare (watering, further application of fertilizers, etc.) for successful re-vegetation and monitor the progress of bio-restoration and the records will be kept by filling out the Reinstatement Register (see Appendix 3).

CONTRACTOR will obtain sign-off of the pre-entry form from the landowner agreeing on the standard of reinstatement.

CONTRACTOR, upon completion of reinstatement, will accompany EPCM on an inspection of all project areas, before demobilizing from site. EPCM will notify the CONTRACTOR of any insufficiencies in the

reinstatement of the construction corridor/ project areas. CONTRACTOR will carry out any further reinstatement to the approval of EPCM.

During the contract maintenance period to be defined by TANAP, CONTRACTOR will be responsible for maintaining the standard of reinstatement and for ensuring that the stated erosion class and bio- restoration requirements are met. As a minimum, CONTRACTOR will carry out inspections every three months and immediately after any significant rainfall and snow melt and implement corrective measures as required to the satisfaction of EPCM.

Before termination of maintenance period, final reinstatement inspection will be carried out and the required corrective measures will be encouraged until the reinstatement measures satisfy the project requirements. Upon the final approval of reinstatement studies, the future management of the reinstatement program and maintenance activities will be under the responsibility of TANAP.

13 TRAINING

All workers to be employed for the erosion control, reinstatement and landscaping related works will receive the compulsory specific environmental trainings and will not start working before completing induction training. The induction training, which is required for all employees working on RoW, will be about performing work activities in a manner consistent with environmental permits, site specific conditions, and best practices for the environmental monitoring, waste management, reinstatement including the erosion control devices, pollution prevention, spill response, cultural heritage. The topics of the specific environmental trainings will be reinstatement, waste management, water and soil management, air quality management; cultural heritage management, traffic management, noise and vibration management, aggregate management and biodiversity action plan (pls. see CONTRACTOR Environmental and Social Training Plan for further detail). Training will be given by CONTRACTOR Environmental Inspector and/or Biologist/Ecologist.

14 MONITORİNG

CONTRACTOR will be responsible for continuous monitoring of all reinstatement related works to be performed by the workers and its sub-CONTRACTORs throughout all construction works. Monitoring will comply with CONTRACTOR's Environmental and Social Monitoring Plan.

Site activities will be monitored and supervised by Environmental Inspectors of CONTRACTOR and EPCM for their performance in the implementation of this ERLP. EPCM will give the final approval prior to handover of work by CONTRACTOR. Subsequent to the final approval of reinstatement works, the future management of the reinstatement program and maintenance activities will be under the responsibility of TANAP.

CONTRACTOR Environmental Inspector, Biologist/Ecologist will monitor,

The implementation of mitigation measures,

- The implementation of corrective actions,
- Erosion control methods,
- The slope stability,
- Topsoil stripping, storage and reinstatement applications,
- Subsoil removal, storage and reinstatement applications,
- The success of the Bio-restoration and Reinstatement.

15 REPORTING

Topsoil Stripping Register, Off-Row Aggregate Consumption Register, Reinstatement Register and Tree Cutting Registers will be filled out for each specified activity and kept as records. Special Area Reinstatement Method Statement (SARMS) will be prepared for each special area and will be subject to the approval of EPCM before put into practice. SARMS will give information on the topography, land use, soil characteristics, etc. of the special area and also its ecological characteristic including the species of the site, the related mitigation measures including topsoil management, seed collection, etc., restoration of the habitat, recommendation of a follow-up monitoring program, etc.

The progress of the reinstatement works will be presented by CONTRACTOR in the monthly Report to be prepared in the scope of Environmental and Social Monitoring Plan, together with the filled-out registers. Moreover, any incident and/or non-conformance, which results in environmental/social impact, will be immediately communicated to the EPCM via verbal notification and the relevant registers will be filled out as soon as practical (not later than 24 hours).

Before termination of maintenance period, final reinstatement inspection will be carried out and the required corrective measures will be encouraged until the reinstatement measures satisfy the project requirements. Upon the final approval of reinstatement studies, the future management of the reinstatement program and maintenance activities will be under the responsibility of TANAP.

16 KEY PERFORMANCE INDICATORS

CONTRACTOR will monitor the implementation of the Erosion, Reinstatement and Landscaping Plan according to following performance indicators:

- Cut-tree register
- Records of revegetated areas
- Records of biorestoration results if applicable during the construction period
- Terrestrial critical habitat registers including seed, plant bulb and herbaceous plant collection, storage and replantation
- Records of excessive slope instability or soil erosion
- Record of deviations from the delineated ROW and additional work areas
- Recorded sediment loading due to project related activities

Non- compliance records.

Appendix A - Topsoil Stripping Register

APPENDIX A **TOPSOIL STRIPPING REGISTER**

KP Start	KP End	Depth of the topsoil stripped	Where topsoil is stripped? (riverbank, potential erosion area etc.)	Labeling of topsoil Pile (Yes/No)	Implementation of Required Conditions for topsoil Piles (Yes/No)	Comments	Name of the Environment Inspector

APPENDIX A **TOPSOIL STRIPPING REGISTER**

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Appendix B - Sensitive Areas Register

APPENDIX B SENSITIVE AREAS REGISTER

SENSITIVE AREA REGISTER																												
LOT 4																												
TERRESTRIAL CRITICAL HABITATS																												
KP Start (Rev H)	KP End	ID	Was the no-frame enforced?	Which seeds	Date seeds where	Amount of seeds	Seeds storage	Date seeds where	Location where replanted	Which collected	Date plants/bulbs	How many collected	Plants/bulbs	Date plants/bulbs During	How many replanted on RoW	Location where replanted	Date Herbaceous RoW	Storage location plants collected	herbaceous on RoW durig	Date topsoil was	Date topsoil was	Date when rock (30cm or larger)	Rock storage	Date rocks were	Invasive flora	Terracing during prevent erosion
1362+917	1363+753	CH58																										
1366+493	1366+692	CH59																										
1372+340	1372+683	CH60																										
1430+920	1432+305	CH61																										
1477+452	1477+833	CH62																										
1491+767	1496+340	CH63																										
1736+000	1738+300	CH64																										
1741+100	1741+500	CH65																										
1788+300	1788+500	CH66																										
1800+600	1805+000	CH67																										

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Appendix C - Reinstateme

nt Register

APPENDIX C REINSTATEMENT REGISTER

REINSTATEMENT REGISTER						
SPREAD 7						
KP Start	**KP End**	**Original Countours restrored?**	**Date topsoil was spread**	**Date seeding was conducted**	**Date permanent Erosion controls installed**	**Date area was signed off**

REINSTATEMENT REGISTER						
SPREAD 8						
KP Start	**KP End**	**Original Countours restrored?**	**Date topsoil was spread**	**Date seeding was conducted**	**Date permanent Erosion controls installed**	**Date area was signed off**

APPENDIX C REINSTATEMENT REGISTER

REINSTATEMENT REGISTER						
SPREAD 7						
KP Start	**KP End**	**Original Countours restrored?**	**Date topsoil was spread**	**Date seeding was conducted**	**Date permanent Erosion controls installed**	**Date area was signed off**

REINSTATEMENT REGISTER						
SPREAD 8						
KP Start	**KP End**	**Original Countours restrored?**	**Date topsoil was spread**	**Date seeding was conducted**	**Date permanent Erosion controls installed**	**Date area was signed off**

Appendix D - Tree Cutting Register

APPENDIX D TREE CUTTING REGISTER

TREE CUTTING REGISTER						
SPREAD 7						
KP	**Number of Trees**	**Tree/Shrub Species (Latin/English)**	**Photo**	**Cutting or Relocation Date (C for cutting RL for relocating)**	**Remarks**	

TREE CUTTING REGISTER						
SPREAD 8						
KP	**Number of Trees**	**Tree/Shrub Species (Latin/English)**	**Photo**	**Cutting or Relocation Date (C for cutting RL for relocating)**	**Remarks**	

APPENDIX D TREE CUTTING REGISTER

TREE CUTTING REGISTER						
SPREAD 7						
KP	**Number of Trees**	**Tree/Shrub Species (Latin/English)**	**Photo**	**Cutting or Relocation Date (C for cutting RL for relocating)**	**Remarks**	

TREE CUTTING REGISTER						
SPREAD 8						
KP	**Number of Trees**	**Tree/Shrub Species (Latin/English)**	**Photo**	**Cutting or Relocation Date (C for cutting RL for relocating)**	**Remarks**	

WorleyParsons
resources & energy

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc. No.	FRN-PLN-ENV-PL1-008	**Rev**	**Status**
		P4-1	Re-IFR
Document Title	EROSION, REINSTATEMENT AND LANDSCAPING PLAN		
Tag Nos			
Contractor	**FERNAS İNŞAAT A.Ş.**		
Contractor Document No.		**Contract or Rev**	

Tick Box	Descriptions	Signature & Date
□	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
□	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
□	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
□	**C4 –** Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
□	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

FERNAS®	**TANAP** TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT (LOT-1)	TANAP WorleyParsons resources & energy

Erosion, Reinstatement and Landscaping Plan

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP APPROVED
P4-A	DIC	04.05.2015	Discipline Internal Check	OZAD	GULA	OZKE	
P4-B	IDC	06.05.2015	Inter-Discipline Check	OZAD	GULA	OZKE	
P4-C	IFR	23.06.2015	Issued for Review	OZAD	GULA	OZKE	
P4-0	IAA	30.06.2015	Issued as Approved	OZAD	GULA	OZKE	
P4-1	Re-IAA	11.12.2015	Re-Issued as Approved	OZAD	GULA	OZKE	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	04.05.2015	Discipline Internal Check
P4-B	IDC	06.05.2015	Inter-Discipline Check
P4-C	IFR	23.06.2015	Issued for Review
P4-0	IAA	30.06.2015	Issued as Approved
P4-1	Re-IAA	11.12.2015	Re-Issued as Approved

HOLDS

No.	Section	Description	Input From	Planned Date
1				

TABLE OF CONTENTS

1. PURPOSE and SCOPE

The aim of Erosion, Reinstatement and Landscaping Plan (ERLP) is to indicate the requirements for the reinstatement of the areas impacted by project and thus to minimize the erosion. Moreover, the plan establishes the minimum requirements for temporary and permanent erosion control and the related measures for revegetation (bio-restoration).

The provisions in this plan are applicable to the temporary used areas such as construction corridor, access roads, pipe lay down areas, construction camp sites, other additional lands utilized during the construction of the project, as well as the permanent facilities such as above ground installations (AGI).

FERNAS will be responsible from the following items, in the scope of this ERLP:

- Management of surplus soil and rocks,
- Preserving seed bank through topsoil,
- Re-laying the topsoil to its original location and the subsoil,
- Temporary measures to minimize erosion and maximize sediment control during construction
- Permanent erosion control berms, drainage for long term stability against erosion,
- Retaining the hydrologic regime as before and reinstatement of the natural drainage of the site,
- Restoration of the land to the original contours or maintaining a landscape visually compliant to the adjacent landscape,
- Restoration of the impacted habitats and ecological processes to their original states where it is technically applicable,
- Re-vegetation of sites with appropriate native plant types; re-seeding,
- Prevention of forbidden or dense access to the areas that cannot be accessed before via removal of the temporary construction roads,
- Utilization of engineering solutions and bioengineering techniques to attain the best environmental outcomes.
- Taking the measures to minimise erosion and maximize sediment control during construction.

1.1 Reference Documents

- English ESIA Report P2-0(TNP-REP-ENV-GEN-002),
- Turkish ESIA Report P2-0 (TNP-REP-ENV-GEN-001),
- Biodiversity Action Plan (CIN-REP-ENV-GEN-017),
- TANAP Environmental and Social Management Plan (TNP-PLN-ENV-GEN-001),
- FERNAS Environmental and Social Monitoring Plan (FRN-PLN-ENV-PL1-011),
- FERNAS Pollution Prevention Plan (FRN-PLN-ENV-PL1-009),
- FERNAS Waste Management Plan (FRN-PLN-ENV-PL1-012),
- FERNAS Construction Impact Management Plan (FRN-PLN-ENV-PL 1-003)
- FERNAS Method Statement for Pre-Construction Activities (FRN-MST-PPL-001)
- FERNAS Method Statement for Clearing & Grading of RoW (FRN-MST-PPL-PL 1-007)
- Typical Drawing Riverbank Protection Bio Restoration (WRP-DGA-PPL-PLG-036-01)
- Typical Drawing River Riparian Restoration (WRP-DGA-PPL-PLG-036-02)
- Typical Drawing Erosion Protection Slope Breaker Cross Sections (WRP-DGA-PPL-PLG-046)
- Typical Drawing Erosion Protection Typical Lined Chute (WRP-DGA-PPL-PLG-047)
- Typical Drawing Erosion Protection Erosion Control Matting Installation (WRP-DGA-PPL-PLG-050)
- Specification for Reinstatement (WRP-SPC-EGG-PLG-001)Regulation on Control of Water Pollution (31.12.2004 – 25687)

1.2 Abbreviations

BAP **:** Biodiversity Action Plan

CLIENT **:** TANAP Doğalgaz İletim A.Ş.

CONTRACTOR **:** FERNAS Insaat A.S.

EPCM **:** Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi

ERLP : Erosion, Reinstatement and Landscaping Plan

ESIA **:** Environmental and Social Impact Assessment

Project **:** Trans Anatolian Natural Gas Pipeline Project (TANAP)

RoW **:** Right of Way

USLE **:** Universal Soil Loss Equation

1.3 Definitions

Definitions of the erosion severity classes mentioned in this plan are given Table 1.1 below;

Table 1.1 – Erosion Severity Classes (*)

Erosion Class		**Erosion rate (t/ha/y^{-})**	**Visual assessment**
1	Very slight	<2	No evidence of compaction or crusting of the soil. No wash marks or scour features. No splash pedestals or exposed roots or channels.
2	Slight	2-5	Some crusting of soil surface. Localized wash but no or minor scouring. Rills (channels < 1m^2 in cross-sectional area and < 30cm deep) every 50-100m. Small splash pedestals where stones or exposed roots protect underlying soil.
3	Moderate	5-10	Wash marks. Discontinuous rills spaced every 20-50m. Splash pedestals and exposed roots mark level of former surface. Slight risk of pollution problems downstream.
4	High	10-50	Connected and continuous network of rills every 5-10m or gullies (> 1m^2 in cross-sectional area and > 30cm deep) spaced every 50-100m. Washing out of seeds and young plants. Reseeding may be required. Danger of pollution and sedimentation problems downstream.
5	Severe	50-100	Continuous networks of rills every 2-5m or gullies every 20m. Access to site becomes difficult. Re-vegetation work impaired and remedial measures required. Damage to roads by erosion and sedimentation. -
6	Very severe	100-500	Continuous networks of channels with gullies every 5-10m. Surrounding soil heavily crusted. Integrity of the pipeline threatened by exposure. Severe siltation, pollution and eutrophication problems.
7	Catastrophic	> 500	Extensive network of rills and gullies; large gullies (> 10m^2 in cross-sectional area) every 20m. Most of original surface washed away exposing pipeline. Severe damage from erosion and sedimentation on-site and downstream.

**: Moore, H. M., Fox, H. R., & Elliott, S., (2003)*

2. RESPONSIBILITIES

FERNAS will be responsible for the implementation of all reinstatement works in accordance with the requirements of this ERLP. FERNAS will also be responsible for the training and performance of all sub-contractors with respect to the ERLP and will comply with all relevant project standards, statutory requirements, permit and license conditions and secure all applicable permits and licenses.

FERNAS will prepare site specific method statement for specific activities relevant to the reinstatement issues and submit to EPCM for approval.

FERNAS will conduct pre-construction surveys along the Right of Way (RoW) to facilitate the development of site-specific reinstatement method statements for all special areas, by using specialist sub-contractors and/or advisors, particularly for erosion and sediment control and seeding-planting of indigenous vegetation.

2.1 Project Manager

- Overall responsibility for implementation and of this plan.

2.2 Construction Manager

- Will be responsible for ensuring that all site staff, including Sub-Contractors and activities comply with the FERNAS ERLP,

2.3 Environmental Manager

- Will be responsible for the development and oversight of reinstatement activities
- Will update the Plan in conjunction with EPCM if required,
- Will be responsible for preparing environmental procedures, method statements and work instructions as required and implementing amendments to the system identified by audits,
- Will supervise Environmental Inspectors and Biologist.

- Will provide monthly report to EPCM

2.4 Environmental Inspector(s)

- Will monitor the biologist and soil expert for their performance in the implementation of ERLP and Project ESIA ,
- Will monitor construction activities and their compliance with environmental plans, procedures and instructions,
- Will ensure that all remedial action identified by inspections are closed out,
- Will ensure that Environmental Manager is fully informed on every environmental issues,
- Will implement the environmental management system on site and provide as necessary toolbox talks on impact mitigation method.
- Will give trainings to all FERNAS personnel regarding with environmental issues. The whole personnel of the Subcontractor will also be responsible about this training subject.

2.5 Biologist

- Will carry out site inspections related to the topsoil/ subsoil storage, erosion and stabilization structures,
- Will remove erosion and stabilization structures that are no longer required.
- Will keep and maintain records of the depths stripped by the use of topsoil stripping register

2.6 Soil Expert

- Will be responsible for the supervision of the pre-construction and construction works in line with the erosion control, reinstatement
- Will be responsible for monitoring of topsoil stripping and storage
- Will be responsible for the biorestoration activities; including detailed scheduling, plant species protection of plant materials, aftercare, monitoring and corrective action,

3. REINSTATEMENT and CLEAN UP PRINCIPLES

3.1. Third Party Activities

The FERNAS is responsible to reinstate any and all areas disturbed during the project works irrespective of their location or proximity to the RoW.

FERNAS will fully reinstate any land disturbance due to third party assets/activities where that disturbance is:

- within the TANAP RoW, or
- close to the TANAP RoW or project area where reinstatement is necessary in order secure the effective reinstatement of the project area.

The above principle applies to third party pipelines, railways, roads and buildings but is not limited to these examples.

The reinstatement will also be based on applicable sections of the ESIA (Document No. TNP-REP-ENV-GEN-001 and TNP-REP-ENV-GEN-002).

3.2. Clean-up of Sites

FERNAS will, after backfilling and before replacement of topsoil, clean-up all areas affected by construction operations. That will include removal of all plant, equipment and materials not required for replacement of soil and subsequent bio-restoration. The clean-up of the sites will be managed considering the FERNAS Waste Management Plan (FRN-PLN-ENV-PL1-012).

In pre-developed areas (either for agriculture or industry) the cleaned condition will be reinstated in accordance with the Specification for Reinstatement (WRP-SPC-EGG-PLG-001). The strategy for the remediation of contaminated lands identified within the ESIA and the Contract Documents are not covered by the Specification for Reinstatement and reference should be made to Contract Documents.

Clean-up will be accomplished to the specification of EPCM and will as a minimum be to the documented standard and quality of the adjacent and adjoining land, and will be of suitable materials reused and or replaced in accordance with the land use as defined by the Environmental Standards under the Contract.

3.3. Third Part Properties

The pipeline will encounter numerous third party properties, services and facilities over its length. The FERNAS is responsible for identifying properties, services, and facilities, marking

and protecting them, and reinstating them to the third party owner's (TPO) requirement as agreed between the TPO and the EPCM. The FERNAS's responsibilities for third party properties, services, and facilities, are set out in the Pipeline Construction Specification , Document No. WRPSPC-PPL-PLG-001.

Reinstatement of any damaged or relocation of third party properties will be done in accordance with the access to site agreements and be to satisfaction of the appropriate regulatory authority and TANAP.

3.4. Critical Habitats

Critical habitats were identified in the Environmental and Social Impact Assessment (ESIA) (Document No. TNP-REP-ENV-GEN-002) and Biodiversity Action Plan (BAP) (Document No. CINREP-ENV-GEN-017). The BAP provides the description of 18 terrestrial and 8 freshwater critical habitats, as well as mitigation and reinstatement measures to be applied in the areas.

In those areas and along water courses and in locations prone to erosion, FERNAS will backfill and re-instate immediately after installation of the pipeline. Also in these areas, FERNAS will fully re-instate in accordance with this specification. This applies to, but is not limited to: new/upgraded roads and tracks, including bridges, helicopter pads, construction camps, maintenance bases and borrow pits / aggregate quarries (if in FERNAS's ownership).

3.5. Soil Erosion, Principle and Classification

The loss of soil through the action of natural and manmade processes is termed soil erosion. Soil erosion is both a risk to the pipeline through reduction of cover / support, and a risk to the environment through the relocation of large quantities of sediment causing changes in drainage patterns, soil fertility et cetera. In addition the visual impact of soil erosion on the RoW is a concern.

Erosion during the construction (i.e. from vegetation clearance to completion of reinstatement) will be managed and mitigated as required by the FERNAS. This management will require the separate consideration, using specific and separated handling systems and protocols, for areas of the pipeline corridor which have been identified to be or which are suspected to be

contaminated lands, whether by historical use of influence and/or by actions of incidents under the works. The FERNAS will ensure that water courses and ecologically sensitive sites are not affected by soil erosion and the migration of soils. Methods for control of sediment movement during construction and performance criteria are discussed in Section 4.5 of this plan. Details of these measures will be provided by FERNAS in the Management Plan subject to approval by EPCM.

Following completion of the reinstatement the FERNAS will monitor the reinstatement. This monitoring period, described in Section 7.9, will depend on the type of reinstatement and mitigation measures employed at each site. The FERNAS will undertake repair and supplementary works as required to ensure the reinstatement is successful. Where ecological restoration is not achieving prescribed rates of establishment the FERNAS will take appropriate measures such as reseed, fertilize, irrigate or change plant type as required.

Table 1.1 gives the definition of erosion severity classes for overland areas based on historic pipeline projects in similar conditions (i.e. not specific to TANAP). For the temporary as well as permanent case erosion class 2 or better will be achieved for all slopes where sediment may discharge into a watercourse or ecologically sensitive area, i.e. <5t/ha/year. For other slopes an erosion class of 3 or better (<10 t/ha/year) will be achieved for reinstatement along the pipeline RoW.

Where there is a risk of sediment contaminating water bodies, sediment control devices and measures will be installed (see Section 4.5 and 4.6).

As a minimum the following standards will be achieved:

- very low risk to the pipeline cover; maintain pipeline cover over the design life of the pipeline;
- very low risk of off-site pollution and sedimentation as described in erosion severity class 2 for sensitive sites and severity class 3 for normal sites; and
- low risk of damage to biorestoration by washing-out of seeds and plants as described in erosion severity class 2.

4. METHOD for REINSTATEMENT

4.1 Topsoil Stripping and Storage

Along the TANAP RoW the depth of the topsoil will be established by FERNAS. Procedures will be developed by FERNAS for topsoil stripping in advance of all work fronts. WORK will not commence until EPCM Approval. Typically, stripping will be done to a depth of between 100mm and up to a maximum of 300mm. In areas where little or no topsoil is present the FERNAS must agree the depth (if any) of topsoil to be stripped with the EPCM's representative.

Topsoil stripping must be undertaken by earthmoving equipment using a toothless cutting edge and no excavator buckets with teeth will be permitted. The FERNAS will use equipment which will minimise the impact on the topsoil structure or has a detrimental effect on the efficiency of the vegetation recovery. The topsoil will be carefully stripped to its full depth and stored separately from any other soil or materials. Both for stripping and storage, where plant is operating on topsoil it should be preferably low ground pressure equipment. The FERNAS will submit details of plant and procedures for topsoil stripping and storage in a specific method statement to be subject to EPCM approval.
Topsoil will be stored where it is not compacted by vehicles or contaminated and will be stored in a manner that minimises its loss and / or degradation. Topsoil will not be mixed with subsoil, and will be stored on the opposite side of the TANAP RoW to subsoil; other than in restricted areas where mixing will be prevented by physical means, e.g. geotextile sheeting. Isolated piles of topsoil will be clearly signed as 'Topsoil' in Turkish and English.

All soils will be visually and olfactory inspected prior to stripping and a watching brief will be maintained during all excavation works for potentially contaminated soils / materials. All soils suspected or confirmed to be contaminated will be removed from site and disposed of to a suitably licensed facility. All materials will be sampled and tested prior to reuse in accordance with the agreed limits of USEPA guidance and Dutch Standards for Soil Contamination.

FERNAS will strip the topsoil over TANAP RoW.

Stripped topsoil will be kept free from the passage of vehicles and plant following stockpilling. Topsoil and subsoil stacks will be placed to ensure that they are free draining. Gaps will be left in the topsoil stack to permit reasonable access across the TANAP ROW.

Topsoil will be stored in a stockpile not more than 2m high with side slopes <45°, drained with open ditches, and 1 m high in critical habitats (ref: BAP). Topsoil piles will be leaved in place until final reinstatement by taking the following mitigations to protect the topsoil until completion of constrution activities;

- Topsoil height will be minimized the to 2m,
- Silt fences will be used and regularly maintained where required,
- Outer surface will be compacted using the back of the excavator bucket to minimize water ingress and provided protection from erosion,
- Geotextile will be placed in exposed locations such as access points through the topsoil to provide protection from erosion,
- A drainage channel on the ROW side of the topsoil will be excavated and maintenanced to prevent surface water erosion,
- Routine monitoring of the topsoil piles and maintenance of protection measures, especially after heavy rains will be done.

In areas of very limited working space, topsoil stockpiles of up to 3m high and <45° slope may be permitted with EPCM's approval. The surface of the stockpile will be lightly compacted (a single pass of light hand compaction equipment) to reduce rainfall penetration but not enough to promote anaerobic conditions. Drainage will be provided which prevents standing water on or against the stockpile. Where necessary, the stockpile will be protected from flooding by placing berms/diversions around the perimeter. Under no circumstances will stockpiled topsoil be used as padding material.

During handling, damage to soil structure will be avoided. Soil handling under wet conditions is to be avoided other than in areas having obviously sandy soils (river banks and possibly locations containing tuff). Construction handling of topsoil is to be delayed 24 hours following a rainfall of 10mm or more during the preceding 24 hour period, after which soil conditions will be reassessed.

4.2 Subsoil Stripping and Storage

4.2.1 Objective

The objective is to manage the subsoil so that it is not subjected to, nor is the cause of, excessive erosion.

The TANAP RoW will be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of subsoil is essential to achieving this objective.

Any area of subsoil suspected or confirmed through ESIA or on site testing to be contaminated will be stockpiled separately and either removed from site or reused following an appropriate risk assessment of the subsoil to determine the suitability of its reuse in accordance with the agreed limits of USEPA guidance and Dutch Standards for Soil Contamination for the identified land use locally required.

4.2.2 Requirements

The subsoil will be excavated from the pipe trench and, in some cases, from ridge-top widening or cutting of benches on sides of slopes. In general, subsoil will be returned to the excavated area. However, in Special Areas (refer to Section 8) subsoil may be required to be removed.

4.2.3 Management of Subsoil

Subsoil that will be reused, (i.e. returned to the trench or corridor TANAP RoW) will be placed in stockpiles as shown on the typical drawings. In some areas, particularly where there is limited working width, temporary or permanent removal of subsoil from the RoW may be required, to approved locations only (see the Pipeline Construction Specification for details of grading).

FERNAS method statements will prove his stated maximum allowable height and any compaction requirements for temporary stockpiles to ensure safe working. All maximum heights will conform to the commitment made in the ESIA.

Removed subsoil will be kept free from the passage of vehicles and plant, and segregated from topsoil stockpiles. Subsoil stockpiles will be placed to ensure that they are free draining. Gaps will be left in the stockpile to permit reasonable access across the TANAP RoW and at low areas where surface water may be held against the stack.

The surface of the stockpile will be lightly compacted (a single pass of light hand compaction plant) to reduce rainfall penetration but not enough to promote anaerobic conditions. Where necessary, the stockpile will be protected from flooding by placing berms/barriers around the

outside.

FERNAS will maintain the integrity of the stockpile during the storage period to the satisfaction of EPCM. FERNAS is responsible for the placement of suitable drainage and erosion control measures as necessary.

All subsoils will be visually and olfactory inspected prior to stripping and a watching brief will be maintained during all excavation works for potentially contaminated soils / materials. All soils suspected or confirmed to be contaminated will be removed from site and disposed of to a suitably licensed facility. All materials will be sampled and tested proper prior to reuse in accordance with the agreed limits of USEPA guidance and Dutch Standards for Soil Contamination.

4.3 Trench Excavation and Padding

4.3.1 Excavated Material

The creation of surplus excavated material will be minimized as far as practicable since it is significant in terms of waste management. All material that is excavated will be re-used to the maximum extent practicable. FERNAS will produce a waste minimization statement justifying the extent to which surplus material will be minimized and reuse maximized.

4.3.2 Blasting

Blasting will be performed in accordance with WRP-SPC-PPL-PLG-001 Pipeline Construction Specification and BCH-SPC-PPL-PLG-012 Specification for Blasting.

Blasting will only be used where other excavation methods are considered technically infeasible or uneconomic, and it shall be demonstrated to, and approved by, EPCM, that the blasting will minimize over-break of ground and minimize the generation of spoil material.

4.3.3 Backfilling and bedding

Padding and backfill operations will be performed in in accordance with WRP-SPC-PPL-PLG-001 Pipeline Construction Specification.

Bedding is required in areas where the stones and other materials inside the pipeline trench can damage the coating of the pipe and the surrounding soil is not convenient for bedding. When the surrounding soil is considered unsuitable for bedding, the bedding material will be imported by the FERNAS upon approval of EPCM. Imported material used for bedding will be sand and will be salt free (to be verified by sampling and analysis before selecting the material quarry) and will not contain clay, roots, stones or other material which is likely to cause damage to the pipe coating.

4.3.4 Management of Excess Spoil and Rock

Generally, all soil and rock will be returned to the excavated areas. In some locations, however, there will be surplus subsoil or rock that cannot be returned, and this must be disposed of both safely and in line with the environmental requirements of the Contract and in accordance with the requirements of the project Waste Management Plan.

All surplus materials will be visually and olfactory inspected, sampled and tested prior to reuse in accordance with the agreed limits of Dutch Standards and USEPA guidance, All soils suspected or confirmed to be contaminated will be removed from site and disposed of to a suitably licensed facility. FERNAS retains the same responsibilities for excess soil and rock as for any other waste material as specified in the project documentation and Waste Management Plan.

4.4 Reinstatement of Soils

The TANAP RoW will be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of all soil is essential to achieving this objective.

General reinstatement will achieve:

- Final surface will be within +100mm of the level of undisturbed adjacent ground and blended to the existing contours (excluding slope breakers). In certain locations such as side slopes or along narrow ridges site specific reinstatement will be applied as shown on the AFC drawings or approved by the EPCM representative.
- Planting within pipeline permanent RoW to be approved by EPCM.
- In barren areas, a semi- natural appearance is required: rocks or processed rock may be

distributed over the final surface provided the particle size distribution is similar to that of adjacent undisturbed rocks.

- Erosion control measures (if any) may remain visible.
- Water drainage has adequate outfalls and avoids ponding water on the RoW

Upon completion of reinstatement, disturbed areas shall be inspected jointly by FERNAS and EPCM for slope stability, relief, topographic diversity, acceptable surface water drainage capabilities, and compaction.

4.4.1 Reinstatement of Subsoil

Two situations are considered: standard reinstatement and special re-instatement.

4.4.2 Standard Reinstatement

On return of the subsoil to the trench, the subsoil will be compacted to a similar compaction to that in the adjacent undisturbed area. The depth of subsoil after settlement will not be above the level of the surrounding ground. After the subsoil has been returned and the land levelled, the subsoil will be rendered to a loose and workable condition to a depth of 300 - 400 mm and contoured in keeping with the adjacent undisturbed ground. Both the Environmental Inspectors of EPCM and FERNAS will regularly monitor subsoil replacement and contouring.

FERNAS will provide a detailed method statement for standard reinstatement for approval prior to mobilisation.

4.4.3 Special Reinstatement-Side Slopes

Special reinstatement is applied where it has been necessary to cut a bench into hillside in order to establish a flat working area from which to lay the pipe. It is the intention where possible to restore the original slope by filling-in the bench, thereby removing any scar in the landscape.

Side-cut topsoil will be stripped and removed from the area and stockpiled as described in Section 4.1. Both the topsoil and subsoil will be stored separately. The side slope cut will be restored, as far as practicable, to the original contours, so that the cut surface blends with the

original contours (see Section 8.1). The subsoil layers will be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account should subsoil extend beyond the original line of slope or a new slope be created which is steeper than the original slope. Following compaction of the subsoil, the topsoil will be spread over the site, harrowed and reseeded. The reinstatement of side sloped RoW section will include drainage measures to avoid erosion taking place across the reinstated RoW. Compaction of the backfilled subsoils will be sufficient to ensure long term stability of the slope and will as a minimum match the existing density of the surrounding ground. The reinstatement will be carried out in accordance with the typical drawings for side slopes unless otherwise approved by the EPCM. In exceptional circumstances where full reinstatement is not possible and the created cut slope will remain, FERNAS will prepare a methodology statement proposing an alternative slope reinstatement solution subject to EPCM approval. This will set out as a minimum how the long term slope stability, visual impact, and environmental project requirements are met.

4.4.4 Reinstatement of topsoil

Topsoil will be segregated and will not be mixed with spoil material before or during replacement. Topsoil will be re-spread over the surface of the subsoils. Topsoil will not be used for bedding material in the trench, and topsoil from unstripped/undisturbed areas will not be used to cover adjacent disturbances. Topsoil will not be handled during excessively wet conditions or at times when the ground or topsoil is frozen, unless agreed otherwise with EPCM's representative.

Once the disturbed areas have had subsoils compacted and have been re-contoured, topsoil will be re-distributed over the entire disturbed areas from which it was stored.

All disturbed areas will be subject to final grading as specified in Section 4.5; however, measures will be taken prior to seeding to ensure areas of reinstated topsoil remain rough / tilled, to help protect the stability of topsoil against erosion. On sites where harrowing etc. is not practical (e.g. steep slopes, rocky areas), the sites should be dozer-tracked perpendicular to the slope or otherwise left with adequate roughness following topsoil placement. When the topsoil is replaced over the TANAP RoW, a slightly rough, loosely consolidated texture will be achieved in order to promote vegetation growth.

Topsoil should be seeded following the seeding regime identified in Table 7.1. In general this will be undertaken using hydroseeding, but for steep slope locations, other techniques and measures will apply, see Section 4.6.

FERNAS will provide a detailed method statement for topsoil reinstatement for approval prior to mobilisation.

4.5 Reinstatement of Soils during construction

FERNAS will be responsible for employing, to the satisfaction of EPCM, any temporary erosion and sediment control measures in order to protect the TANAP RoW and adjacent areas during construction activities. In the event that the pipeline ditch remains open, FERNAS will ensure trench integrity and employ such measures as temporary ditch breakers, silt fences, straw bales, etc. as necessary.

4.5.1 Temporary Erosion Control

The following temporary erosion control measures will be incorporated along the TANAP RoW in order to protect the environment and to achieve the performance standards as set out in Section 3.5.

On longitudinal slopes with open trenches, plugs of unexcavated material will be left in the trench to interrupt surface flow and prevent scouring of the trench bottom.

Tree stumps should be left in place wherever possible to provide soil stabilization.

Drainage channels will be installed on all longitudinal and transverse slopes as required.
Where slopes require cutting, flumes will be installed across the TANAP RoW. These will carry water from drainage sumps on the upslope.

The TANAP RoW will be monitored and repairs made immediately throughout construction to prevent:

- subsidence of the pipeline trench (below natural grade);
- breaching of diversion berms and slope breakers;

- slope wash from improperly placed berms and slope breakers;
- slumping and soil movements from cut and fill slopes;
- loss of stored topsoil, subsoil or cuttings.
- Pollution of sensitive sites, including watercourses, with displaced sediment as a result of erosion on the RoW.

4.5.2 Sediment interception

Where the TANAP RoW intersects or is parallel to a watercourse sediment interception will be provided to prevent sediment entering the water. Sediment interception will be provided for runoff that may occur during construction and reinstatement activities until the reinstatement has been in place and is achieving the requirements of Section 3.5.

Sediment interception devices may take the form of a Silt Fence, Wooden Fence or Straw Bale Barrier. The removal of sediment caught by these measures will be the responsibility of the FERNAS. It should be noted by FERNAS that these forms of construction may be subject to vandalism in some rural areas where the resources used are of value, and as such selection of approach should consider location and access.

4.5.2.1 Silt fence

Silt fences or other suitable sediment barriers will be installed in areas of low sheet flow and are installed to intercept runoff on eroding slopes.
The filter cloth is draped over the fence and secured in a 15-cm-deep trench dug one metre uphill. Filter fences installed across the working width should follow a slight gradient towards a natural outlet, waterway, or lined chute, into which they drain.

The following requirements will be satisfied:

- ponding will not be allowed behind a silt fence;
- drainage area will not exceed 0.1 hectares per 30m of fence length;
- for slopes between 2% and 20%, the maximum allowable upstream flow path length will be 30m;
- for slopes steeper than 20%, the maximum will be 6m;
- maximum upslope grade perpendicular to the fence line will not exceed 100%; silt fences will be used for sheet flow only.

Filter fabric will meet the following criteria contained in Table 4.1 as a minimum:

Table 4.1. Filter Fabric Criteria

Physical Property	Minimum Requirements
Filtering efficiency	75% - 80%
Tensile strength at 20% (maximum) elongation	90kg/ linear metre minimum
Slurry flow rate	0.11 liters/m3/min

Synthetic fibre will contain ultraviolet inhibitors and stabilisers and meet the performance criteria for the entire length of installation and the environments encountered.
Filter fabric will be installed in continuous lengths.

Silt fences will be inspected daily during periods of prolonged rainfall, immediately after each rain event, and weekly during periods of no rainfall. Any repairs required will be made immediately.

Sediment will be removed prior to the sediment reaching 1/3 of the height of the silt fence. Care will be taken during sediment removal to ensure integrity of the fence is maintained. Sediment collected will be disposed of in an approved manner.
The silt fence will not be removed until the upslope area has been permanently stabilised. Any sediment deposits remaining in place after the fence has been removed will be dressed to conform to the existing grade, prepared and re-vegetated.

4.5.2.2 Straw bale barrier

Straw bale barriers (the term can include hay or other baled vegetative matter) will be installed in areas where small amounts of temporary sediment interception are required.

Straw bale barriers will not generally be installed where sediment control is required for periods greater than three months. Where they are installed on the working width, they should follow a slight gradient towards a natural channel, waterway, or lined chute.

The requirement for locations of straw bale barriers along the RoW is to be established during the work jointly between FERNAS and EPCM representative. Generally these sediment control areas with slopes >10% will include:

- areas of protection for longitudinal down slope to water bodies and roads;
- edge of ROW with adjacent down slope water bodies or roads; and
- edge of ROW with adjacent down slope to defined environmentally sensitive areas.

Straw bales will be bedded into the ground and anchored with reinforcing stakes. Anchors are driven at an angle towards the neighbouring bale so as to tie them firmly together.

The drainage area will be no greater than 0.1 hectares for each 30m of bale barrier. Straw bale barriers will not be used in areas of rock or other hard areas, where full and uniform anchoring is prevented.

Straw bale barriers will be inspected daily during periods of rainfall, immediately after each rain event, and bi-weekly during periods of no rainfall. Any repairs required will be made immediately. While the life expectancy of bales is not more than 3–6 months, deteriorated bales can be broken up and used as straw mulch or are often left to decompose in place. If non-biodegradable plastic or wire ties are used to bind the bales, these should be removed and disposed of. Straw bales will not be left in the trench from the point of backfilling.

4.5.2.3 Wooden Fence

Typically subsoil will not be stored in working areas constrained by side slope or narrow ridges, spoil will instead be removed from the working strip and stored in approved temporary stockpiles. The use of wooden fences in areas of side slope and ridge construction to retain cuttings during construction and reinstatement of the TANAP RoW will be subject to EPCM approval. The requirement for locations of wood fences is to be established during the work jointly between FERNAS and EPCM representative.

FERNAS will ensure by calculation that fences are capable of safely supporting the loads imposed. Fences will be regularly inspected to ensure safe operation and structural integrity. FERNAS will be aware that the use of wooden fences may pose localized problems. In certain areas, firewood is a valuable commodity therefore the fence material may be attractive to locals for firewood.

Fences will be removed, unless directed otherwise by EPCM, during reinstatement of the TANAP RoW.

4.5.2.4 Water Disposal

Pipeline trenches commonly collect water during construction. Because it may be turbid and sediment laden, trench water will require filtering before it can be discharged.

Trench water is commonly removed using a pump connected to a 7–10cm diameter flexible hose. Disposal of trench water will be in accordance with the requirements set out in the FERNAS's Environmental and Social Management Plan (ESMP) and the ESIA.

Appropriate measures to prevent erosion and sediments during the disposal of trench water, hydrotest water, or any other water will be adopted. Such measures are specified in the FERNAS's ESMP and all water discharges will be undertaken in accordance with the requirements of that plan.

4.5.2.5 Crushed Rocks

Crushed rock may be required as a temporary measure it serves to reduce muddy conditions and sediment production during construction.

Crushed rock is applicable to locations where vegetation cannot be established and where erosion poses a risk to the pipeline or sediment threatens nearby streams. This also applies to stone dressings outside of the working width: e.g. camps, temporary roads, pipe storage locations, and crew quarters.

As required by local conditions and as agreed with EPCM representative, crushed rock may be used for temporary roadways, turning areas, and other locations from where sediment discharge poses a problem. Particle size to be determined for specific purpose.

Following project completion, temporary areas dressed with crushed rock will be ripped, fertilized and seeded or planted. These areas will be subject to the acceptance of EPCM.

4.6. Erosion Control Devices for Reinstated Slopes

Careful construction and reinstatement can reduce soil erosion and sedimentation to within manageable limits. Bioremedial and mechanical (hydraulic) methods of controlling soil erosion and sedimentation will be implemented.

Stabilisation practices are essential on all steeply sloping lands disturbed by construction. Steep sloping ground is considered to be ground inclined at >15% to the horizontal, or shallower ground which through the nature of its topography is expected to be subjected to significant surface water flow.

Mechanical methods of stabilisation include the use of slope breakers, containment ponds, and lined chutes. Slope breakers cross the RoW and serve to contain and remove water runoff from the working width and other disturbed areas. They discharge into soakaway / containment ponds, natural channels, or lined chutes, depending on the situation. Dissipation of the energy anticipated from the flow is necessary. The breakers reduce the length of slope over which water can travel without interruption, but typically require the presence of vegetation to effectively limit the transportation of sediment from the slopes. The bioremedial measures include hydroseeding and hydromulching to revegetate the slopes. For some situations a seed impregnated jute matting will also be utilised to allow the establishment of the specified flora.

4.6.1 Slope Breakers

Slope breakers are channels constructed across the working width. Their purpose is to remove surface runoff and, acting with vegetation, to protect against soil erosion. Slope breakers can be temporary or permanent.

Temporary slope breakers are required to be functional for the first 5 years after the pipeline reinstatement takes place, and the construction must allow maintenance to ensure this is the case. Five years is considered sufficient time for the vegetation to be fully established provided suitable reinstatement is undertaken.

Permanent slope breakers (diversion ditches) will be in the form of stone dressed or rock formed slope breakers. These permanent structures and their associated outlets are required to remain

functional for the design life of the pipeline (25 years), and the construction must allow maintenance to ensure this is the case.
The shape and dimensions of the slope breakers will be, where necessary, altered to suit the local topography and runoff situation, following approval from the EPCM's representative. If a spring is intercepted it should be diverted to a lined chute and provision made to drain the slope appropriately.

4.6.2 Erosion (Jute) Matting

Erosion matting, consisting of jute, will be installed to provide an immediate protection to the slope against erosion, prevent washing-out of seeds and enhance the micro-climatic conditions in the soil for plant growth.

Erosion matting will provide temporary protection to the soil surface until sufficient vegetation cover has been established to control erosion and meet the performance criteria. The erosion matting will be Geojute or similar. The mat will be biodegradable, open weave 11mm x 18mm mesh size and 2mm thick fibres with a mass/area ratio of 500g/m2. The mat will absorb water to 500% of its dry weight on saturation. The mat should rot in approximately two years. For river crossings reinstatement, biodegradable erosion matting willl be Geojute Plus or similar. FERNAS will submit data sheets and samples of the proposed erosion matting for EPCM approval.

Where revegetation is taking place topsoil preparation and grass seeding work will be undertaken prior to laying erosion matting. The seeding will match the planting regime described in Section 7.

The erosion mat will be unrolled from the top of the slope, allowing it to lay naturally on the soil surface over all the local undulations. On no account will the material be taut or stretched so that it forms 'bridges' over local soil mounds and stones. Matting will be fastened to the slope surface as described on typical drawing WRP-DGA-PPL-PLG-050. Unless properly anchored, mats are liable to slip. Uphill ends are to be buried in a 15 cm deep slot and stapled per the manufacturer's recommendation at maximum 30 cm centres across the width of the mat. At joints, the downhill end should be overlapped shingle-fashion for 30 cm. The uphill end of the new roll is inserted into a 15 cm trench and stapled as before. On slopes steeper than 25 %

check slots should be used every 30 m. These are 15cm deep trenches into which a tight fold of matting is inserted. The slot is filled and tamped, and staples are punched.

Following installation, mats should be rolled, if the slope allows, with a smooth hand-roller to bring them into close contact with the soil and to consolidate the seedbed.

Erosion mats, once installed will be regularly inspected for degradation and installation integrity. Where matting has remained in place for longer than 12 months, FERNAS will be responsible for maintaining and replacing matting as required through the construction and maintenance period.

4.6.3 Crushed Rock

Crushed rock may be required as a permanent erosion control measure at locations where it is impossible to establish vegetation and with prior approval of EPCM. Crushed rock will be used, if necessary, to recreate the surface covering of rock on the adjacent and pre-works slope. If possible the rock used will be that recovered in the top soil stripping and pipe trench excavation.

4.6.4 Lined Chutes

Lined chutes are channels created to collect and convey runoff to where it can be safely disposed of without erosion. Chutes or waterways serve to receive and concentrate runoff from slope breakers, from small gullies that cross the pipeline right-of-way, and from other areas that require water disposal. Their design is such that channel velocities remain non-erosive, even on steep slopes. The discharge point is to be designed and installed sufficiently to dissipate discharge energy and avoid erosion at the discharge point. Lined chutes will be applied where shown on the alignment sheets or as directed by the EPCM representative.

Commonly, lined chutes are designed to convey water from where springs emerge in the vicinity of the pipeline RoW.

On steep slopes (>25%) lined chutes will contain wicker dams to reduce the potential for high velocity water flow down the slopes.
The chutes, including wicker dams where utilised, will be inspected and maintained at the same time as the slope breakers.

4.6.5 Gully Remediation

The objective of gully remediation is to prevent existing gullies from increasing in size and extent through continued erosion.

The structures described in this specification reduce the velocity of concentrated storm water flows and thus reduces erosion of the swale or ditch. They also trap small amounts of sediment flowing in the gully.

Additional mitigation measures will be applied for gully heads close to the pipeline using a gabion solution as detailed in drawing WRP-DGA-PPL-PLG-047 (Detail 1). Gabions in combination with a geotextile and rock fill will ensure that further erosion will be mitigated and gully head migration and possible exposure of the pipeline prevented.

Gully head remediation will be applied as shown on the alignment sheets or directed by the EPCM representative. Final design of the gully head mitigation measures will be proposed by the FERNAS subject to EPCM approval.

4.6.6 Geotextile

Geotextile will be as defined in the Pipeline River Crossing Civil Protection Works Specification WRP-SPC-PPL-PLG-030 (or EPCM-approved equivalent).

Geotextile will be handled and installed according to the manufacturer’s recommendations, and/ or as shown on the Drawings. Geotextile will not be stored in direct sunlight. Construction equipment and/ or vehicles will not be allowed to operate directly on geotextile.

Where geotextile is joined with overlapping joints, a minimum 500 mm overlap will be allowed at adjoining borders. For geotextile placed on slopes, the geotextile will be secured at the top of slope by embedding in an anchor trench, as shown on the Project Drawings.

4.7. Proposed Measures

Using slope geometry and assumptions where necessary, mitigation measures have been proposed for each slope using the USLE (see Section 8.3) These measures are presented on the alignment sheets using two codes, one for Bio-remedial measures, and one for the engineered referred to as 'slope breakers'. The codes present predicted measures required to reduce soil erosion to an acceptable level for each slope. The codes are in the following format:

Table 4.2: Bioremediation Code

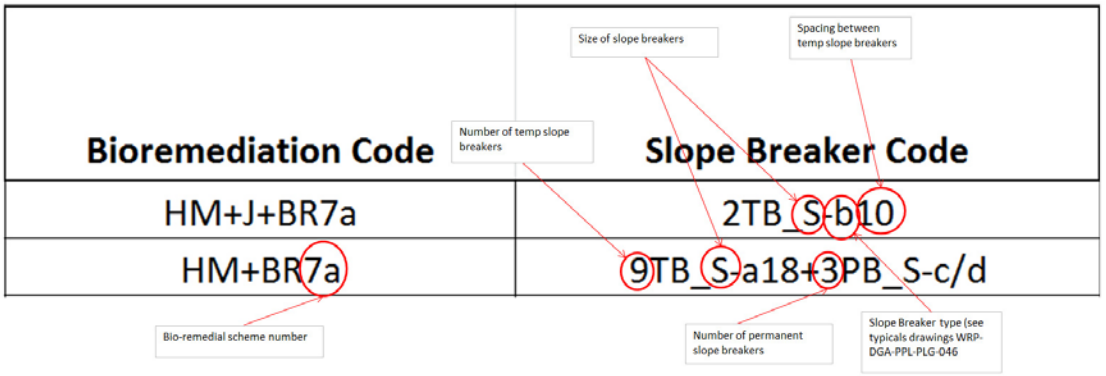
CODE	Description
HM	Hydromulching of slope surface
HS	Hydroseeding of slope surface
BR	BioRemedial scheme, Number identifies which BR from list in Specification for Reinstatement

Table 4.3: Slope Breaker Code

CODE	Description
TB	Temporary Slope Breaker
PB	Permanent Slope Breaker
-a	Slope Breaker type A
-b	Slope Breaker type B
-c	Slope Breaker type C
-d	Slope Breaker type D
-L	Large breaker dimensions
-S	Standard breaker dimensions
J	Jute Matting

Figure 4.1 gives an example of the codes provided on the alignment sheets, and some explanatory notes, to be read in conjunction with Table 4.2 and Table 4.3.

Figure 4.1. Alignment Sheet Code Example



The first example given in Figure 4.1 identifies that the slope will be hydromulched, and have Jute Matting, making use of the seed mix BR7a as described in Table 7.1. It also identifies that 2 temporary slope breakers, of standard dimensions and type ‘b’ will be constructed at 10m spacing down the slope.

The second example given in Figure 4.1 has 9 temporary slope breakers of standard size, type ‘a’ at 18 m spacing down the slope. It also has 3 permanent slope breakers, type ‘c’ or ‘d’ as appropriate for the slope, and of standard size.

Permanent slope breakers are always used to divide the slopes into equal parts. In the case of the Figure 4.1 second example this is 3 slope breakers subdividing the slope into 4 sections. The temporary slope breakers are spaced between permanent breakers, with an additional breaker included at the crest of the slope which has been included to take ccount of situations where the surrounding topography may result in discharge onto the steep slope. The requirement for T* temporary breakers will be judged by the FERNAS to the satisfaction of the EPCM’s representative.

4.8. Assumptions and Site Validation

Where information was not available to undertake the USLE as described in Section 8.3, assumptions were made such that the initial proposed soil erosion mitigation measures could be generated for each slope. As not all slopes were visited, these assumptions are significant and relevant to almost all slopes, and must be validated accordingly. The following list of assumptions should be considered for each slope, and the mitigation measures reconsidered if the assumptions are found to be invalidated by the site observations:

- Slope start / endpoint identified using GIS
- Slope angle attributed based on averaging from GIS
- The percentage of slope surface covered by rock-mulch
- Potential for sediment discharge into a watercourse or sensitive site, identified from GIS
- Soil class mix (gravel, sand, silt, clay), currently assumed to be a silt for all sites
- Local topography (is RoW likely to be impacted by flowing groundwater), including requirement for slope creast temporary breaker (see section 4.7)

The assessment of the validity of the assumptions made will be undertaken by the FERNAS, and EPCM representatives on site, and the USLE assessment reworked by the EPCM representative where necessary to modify the mitigation measures to be installed, for the approval of the EPCM.

4.9. Marking of Erosion Control Works

FERNAS and EPCM's representative are to walk the pipeline RoW for each steep slope, to validate the design assumptions in the erosion assessment. Following validation, or update of the prescribed erosion mitigation measures, the FERNAS and EPCM will agree the site specific arrangement of mitigation measures, and jointly stake the route with the agreed upon measures immediately prior to clearing and grading of the RoW. Due to the length of the TANAP pipeline and the lot allocation, multiple teams will be required to perform this function.

4.10. Rip Rap

Rip rap will be required to reinstate specific river crossings. The minimum installation locations are defined in the River Crossing Reinstatement and Scour Protection Schedule Document No. WRPLST-PPL-PLG-003.

This document will not limit the location of rip rap installations. FERNAS will identify any additional areas and propose them to EPCM for review and approval.

Rip rap may also be used in areas along the right of way other than at river crossings, FERNAS will install rip rap wherever deemed necessary and suitable to achieve the erosion control requirements or for slope stabilisation.

Rip rap will be as defined in the Pipeline River Crossing Civil Protection Works Specification WRPSPC-PPL-PLG-030.

4.11. Rock-filled Gabions

Gabions will be required to reinstate specific river crossings. The minimum installation locations are defined in the River Crossing Reinstatement and Scour Protection Schedule Document No. WRPLST-PPL-PLG-003.

This document will not limit the location of gabion installations. FERNAS will identify any additional areas and propose them to EPCM for review and approval.

Gabions may also be used in areas along the right of way other than at river crossings FERNAS will install gabions wherever rip rap is not suitable control measure and deemed necessary to achieve the erosion control requirements or for slope stabilisation.

Rock-filled gabions will be as defined in the Pipeline River Crossing Civil Protection Works Specification WRP-SPC-PPL-PLG-030.

5. TRENCH BREAKERS

Trench breakers will be installed within the pipeline ditch at locations along the pipeline route where the natural profile, drainage pattern and backfill materials may cause the trench to act as a drain resulting in the washing out of the bedding material etc. Where the slope is steep trench breakers will assist in the backfilling operation, breaking the trench into shorter sections. Anticipated spacing requirements for slope breakers are identified on typical drawing WRP-DGA-PPL-PLG-041.

FERNAS will install the trench breakers per design. The final installation will require approval from the EPCM. Allowance for water movement through the trench breaker will be made by installing pipes through the trench breaker as shown on the typical drawing.

Additionally, impermeable trench breakers are required to control the lateral/horizontal migration of groundwater and/or fluids:

- at bases of slopes adjacent to wetlands and where needed to avoid draining of wetlands,
- to prevent contamination migration, and/or
- reduce suffosion risk in karst terrain

If trench breakers are used for this purpose the drainage pipes will be omitted.

The materials of construction will be polyurethane bags filled with sand and cement 10:1 as detailed in the referenced Project Drawings, polyurethane foam (subject to Client approval), or alternative (subject to Client approval).

6. RIVERS

Where required the design of riverbed and riverbank protection will be in accordance with Project Drawings.

Specific method statements will be produced by FERNAS for all major river crossings, i.e. RVX1, RVX2, RVX3A and RVX8, generic method statements will be produced by FERNAS for each type of minor river crossing i.e. RVX3B, RVX4 to RVX7 for EPCM approval. The method statement will detail all construction and restoration procedures.

Riparian vegetation (Plant habitats and communities along the river margins and banks) are of high importance to the long term stability of the river. FERNAS will minimise riparian disturbance wherever practicable. Where riparian vegetation consists of shrubs and trees greater than 1m height, FERNAS should transplant the plants wherever possible for re-planting during reinstatement works. Where it is not practicable to transplant or translocate the trees then new trees of the same species mix will be planted. Nursery trees of minimum 2 years old up to 5 year old will be planted in order to restore the riparian environment, subject to the restrictions of the Planting Proximity Zones.

The Planting Proximity Zones are defined by the following:

- there will be no trees planted within 6 m of the pipeline centreline,
- trees such as Willows (Salix) and Poplar (Salicaceae) or other native species with similarlydeep and aggressive root structures will not be planted within 10m of the pipeline centreline.
- other tree species such as Ash, Alder, Lebanon cedar, larch, beech, elm, sweet chestnut, hornbeam, Turkish Pine, scotts pine, black pine, Kermes oak, Cilician Fir, sycamore, apple, plum, cherry, pear, and also included in this category are most conifers may be planted at a distance of 6 m or greater from the pipeline centreline.

FERNAS will plant sufficient density of vegetation to achieve the original plant densities subject to the restrictions of the Planting Proximity Zones. The planting density will take consideration of dieback rates of each plant.

Where originally present native shrubs will be re-planted above the pipeline and within the riparian zone, if no shrubs are originally present, FERNAS will introduce shrubs native to the region to provide vegetative stabilisation and erosion protection to the cleared riparian zone 6 m either side of the pipeline centreline.

Acceptable plant types, suggestion of planting density and their location relative to the pipeline are outlined in drawings WRP-DGA-PPL-PLG-036-01 – Typical Drawing Riverbank Protection Bio Restoration and WRP-DGA-PPL-PLG-036-02 Typical Drawing River Riparian Restoration.

Bioremediation of river banks will be undertaken to re-establish vegetation to the equivalence of the adjacent untouched areas. This may include juvenile trees and shrubs the selection of, placement and planting will be supervised by a competent ecologist and approved by the EPCM. Unless stipulated on project documentation river banks will be restored to their original condition and contours. Where this is not practicable, FERNAS will propose site specific solutions with engineering justification; this will be included within EPCM approved method statements.

For gravel bed rivers, the armoured bed (the sediment forming the surface layer that is coarser than the underlying sediment) will be recovered to a minimum depth of 300 mm at the start of crossing excavations, stored in a segregated area and replaced as the top layer of bed material during reinstatement.

The backfill over the pipe will be at least as scour-resistant as the original bed material. Where rock is present the backfill material will be coherent and with similar properties to the adjacent undisturbed ground, the trench should not create a natural channel for preferential erosion or water run-off nor should it create localised hard areas, with the potential to increase future erosion rates across the watercourse.

The disturbed portion of the river bed will be returned to pre-construction contours where possible and in compliance with Project Drawings. Any deviations will be subject to EPCM approval.

Erosion protection and stabilisation measures will be provided to prevent acceleration of and / or increase in the erosion as a direct or indirect result of the construction activities. Other than sites where civil protection measures are designed e.g. riverbank revetments and riverbed protection, erosion and soil stabilisation measures, when implemented, will not be intended to permanently alter the pre-construction hydrologic and environmental regimes including natural erosion of the rivers. Trench backfill materials will meet the requirements of the Pipeline Construction Specification. Any material too wet to be suitable for reinstatement of the banks will be dried as required to ensure stability during reinstatement.

Erosion and sediment control devices will be installed and maintained until re-vegetation and/or selected stabilisation measures shown in Project Drawings are sufficiently established and functioning to meet the requirements of “no accelerated” or “increased erosion”. FERNAS will detail erosion and sediment control measures to be used in the method statements for EPCM approval and these willll be compliant with the project documentation.
Where erosion matting and/or bio-restoration cannot achieve the project reinstatement performance requirements, or where otherwise indicated on Project Drawings, or as otherwise deemed necessary, erosion protection will be achieved by the installation of civil protection measures (see Section 4).

Where permanent river bed scour and riverbank protection is required it will generally be specified on site specific detail drawings and in the River Crossing Reinstatement and Scour Protection Schedule Document No. WRP-LST-PPL-PLG-003. Protection measures will be implemented as specified. FERNAS is required to validate the river crossing reinstatement and scour protection schedule document and where additional protection requirements become

apparent during either construction and/ or re-instatement, FERNAS will propose additional measures, in accordance with project requirements, for EPCM review and approval prior to implementation.

Requirements for riprap, geotextile, gabions, sills, bunds, groynes etc, including but not limited to material specifications, placement and testing will be in accordance with Project Drawings, and meet the minimum requirements of the Pipeline River Crossing Civil Protection Works Specification WRP-SPC-PPL-PLG-030.

7. BIORESTORATION

The presence of vegetation reduces the susceptibility to soil erosion, providing canopy cover to the soils and having roots binding the soil. Revegetation in the project area means returning the land to its use prior to construction of the TANAP pipeline. This will mean planting grasses on highly erodible landscapes, or planting alpine plants and trees if the land is unsuited to grass, to be determined by a competent ecologist on site prior to stripping and grubbing, and to be approved by the EPCM. Privately owned land will normally be replanted to the pre-existing condition or as agreed with the landowner and EPCM. Trees will not be planted within an 16 m wide strip centred over the pipe. However, trees may be planted in areas suitable for reforestation, such as the verge of the right-of-way. In addition to the TANAP's working width, its temporary roads and other disturbed areas will be reinstated by FERNAS to the satisfaction of the Landowner and EPCM.
The collected seeds then will be sent to Ministry of Agriculture's seed gene banks in Ankara and vegetative propagules will be used in order to start an ex situ cultivation for the reintroduction of populations in suitable habitats within the species range. Seed transportation and providing the records will be responsibility of FERNAS's biologist.

All biorestoration programs will be approved by EPCM. Landowners will be consulted by FERNAS to assist in developing these programs. Where Landowners requirements cannot be achieved, FERNAS will consult with EPCM to agree final resolution of the issue.

7.1. Objectives

The objectives are: (1) to establish sufficient vegetation cover to reduce erosion to meet the performance requirement of Erosion Class 3 (and in sensitive locations Class 2) or better

through restoration of the local plant community, (2) to reinstate with sufficient variety and distribution of appropriate plant species such that over time the local species will re-establish themselves across the RoW.

The long-term cover will be the native flora with the exception of areas that were planted with crops or other non-native species prior to construction. The biorestoration strategy is based on supplementing the seed bank of local species to remain in the topsoil when it is replaced. These supplementary seeds will be of fast growing species, sensitive to the local ecology, and that will rapidly provide soil surface cover and limit erosion. All biorestoration materials including seeds and plants are to be supplied by FERNAS.

7.2. Requirements

7.2.1. Agricultural/developed areas

In agricultural (defined as arable land) and other developed areas FERNAS will leave the land in the condition specified in the pre-entry agreements. Except where agreed otherwise, FERNAS will assume that the land is to be made ready for re-planting with crops: the land will be graded and tined to remove compaction. Application of fertilizer and other soil amendments (if needed), and planting on permanent growing areas will be carried out by the landowner or tenant. FERNAS will, however, seed and maintain all topsoil storage areas as required by Section 3.1, and irrigate all areas to the extent required to suppress dust formation.

7.2.2. Undeveloped areas

A minimum of 70% or the pre-works cover of ground vegetation (based on 100% total without overlapping cover) will be established within one year of planting. This will minimise surface erosion and provide a sustainable, self-generating plant community under virtually all conditions.

Fertiliser will be applied where necessary to achieve these target growth rates, as described in Section 7.5.

In areas where third party activities have affected the level of vegetative cover, the original cover will be determined by reference to adjacent, unaffected areas of similar topography and soil

type.

Original percentage cover will be estimated from FERNAS's photographic record of the route, or, in case of doubt, by reference to adjacent undisturbed areas.

The vegetation cover will be composed of either:

- Species (for example, fast growth types) that are suited to the local environment and indigenous to the region; (The selection of species which do not belong to the same area will be aligned with sensitivity of the area. For example for critical habitats, there may be certain restriction of importing alien species to the area.), as proposed in Section 7.5
- species originally found in each route section or project area, as determined by competent ecologist on site and approved by the EPCM;
- or an ecologically compatible mixture of those two groups.

The biorestoration maintenance, including weeding and grazing control, will be FERNAS's responsibility for a period defined within the Contract.

7.3. Scheduling

FERNAS will carry out biorestoration work in the appropriate growing seasons. Sowing or planting must take place in the appropriate season for the applicable plant types. FERNAS will identify from historical meteorological data suitable weather 'windows' for each area of the route. Biorestoration schedule to be approved by EPCM.

FERNAS will produce a Biorestoration Schedule including pre-construction transplanting or cultivation in addition to post-construction soil preparation, planting and aftercare. Scheduling of the biorestoration will be aligned with the ESIA requirements and management plans and will be issued to EPCM for confirmation before being applied.

7.4. Selection of Plant Species

This section refers to the species and form of materials (seed, seed-mix, bulb, or plant etc.) chosen to supplement the seed bank of the topsoil. This section does not apply to agricultural or

other developed areas.

The selection of species wiil be designed to achieve the objectives defined in Section 7.1. Seed mixes based on localised assessment for all regions along the pipeline are presented in Table 7.1 , but must be verified at each location by a competent ecologist to ensure suitability and compatibility with pre-works and adjacent ecology. This is of particular importance in critical habitat areas.

FERNAS will be responsible for the final choice of species and form of materials for each project area and section of TANAP ROW. FERNAS will refer to specialist advice provided by Specialist Contractor on existing species and their distributions.

FERNAS will produce Site Specific Special Area Reinstatement Plans and Generic Reinstatement Plans describing the quantity of plants/seeds and material forms to be planted for approval by EPCM. This plan will include certain mitigations and limitation for critical areas in terms of selection of species and seeds to be used.

7.4.1 Rare Plants

Rare plants will be dealt with in accordance with the mitigation measures detailed in the BAP. In addition to flora, there may be certain fauna which make a habitat critical; in this case certain limitations will be applied to the seed selection.

7.4.2 Species selection

Where rapid growth is necessary for erosion control or other reasons, the species selected for initial planting will have the following be compatible with the area required to be erosion controlled:

- dense, fibrous horizontal root structure close to the surface;
- dense uniform ground cover, particularly during the season of the most intense rainfalls;
- resistant to damage by high-velocity run-off;
- resistant to damage from trampling by people and animals; not persistant – to allow the original species to re-colonize the area;
- if possible, not clumpy or tussocky as this may lead to concentration of run-off between the plants.
- Not to be invasive, or harmful to grazing farmstock.

The species selected for long-term growth will reflect the variety and distribution pattern of the preconstruction flora.

Table 7.1. Proposed Seeding Combinations

Biological Restor Ref. (See align sheet codes allocation to slop	Region	Kilometer Point From (m)	Kilometer Point From (m)	Elevation (m)	Seeds of the sp to be collected	Life From	Seed Collection T	Planting method Alignment sheet c
1a	Ardahan	0	125000	<1500	*Elymus repens*	Herb.	July-August	Hydroseed Hydromulch
					Bromus tectorum	Herb.	July-August	
					Bromus racemosus	Herb.	July-August	
					Koeleria nitidula	Herb.	June-July	
					Phleum phleoides	Herb.	July-August	
1b	Ardahan	0	125000	>1500	*Agrostis stolonifera*	Herb.	July-August	Hydroseed or Hydromulch
					Bromus tectorum	Herb.	July-August	
					Elymus repens	Herb.	July-August	
					Hordeum violaceum	Herb.	July-August	
					Poa angustifolia	Herb.	July-August	
2a	Kars	125000	210000	<2200	*Bromus tectorum*	Herb.	July-August	Hydroseed or Hydromulch
					Elymus repens	Herb.	July-August	
					Hordeum violaceum	Herb.	July-August	
					Koeleria gracilis	Herb.	July-August	
					Poa angustifolia	Herb.	July-August	
2b	Kars	125000	210000	2200> Slope< 2500	*Bromus tectorum*	Herb.	July-August	Hydroseed or Hydromulch
					Hordeum violaceum	Herb.	July-August	
					Koeleria gracilis	Herb.	July-August	
					Poa bulbosa	Herb.	July-August	

					Poa pratensis	Herb.	July-August	
2c	Kars	125000	210000	>2500	*Achillea millefolium*	Herb.	July-August	Hydroseed or Hydromulch
					Poa pratensis	Herb.	July-August	
					Poa araratica	Herb.	July-August	
					Poa bulbosa	Herb.	July-August	
					Festuca chalcophaea	Herb.	July-August	
3a	Erzurum	210000	393000	<1800	*Bromus lanceolatus*	Herb.	July-August	Hydroseed or Hydromulch
					Elymus repens	Herb.	July-August	
					Hordeum violaceum	Herb.	July-August	
					Phleum phleoides	Herb.	July-August	
					Poa angustifolia	Herb.	July-August	
3b	Erzurum	210000	393000	>1800	*Poa bulbosa* var. *vivipara*	Herb.	July-August	Hydroseed or Hydromulch
					Phleum pratense	Herb.	July-August	
					Koeleria cristata	Herb.	July-August	
					Lolium perenne	Herb.	July-August	
					Hordeum violaceum	Herb.	July-August	

7.5. Fertiliser

Fertilizer will be applied to disturbed surfaces, as necessary, where vegetation is to be seeded or planted.

Fertilization should be applied during hydroseeding and hydromulching process. The fertilizer should contain 4.0% Fe, 3.0% Mn, 0.1% Mo, 2.0% Zn. The amount of fertilizer should be 25 kg per 1000 m2. The FERNAS will ensure that this fertilizer is appropriate for each location, or vary the fertilizer if necessary following approval from the EPCM. Local advice (universities, agronomists, and landowners) and advice from the Ministries of Agriculture or Forestry should be obtained to confirm or revise the stated fertilizer application rates at specific locations.

Fertilizer varies chemically and physically, with its greatest variability occurring among nitrogen fertilizers. Fertilizers having high solubility and motility are unsuited to highly mobile construction as practiced by the pipeline industry. The project requires fertilizer that can be applied during reinstatement and that remains active during periods of maximum plant requirements, especially during periods of rapid vegetative growth. Fertilizer broadcast as a top dressing during seeding is generally unsuited for the following reasons:

1. Seedlings during their growth establishment period have low soil nutrient requirements.
2. Autumn-sown wheat does not enter rapid vegetative growth until spring following snowmelt,about 100 days following sowing.
3. Urea, an amide-type fertilizer, may volatilize if applied to the surface. (Biuret, an impurity occasionally found in urea, may be toxic to some plants.)
4. Fertilizers not adsorbed by soil colloids may leach. Fertilizer types particular prone to leaching include nitrate types (sodium nitrate, calcium nitrate) and urea. Ammoniacal types (ammonium sulphate and ammonium chloride) adsorb onto soil colloids but have low nitrogen content and high production costs compared to other forms.

The TANAP project is best suited to combination fertilizer types, such as ammonium sulphate nitrate or calcium ammonium nitrate. Market conditions and local advice is crucial to selecting the type of fertilizer to be applied. Landowner requirements must also be taken

into consideration. Reinstatement practices may require adjustment if fertilizer application is to be effective.

Placement of Fertilizer

Problems can be avoided if fertilizer is mixed into the topsoil. This effect would be similar to injecting fertilizer into the soil, albeit its depth if broadcast would be deeper than injection as it is currently practiced. Indeed, in-depth placement or mixing may be the only practical way of applying urea if that is the only fertilizer available to the project. Advice from the Ministry of Agriculture should be sought.

7.6. Procedures to be Followed by FERNAS

Depending on the type of vegetation being reinstated, one or more of the following procedures for revegetation can be adopted:

- sowing of grass seeds - procedure ‘G1’;
- planting of shrubs / tree whips at 1m centers - procedure ‘P1’;
- planting shrubs/tree whips at 2m centers in a lunette (micro basin) - procedure ‘P2’.

The procedure for each of the above is described in “Specification for Reinstatement” document (WRP-SPC-EGG-PL6-001)

7.7. Reforestation

Forests reduce runoff due to the canopy cover to the soils, soil cover through fallen debris, and their beneficial effect on soil infiltration. They reduce erosion by the effects of plant roots binding soil particles together and of humus protecting the surface. Reforestation of the RoW with juvenile trees / saplings may be considered necessary wherever a forest existed before construction of the pipeline. This will be dependent on the judgement of the ecology specialist and with the EPCM approval, where the proposed planting regime (see Section 7.4 and Section 6) is considered unlikely to result in suitable long term ecological diversity. For the purposes of this specification a forest is defined in accordance with Article 1 of the Forest Law that states ‘trees and small trees, naturally or artificially grown, together with their surrounding area are considered as forest areas’. The reforestation strategy will be to successfully replace every tree felled during RoW clearance. The planting zones

along I proximity of the pipeline are given in Section 6. It is noted that the revegetation strategy in all sections of the ROW will be to reinstate the pre-construction vegetation in terms of both composition and density.

A 24 m working width is adopted in forest locations. A strip 8m wide above the pipeline is to remain fallow. Beyond this a 3m strip on either side is to be seeded; the outermost 4m on either side is reforested with trees if deemed necessary. See typical drawing WRP-DGA-PPL-PLG-006.

Two planting methods will be adopted (including for river bank reinstatement):

1. When trees from the RoW are less than 1 m high, they are to be carefully excavated, including roots, by an excavator. The earth and trees are then removed to a storage place where they are supplied with water. During reinstatement the same trees are replanted.

2. When trees on the RoW are higher than one metre and cannot be replanted, 3 year to 5 year old plants from plantations are reforested. Bailed or container plants are to be used and planted in a spacing of 2x2m for softwoods and 1.5 x 1.5m for hardwoods. In poor soils (as on tuff or sandstone) a dressing of fertilizer is to be placed in the planting hole.

Shrubs will be reforested with tree species as per the pre-works slope and adjacent slopes.

FERNAS will provide a detailed reforestation strategy as part of the Reinstatement Plan and Method Statements as required which specify in detail how the project objectives will be met. These documents will be submitted to EPCM in a timely manner for approval prior to clearance of the Right of Way. The following information should be included in the reforestation strategy:

- species to be used and where;
- specific planting methods;
- detailed requirements for fertilizer use;
- detailed requirements for aftercare and monitoring;
- and supervision of reforestation activities.

7.8. Protection of Planted Materials

In sections where livestock or wild animals may be present, precautions will be taken to protect theseeds and plants from damage. Some or all of the following techniques should be employed:

- security patrols and procedures;
- liaison and agreements with livestock managers;
- erection of stock-proof fencing (designed/installed to discourage theft), along the project area boundaries;
- supplement boundary fencing by internal area fencing to give double protection to particular areas;

7.9. Aftercare, Monitoring and Corrective Action

FERNAS will carry out the necessary aftercare (watering, further application of fertilizer, weed control, etc.) during the Contract maintenance period in order to meet the re-vegetation requirements.

Where necessary, FERNAS will provide and maintain appropriate fencing to prevent access by grazing animals and vehicles. Fences will be fitted with signs in Turkish indicating the purpose, i.e. the enclosure is a TANAP biorestoration project area and fencing is required for protection.

Appropriate levels of irrigation/watering will be provided for revegetated areas (See Section 6.7 of in “Specification for Reinstatement” document (WRP-SPC-EGG-PL6-001)). The quantity and timing will be dependent on local climatic conditions, soil type and species requirements. Although recommendations have been provided in this specification local advice should be sought where possible.

Reinstated slopes will be monitored for the condition of the engineering measures, such as slope breakers, and will be monitored for the effectiveness of the biological reinstatement.

- If seeding had been carried out in spring, first biological monitoring study should be conducted in May-June, and then every 3 months subsequently until the target cover is

achieved.

- If seeding had been carried out in summer, then the first monitoring study should be conducted in March to April, and then every 3 months subsequently until the target cover is achieved.
- If seeding had been carried out in autumn, first monitoring study should be conducted inApril-May which is the flowering period of the next year, and then every 3 months subsequently until the target cover is achieved.

If the percentage of the germination remained less than expected (see Section 7.2), then the seeds will be replanted in the next year. In this case, the same monitoring procedure is carried out in the next year. If after the first year the required vegetation cover was established monitoring will be reduced to annually, to take place in July-August until 5 years after the initial reinstatement. During this period reduction to the established cover will be addressed by further seeding, fertilizer application and watering.

Where shrubs and or trees have been included in the reinstatement these will be monitored on the same frequency as the rest of the seeded slope (as above). If during this monitoring it is observed that >30% of plants or trees have failed further planting will be undertaken, along with watering and use of fertilizer.

8. SPECIAL AREAS

The TANAP pipeline project contains topographical, geological and ecological features, which are characterized on the project as Special Areas, these require particular attention throughout construction and reinstatement.

Method statements for these areas will demonstrate sufficient awareness and intent to minimize construction impact. A high level of importance is attached to the satisfactory reinstatement of these areas, therefore an increased level of EPCM inspection, prior to acceptance, is planned. These Special Areas are as follows:

- side slopes;
- steep slopes;
- narrow ridges and areas prone to landslides

- ecological sensitive areas;
- karstic areas;
- volcanic tuff and marl;
- above ground installation sites.
- Areas of Contaminated Land

In addition to specialized construction techniques and increased levels of inspection, these areas are to be specifically considered by FERNAS during planning and project control. Consideration of schedule constraints within these areas (weather, planting seasons, animal breeding periods etc.) will be clearly identified by FERNAS on associated documents. Construction planning will achieve a 21-day period from the time when a Special Area is entered to the completion of reinstatement (to a level specified in EPCM approved Special Area Reinstatement Method Statement) unless otherwise approved by EPCM.

The general construction philosophy will address completion of these identified Special Areas with minimum delay. The back-end of the spread will follow directly behind the lowering-in crew. FERNAS will minimize the exposure of these areas to inclement weather.

FERNAS will provide suitably qualified and experienced specialists to assist in the reinstatement engineering and re-vegetation procedures and method statements for the entire route and with particular consideration of these Special Areas. Such specialists will include geotechnical engineers (and/or engineering geologists) and ecological specialists in relation to the reinstatement of critical habitats (as specified in the BAP), who work for in-country specialist organizations. EPCM may also provide specialists to oversee and audit these activities.

FERNAS will ensure that specialist subcontractors are appointed to provide both advice and specialist skills for reinstatement planning and execution in Special Areas.

8.1. Side Slopes and Spoils

The contour restoration strategy is to ‘contour blend’. The side slope cut will be restored, as far as practicable, to the original contours, so that the cut surface blends with the original contours through the implementation of engineered spoil management. The subsoil layers will be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account should subsoil extend beyond the original line of slope or a new slope be created that is steeper than the original slope.

Topsoil will be stripped from the area and stockpiled at designated spoil storage areas which will be subject to EPCM approval. Both the topsoil and subsoil will be stored separately. Both stockpiles will be consolidated and adequately drained. Drainage from the spoils will be provided and a safe outlet established. See Section 4.

On completion of all pipe installation, the subsoil will be replaced in layers. FERNAS will prove that the thickness of the layers, conditions of the soil and number of passes of the compactor will be sufficient to produce a density of 95%-105% of the highest compaction measured in the adjacent undisturbed area. In-situ and laboratory density testing will be carried out as required to confirm that the compaction requirements are met. In exceptional cases this may require compaction trials on request of the EPCM. Alternatively FERNAS may prove 95% of the maximum dry density at ± 2% optimum moisture content as determined by the standard Proctor test.

Compaction will be carried out in accordance with the Pipeline Construction Specification WRPSPC-PPL-PLG-001-P3-. Care will be taken when compacting above and surrounding any pipework or drainage to ensure the integrity of the pipe and adequate compaction is achieved.

Particular consideration should be given to the adequate drainage solutions and the appropriate ‘keying-in’ of the placed backfill material into the existing temporary cut slope in order to prevent any future slip surfaces along the boundary between newly placed and in-situ material. Final slope measures and reinstatement details will be subject to EPCM approval.

Following compaction of the subsoil, the topsoil will be spread over the site, harrowed and reseeded (refer to Section 4.4.4). Erosion mats will then be laid (refer to Section 4.6.2).
In the event that side cuts are to remain as a permanent restoration feature. FERNAS will prepare a methodology statement on the proposed works including (but not limited to) the degree of reinstatement, proposed drainage measures, process of slope inspections and programme of the works. The method statement will clearly state how the overall environmental project and stability requirements are adhered to.

FERNAS will carry out site inspections with EPCM in order to define required design measure to ensure long term stability of the slope and that the environmental requirements are met.

Adequate drainage will be applied to assure stability and controlled water runoff. Final cut slope angles will be defined based on ground conditions encountered. Final slope angles and stabilisation measures (such as geotechnical slope drainage, scaling, rock netting or catchment benches, crest drains etc.) will be proposed by FERNAS for EPCM pre-approval.

The reinstated condition of side slopes is not expected to have any significant inclination perpendicular to the pipeline, and only have a maximum slope length of the width of the RoW. Additionally drainage measures are typically implemented upslope of any sections of side slope the pipeline encounters. As such the anticipated slope erosion is considered minimal, and the prescribed mitigation measures for these lengths of pipe will be based on their downslope fall.

Where there is a cross-fall oblique to the pipeline resulting in an increase of slope angle (compared to the gradient parallel to the pipeline) the slope erosion measures as defined on the alignment sheets will be reviewed. For such slopes the FERNAS and EPCM representative will determine any additional mitigation measures on a site specific basis in order to ensure that the slope erosion requirements are met. The reinstatement solution will be based on the standard reinstatement approach, with breakers across the RoW. The slopes as described above will be identified in the field and details for soil erosion measures verified by the FERNAS subject to EPCM approval.

For the fully reinstated case (i.e. if the slope is reinstated to its original contours) the slope erosion will pose a negligible hazard to the pipeline due to the short distance of exposure of the pipe (main gravitational transport perpendicular to the pipe) and considerable cover depth. Final erosion measures will need to be determined on site during construction based on the slope geometry and materials placed.

8.2. Narrow Ridges and Areas Prone to Landsl ides

Along certain sections the pipeline route crosses hilly terrain and is routed along narrow ridges in order to avoid pre-existing landslides or potentially unstable ground which is typically on steep side slopes with backscarps reaching in some areas up close to the ridge line.

The construction in these areas will be carried out in accordance with the Construction Specification WRP – SPC – PPL – PLG - 001 and strategy set out in the Slope Assessment Report WRP-REP-EGG-PLG-010-P3-D. For the works in this area FERNAS will prepare a methodology statement subject to EPCM approval detailing how the project and stability requirements are met.

For certain areas along narrow ridges site specific designs and reinstatement requirements will be developed as set out in the AFC documents. For these cases the FERNAS will ensure that all site specific design requirements are met subject to EPCM approval.

FERNAS will assess and determine any requirements for additional earthworks and excavation. For any deviation from the overall project strategy to reinstate back to ‘original contours’ FERNAS will detail these proposed changes in a methodology statement subject to EPCM approval.

FERNAS will ensure that the following aspects are complied with:

The stability of the RoW will be proven following the clearance of the RoW and prior to construction works by geotechnical inspection by the FERNAS and EPCM. These stability inspections will carried out at regular intervals throughout the construction works and will focus on any signs of potential slope movement.

In sections where topography, geohazards (such as landslides) and proximity to 3rd party pipelines will require a reduced working width, FERNAS will propose an appropriate working method for these areas.

FERNAS will choose appropriate plant and assess stability of RoW taking into account effects of plant surcharge.

No side casting will be allowed without the approval of EPCM in order to minimise the width of the construction corridor and avoid surcharge and uncontrolled drainage into potentially unstable ground. Spoil storage areas are to be proposed by FERNAS for approval by EPCM to avoid any storage on potentially unstable ground and to prevent triggering ground movements.

Temporary and permanent surface water run-off should be carefully managed. Appropriate measures (such as appropriate falls, bunds, selection of outlet points from the RoW etc.) will be implemented in order to avoid ponding, seepage of water into RoW or uncontrolled run-off into potentially unstable ground.

In case of signs of instability (such as tension cracks, backscarp, seepage on the slope etc.), FERNAS will propose remedial measures (including dewatering, soil nail stabilisation, rock anchoring or preventing RoW from further inundation) subject to approval by EPCM.

8.3. Steep Slopes

Steep slopes are those slopes with inclination >15% and >20m slope length that are predicted to exceed soil loss tolerance rates as defined in this specification. The following factors should be considered when assessing the erosion potential of slopes:

- Rainfall Intensity. This parameter is a measure of the erosive force and intensity of the rain in a normal year. The rainfall intensity is based on rainfall records and probability statistics for risk evaluation. For the purpose of erosion assessment, the parameter is determined using a 1 hour 10 year return period storm.
- Soil Erodibility. This parameter is a measure of the susceptibility of a soil particle becoming detached and transported by rainfall runoff. Soil parameters, which control soil erodibility are soil texture, structure soil space, organic content and

hydraulic conductivity. Information from a particle size analysis (PSD) is used to estimate the soil erodibility using nomograms and correction factors.

- Slope Angle and Length. Erosion potential increases proportionally to increases in the length and angle of slope, simply because runoff flow rates increase with increasing gradient and slope length.
- Vegetation Cover. The effect of vegetative cover on soil loss is well researched. Bare soil represents high erodibility potential, whilst native vegetation can give maximum protection. Vegetation cover can be directly related to management options ie mulch, erosion control matting etc.
- Erosion Control Practice. Further practices that influence erosion potential are roughening of the soil surface by tractor treads, or by rough grading, raking or disking.
- Temperature. Temperature is another climatic factor affecting the potential for erosion to occur.Consolidation by freezing of exposed soils during winter months and accumulation of precipitation (snow) until periods of thaw, result in rapid melting and high levels of runoff. This situation exists in Central and Eastern Anatolia.

The Universal Soil Loss Equation used in the soil loss assessment predicts the long-term average annual rate of erosion on a slope based on rainfall intensity, soil type, topography, vegitation cover and management practices. This erosion model, originally developed to predict soil loss in agriculture, is also applicable to non-agricultural conditions such as construction sites. The USLE can be used to compare soil losses from a particular construction site with a specific management system to 'tolerable soil loss' rates.The equation is written as follows:

$$A = R \times K \times LS \times C \times P$$

Where, A is potential long-term average annual soil loss in tons per ton ha-1 y-1, R is rainfall and runoff factor by geographic location, K is soil erodibility factor, LS is slope length-gradient factor, C is vegetation and management factor, and P is support practice factor.

- The slope geometry has been considered using GIS assessment of the DEM data. This has been used to extract average slope length and angle data and develop the

slope length and steepness input parameter 'LS'.

- The soil erodibility factor 'K' has been assessed from erodibility mapping of Turkey. The mapping considers the possible soil composition and uses published relationships to generate a K value for each slope.
- The rainfall –runoff erosivity factor 'R' was assessed based on rainfall mapping for Turkey held by Ankara University.
- The cover management factor 'C' was selected for a backfilled trench situation assuming the surface would be rough
- The support practice factor 'P' is dependent on deliberate rutting of the slope surface and is more appropriate to maintained agricultural land. As such for this assessment no benefit from this parameter has been taken.

This methodology was used to determine the estimated removal rates and recommend appropriate mitigation measures required to meet the soil loss tolerance rates described in Section 3.5 of this document. The mitigation measures, both bioremedial and engineering, are provided on the alignment sheets (see Section 4.7). These require verification at each location by the FERNAS and the EPCM', through validation or updating of the design assumptions.

FERNAS will establish steep slope areas and provide procedures and methodology statements as part of the site-specific Special Area Reinstatement Method Statements for EPCM approval. The procedure will establish all planned temporary and permanent erosion measures in line with this specification and Project Drawings.

Construction in steep slope areas requires an increased awareness of safety and stability issues. FERNAS will utilise proven construction techniques specific to such areas. FERNAS will demonstrate that increased safety measures are planned and these measures are to be followed on site. An increased level of Safety Engineer presence will be required at these locations.

The requirement for temporary RoW erosion/stabilization techniques will be dependent upon the season. However FERNAS will be prepared to provide all resources necessary to avoid incipient soil erosion and stabilization issues, regardless of season, in order to be prepared for unforeseen inclement weather.

8.4. Critical Habitats

The Biodiversity Action Plan (BAP) identified 18 terrestrial and 8 freshwater critical habitats, ecologically sensitive areas with the presence of endangered or threatened species and their habitats, along the pipeline route. Refer to the BAP and KP Table for the BAP (CIN-REP-ENV-GEN-017) for the following information for each of the critical habitats:

- topsoil depth removal and storage for each critical habitat;
- species identification for seeds collection;
- translocation of plants and animals depending on a season;
- appropriate species for revegetation;
- planting methods;
- removal and replacement of turfs.

Table 8.1. List of Terrestrial and Freshwater Critical Habitats identified in the BAP (Route Rev H)

KP Start	KP End	ID	Type of Critical Habitat
3000	*3735*	*CH1*	*Terrestrial Habitat*
3940	4051	CH2	*Terrestrial Habitat*
20700	23000	CH3	*Terrestrial Habitat*
23670	27081	CH4	*Terrestrial Habitat*
62320	63140	CH5	*Terrestrial Habitat*
71710	71755	FCH1	*Freshwater Habitat*
84758	87000	CH6	*Terrestrial Habitat*
115393	116000	CH7	*Terrestrial Habitat*
116069	116637	CH8	*Terrestrial Habitat*
164345	164566	CH9	*Terrestrial Habitat*
166450	166571	FCH2	*Freshwater Habitat*
167000	167154	CH10	*Terrestrial Habitat*
169000	174000	CH11	*Terrestrial Habitat*
174412	176000	CH12	*Terrestrial Habitat*
187557	193000	CH13	*Terrestrial Habitat*
202930	203709	CH14	*Terrestrial Habitat*
214885	219641	CH15	*Terrestrial Habitat*

220177	220211	FCH3	*Freshwater Habitat*
232172	232787	CH16	*Terrestrial Habitat*
269680	269696	FCH4	*Freshwater Habitat*
280401	280414	FCH5	*Freshwater Habitat*
306365	312319	CH17	*Terrestrial Habitat*
332830	332845	FCH6	*Freshwater Habitat*
353584	353613	FCH7	*Freshwater Habitat*
369037	369126	CH18	*Terrestrial Habitat*
372760	372903	FCH8	*Freshwater Habitat*

FERNAS will provide site specific Reinstatement Management Plans that will further develop and clearly specify the means by which the measures committed to in the BAP and in this specification will be implemented in relation to their scope of work, including pre-construction measures, (i.e. seeds collection, plants translocation) topsoil removal and storage and reinstatement measures. See Pipeline Construction Specification.

8.5. Karstic Areas

Karst is the topography that develops in soluble rocks in which fissures may be enlarged (ultimately to form caves) by flowing groundwater. This may occur in areas of gypsum and limestone bedrock. Gypsum is more soluble than limestone, therefore karstic areas develop relatively rapidly in areas of gypsum (see Section 5 of the ESIA for further information).

Restoration in the karstic areas will proceed as follows:

- soils from the dolines will be stockpiled separately;
- mixing of the doline soil and the ridge material is prohibited, unless agreed with the Client;
- continuous environmental inspection will follow construction;
- excess rock material from ridges will be disposed of in accordance with the project Waste Management Plan;
- spreading of rock is prohibited, unless agreed with the Client;
- discovery of subsurface voids (greater than 50mm in plan dimension) during construction will be reported to EPCM, measures detailed on the IAAC alignment sheets and drawing WRPDGA-EGG-PLG-001 will be applied,

alternative remediation of voids may be used if agreed with EPCM and Client.

Temporary and permanent erosion measures will be employed in accordance with the requirements of this specification and Project Drawings. FERNAS will employ trench filtration and drainage control measures as necessary to ensure that suffosion (transport of soil from the trench and from subsoil beneath the trench into karstic voids) does not occur during the design life of the pipeline.

Drainage plans in karstic areas will be submitted to the EPCM for approval prior to construction. Plans should consider special requirements described in WRP-TNO-EGG-PLG-001 (Technical Note for Design of Pipelines in Karst). At the least, FERNAS drainage plans will consider:

- preventing the pipeline becoming a new drainage conduit
- preventing loss of pipe backfill into karst fissures
- preventing loss of pipe backfill into karst fissures
- maximizing the use of existing natural drainage (i.e., sink holes >20m from the pipeline alignment) in a controlled manner.

FERNAS will follow particular requirements for drainage control as noted on AFC alignment drawings and DGA-EGG-PLG-001.

8.6. Erodible Soils, Volcanic Tuff and Marls

Specific care is required for the reinstatement of areas underlain by volcanic tuff or marls in particular to ensure the re-establishment of a natural vegetation following the construction works due their thin topsoil cover.

Similar issues regarding the reinstatement may arise in other areas of highly erodible soils and soils with thin topsoil or other site specific ramifications. The FERNAS's Soils Specialist will identify these areas during the clearance of the RoW and give advice on any additional measures as required. The specific examples of Volcanic Tuff and Marls are outlined below which should be applicable to any other soil reinstatement as deemed

necessary by the FERNAS's Soils Specialist an as agreed with the EPCM representative.

Details are given in "Specification for Reinstatament" document no. WRP-SPC-EGG-PLG-001.

8.7. Areas of Contaminated Land

The remediation of contaminated land is not covered by this specification and reference should be made to Contract Documents.

Any materials encountered during the works, which show unusual colouring, texture, and / or odour, will be stored separately and labelled as potentially contaminated materials. All suspected or confirmed materials will not be reused within the works unless contamination testing indicates the materials are suitable for use in accordance with the agreed limits of the USEPA guidance and Dutch Standards for soil contamination for the identified land use locally required.

Temporary stockpiling of potentially contaminated materials will be within an impermeable bunded and lined area, greater than 750 m from any environmentally sensitive receptor.

9. REINSTATEMENT OF LAND OTHER THAN TANAP RoW

9.1. Land at Construction Support Facilities

The following requirements apply to all construction support facilities such as construction camps, pipe yards etc. They do not apply to permanent facilities such as AGIs. The fate of construction support facilities is to be agreed with EPCM before starting any activity connected with reinstatement.

Reinstatement of the land will commence immediately on removal of each individual facility. The reinstated condition will be to a condition at least as good as that prevailing before establishment of the facilities, depending on the post construction landuse and Project's access agreement.

Construction support facilities will be avoided in Special Areas (see Section 8). Should this become unavoidable prior approval of EPCM is required. FERNAS will prepare all

necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority.

FERNAS will reinstate the area to the satisfaction of EPCM, the regulatory authority or landowner and will obtain written approval from EPCM, the appropriate regulatory authority or the landowner of the level of reinstatement. Notwithstanding such approval, all reinstatement will be to the satisfaction of EPCM. FERNAS's photographs of the condition of the area prior to construction may be used for reference.

There will be no waste remaining after removal of the facility and upon return of the site to the landowner. Except for new roads, facilities will be removed and the land restored so that it is suitable for its original function. New roads will be handed over as part of the completed project with shoulders finished in keeping with the local environment. Excess rock or stumps may only be left with the agreement of the landowner. Any new roads, not appreciated by EPCM and/or relevant stake holders, will be dismantled and the area will be reinstated to the required conditions.

9.2. Permanent Above-Ground Installations (AGIs)

All permanent aboveground installations are to be reinstated in accordance with the Project Drawings and specifications.

FERNAS will reinstate the area surrounding AGIs to the satisfaction of EPCM and the appropriate authority or landowner and will obtain written approval from EPCM and the appropriate regulatory authority or the landowner of the level of reinstatement. Notwithstanding other such approvals, all reinstatement will be to the satisfaction of EPCM. FERNAS's photographs of the condition of the area prior to construction may be used for reference.

Measures that will be adopted to minimize the visual impacts of the permanent buildings and facilities at AGI sites include the following:

- landscape planting within the site boundary where appropriate;
- opportunities to retain existing landform screening will be maximized, i.e. site levelling will be avoided, if possible, if existing hollows or mounds may be used to

integrate built features within the landform;

- new landform screening (e.g. bunds and mounds) will be introduced where this might complement the existing landform character;
- the use of appropriate colour schemes to minimise the visual impact of buildings;
- external lighting will be minimized to that necessary for safety and operational purposes and downward facing lighting and lighting of the same colour will be used to minimise spill and offsite impacts.

FERNAS's site-specific Reinstatement Method Statements for AGI sites will address the following:

- maximising opportunities to retain existing landform screening, i.e. site levelling will be avoided, if possible, if existing hollows or mounds may be used to integrate built features within the landform;
- new landform screening (e.g. bunds and mounds) will be introduced where this might complement the existing landform character.

9.3. Spoil and Excess Rock/Stump Disposal Sites

FERNAS will close, cap, and landscape all (except as otherwise agreed with EPCM) excess rock/stump disposal sites by the completion of the Contract. Sites will be dealt with in accordance with the relevant project requirements. FERNAS will develop site-specific plans that are to be approved by EPCM. Biorestoration, where appropriate will be carried out in accordance with requirements defined in Section 6 and EPCM approved Special Area Reinstatement Method Statements.

Spoil and excess rock/stump disposal sites will be avoided in ecologically sensitive areas. Should this become unavoidable, prior approval of EPCM is required. FERNAS will prepare all necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority.

The excess rock/stump material will be compacted to a minimum of 75% of the Proctor value; the surface will be landscaped to resemble local conditions and will not extend more than 2 m in height above the natural contour; the slopes of the surface will not exceed 60°. The site will be covered with soil and an erosion mat and planted with appropriate species.

9.4. Existing Roads and Access

FERNAS will exercise care when using both public and private roads for travelling to and from the TANAP RoW and will upgrade and maintain roads during the works as necessary for safe operations. No side casting will be allowed unless otherwise instructed by EPCM.

The reinstatement of roads will be to their original upgraded condition or better following completion of construction activities.

FERNAS will provide for such work all hard-core, tarmac, asphalt, and other materials as required.

Details of the requirements for the use and construction of existing roads and access Roads are set out in the Pipeline Construction Specification.

9.5. Quarries

FERNAS will ensure that all borrow material will only be sourced from (both existing and new) licensed and authorized sites or sources. Where new quarries need to be opened FERNAS will obtain the necessary permits and licenses and conduct any necessary environmental impact assessments.

Reinstatement of the quarries will be carried out to the satisfaction of the respective landowners and local authorities.

For the general selection and approval process for quarries the Pipeline River Crossing Civil Protection Works Specification WRP-SPC-PPL-PLG-030 should be referred to.

9.6. Areas of Contaminated Land

The remediation of contaminated land is not covered by this specification and reference should be made to the Contract Documents.

Any area of the pipeline corridor in which material excavated is not suitable to be reused will be reinstated with suitable material in accordance with the agreed limits of the USEPA

guidance and Dutch Standards for soil contamination for the identified land use locally required.

10. RESTRICTING ACCESS

In order to prevent rutting, subsequent erosion problems, and damage to riparian areas, measures should be taken to prevent unauthorized use of the TANAP RoW as a roadway. Access should be blocked, at locations specified by EPCM representatives, through the construction of barrier berms of sufficient height (minimum 1.5 m high) to provide a barrier to vehicles. Where possible, the berms should be tied to vegetation or rocks adjacent to the RoW to prevent traffic from circumventing the barrier. Rocks excavated during construction, 0.3 m in diameter or larger, may be used instead of the earthen berms. Timber cleared during the construction may also be staggered across the RoW so as to deter off-road vehicle use.

11. HANDOVER AND POST-CONSTRUCTION MAINTENANCE

FERNAS will obtain sign-off of the pre-entry form from the landowner agreeing on the standard of reinstatement. FERNAS will notify EPCM prior to such meetings and allow for EPCM attendance/monitoring. FERNAS will not attend such meetings without EPCM presence unless agreed in writing by EPCM.

FERNAS, upon completion of reinstatement, will accompany EPCM on an inspection of all project areas, before demobilizing from site. EPCM will notify FERNAS of any insufficiencies in the reinstatement of the TANAP ROW / project areas. FERNAS will carry out any further reinstatement to the satisfaction of EPCM.

During the contract maintenance period, FERNAS will be responsible for maintaining the standard of reinstatement and for ensuring that the Civil Protection Works remain effective and in good condition, and that the stated erosion class and biorestoration requirements are met. As a minimum FERNAS will carry out inspections every three months and immediately after any significant rainfall event (1 in 2year return period) and snow melt and implement corrective measures as required to the satisfaction of EPCM.

12. POST CONSTRUCTION ACTIVITIES

12.1. Restricting Access

In order to prevent rutting, subsequent erosion problems, and damage to riparian areas, unauthorized use of the construction corridor as a roadway will be prevented. Access should be blocked at locations specified by EPCM representatives, through the construction of barrier berms of sufficient height (minimum 1.5m high) to provide a barrier to vehicles. Warning tapes/berms should be tied to vegetation or rocks adjacent to the pipeline corridor to prevent traffic. Rocks excavated during construction, may be used instead of the earthen berms. Timber cleared during the construction can also be staggered across the pipeline corridor so as to deter off-road vehicle use.

12.2. Handover and Post-Construction Maintenance

FERNAS will carry out the required aftercare (watering, further application of fertilizers, etc.) for successful re-vegetation and monitor the progress of bio-restoration and the records will be kept by filling out the Reinstatement Register (see Appendix 3).

FERNAS will obtain sign-off of the pre-entry form from the landowner agreeing on the standard of reinstatement.

FERNAS, upon completion of reinstatement, will accompany EPCM on an inspection of all project areas, before demobilizing from site. EPCM will notify the FERNAS of any insufficiencies in the reinstatement of the construction corridor/ project areas. FERNAS will carry out any further reinstatement to the approval of EPCM.

During the contract maintenance period to be defined by TANAP, FERNAS will be responsible for maintaining the standard of reinstatement and for ensuring that the stated erosion class and bio- restoration requirements are met. As a minimum, FERNAS will carry out inspections every three months and immediately after any significant rainfall and snow melt and implement corrective measures as required to the satisfaction of EPCM.

Before termination of maintenance period, final reinstatement inspection will be carried out and the required corrective measures will be encouraged until the reinstatement measures

satisfy the project requirements. Upon the final approval of reinstatement studies, the future management of the reinstatement program and maintenance activities will be under the responsibility of TANAP.

13. TRAINING

All workers to be employed for the erosion control, reinstatement and landscaping related works will receive the compulsory specific environmental trainings and will not start working before completing induction training. The induction training, which is required for all employees working on RoW, will be about performing work activities in a manner consistent with environmental permits, site specific conditions, and best practices for the environmental monitoring, waste management, reinstatement including the erosion control devices, pollution prevention, spill response, cultural heritage. The topics of the specific environmental trainings will be reinstatement, waste management, water and soil management, air quality management; cultural heritage management, traffic management, noise and vibration management, aggregate management and biodiversity action plan (pls. see FERNAS Environmental and Social Training Plan (FRN-PLN-ENV-PL1-017) for further detail). Training will be given by FERNAS Environmental Inspector and Biologist.

14. MONITORING

FERNAS will be responsible for continuous monitoring of all reinstatement related works to be performed by the workers and its sub-contractors throughout all construction works. Monitoring will comply with FERNAS's Environmental and Social Monitoring Plan (FRN-PLN-ENV-PL1-011).

Site activities will be monitored and supervised by Environmental Inspectors of FERNAS and EPCM for their performance in the implementation of this ERLP. EPCM will give the final approval prior to handover of work by FERNAS. Subsequent to the final approval of reinstatement works, the future management of the reinstatement program and maintenance activities will be under the responsibility of TANAP.

FERNAS Environmental Inspector, Soil Expertand Biologist will monitor,

- The implementation of mitigation measures,
- The implementation of corrective actions,
- Erosion control methods,
- The slope stability
- Topsoil stripping, storage and reinstatement applications,
- Subsoil removal, storage and reinstatement applications,
- The success of the Bio-restoration and Reinstatement.

15. REPORTING

Topsoil Stripping Register, Off-Row Aggregate Consumption Register, Reinstatement Register and Tree Cutting Registers will be filled out for each specified activity and kept as records. Special Area Reinstatement Method Statement (SARMS) will be prepared for each special area and will be subject to the approval of EPCM before put into practice. SARMS will give information on the topography, land use, soil characteristics, etc. of the special area and also its ecological characteristic including the species of the site, the related mitigation measures including topsoil management, seed collection, etc., restoration of the habitat, recommendation of a follow-up monitoring program, etc.

The progress of the reinstatement works will be presented by FERNAS in the monthly Report to be prepared in the scope of Environmental and Social Monitoring Plan (FRN-PLN-ENV-PL 1-011), together with the filled-out registers. Moreover, any incident and/or non-conformance, which results in environmental/social impact, will be immediately communicated to the EPCM via verbal notification and the relevant registers will be filled out as soon as practical (not later than 24 hours).

Before termination of maintenance period, final reinstatement inspection will be carried out and the required corrective measures will be encouraged until the reinstatement measures satisfy the project requirements. Upon the final approval of reinstatement studies, the future management of the reinstatement program and maintenance activities will be under the responsibility of TANAP.

16. APPENDICES

16.1. Appendix 1- TOPSOIL STRIPPING REGISTERS

KP Start	KP End	Depth of the Topsoil Stripped	Where Topsoil is Stripped? (riverbank, potential erosion area, etc.)	Labelling of Topsoil Piles (Yes / No)	Implementation of Required Conditions for Topsoil Piles (Yes / No)	Comments	Name of Environment Inspector

16.2. Appendix 2 - SENSITIVE AREAS REGISTER

SENSITIVE AREA REGISTER																										
LOT 1																										
TERRESTRIAL CRITICAL HABITATS																										
KP Start (Rev H)	**KP End**	**ID**	**Was the no-construction time frame enforced? (if required)**	**Which seeds where collected?**	**Date seeds where collected**	**Amount of seeds collected**	**Seeds storage location**	**Date seeds where planted on RoW**	**Location where seeds were replanted**	**Which plants/bulbs were collected**	**Date plants/bulbs were collected**	**How many plants/bulbs were collected**	**Plants/bulbs storage location**	**Date plants/bulbs replanted on RoW During restoration**	**How many plants/bulbs replanted on RoW Durin**	**Location where plants/bulbs were replanted**	**Date Herbaceous planted where on RoW**	**Storage location of herbaceous plants collected**	**Date which herbaceous plants were laid on RoW durig restoration**	**Date topsoil was stripped**	**Date topsoil was reinstated**	**Date when rock were collected (30cm or larger)**	**Rock storage location**	**Date rocks were relocated on RoW**	**Invasive flora species control**	**Terracing during reinstatement to prevent erosion**
003+000	003+735	CH1																								
003+940	004+051	CH2																								
20+700	23+000	CH3																								
23+670	27+081	CH4																								
62+320	63+140	CH5																								
84+758	87+000	CH6																								
115+393	116+000	CH7																								
116+069	116+637	CH8																								
164+345	164+566	CH9																								
167+000	167+154	CH10																								
169+000	174+000	CH11																								
174+412	176+000	CH12																								
187+557	193+000	CH13																								
202+930	203+709	CH14																								
214+885	219+64	CH15																								
232+172	232+787	CH16																								
306+365	312+319	CH17																								
369+037	369+12	CH18																								

385+169	390+000	CH19																							

FRESHWATER CRITICAL HABITATS													
KP Start	**KP End**	**ID**	**Was the no-construction time frame enforced? (if required)**	**Started date of crossing (when banks are being topsoiled/graded)**	**End of crossing (when final reinstatement completed)**	**Control of sediment release**	**Minimize erosion, sedimentation and impact to riparian vegetation**	**Avoid impact and removal of gravel**	**Date erosion and sediment controls in place**	**Restoration of channel bottom**	**Restoration of riparian area (contours and vegetation)**	**Water protection zone marked/flagged? (30cm buffer zone on either side of crossing)**	**Water sample taken upstream/downstream? Prior/during/ post construction**
71+710	71+755	**FCH1**											
166+450	166+571	**FCH2**											
220+177	220+211	**FCH3**											
269+680	269+696	**FCH4**											
280+401	280+414	**FCH5**											
332+830	332+845	**FCH6**											
353+584	353+613	**FCH7**											
372+760	372+903	**FCH8**											

16.3. Appendix 3 - REINSTATEMENT REGISTER

REINSTATEMENT REGISTER
SPREAD 1

KP Start	KP End	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

REINSTATEMENT REGISTER
SPREAD 2

KP Start	KP End	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

16.4. Appendix 4- TREE CUTTING REGISTER

TREE CUTTING REGISTER						
SPREAD 1						
KP	**Number of Trees**	**Tree/Shrub Species (Latin/English)**	**Photo**	**Cutting or Relocation Date (C for cutting RL for relocating)**	**Remarks**	

TREE CUTTING REGISTER						
SPREAD 2						
KP	**Number of Trees**	**Tree/Shrub Species (Latin/English)**	**Photo**	**Cutting or Relocation Date (C for cutting RL for relocating)**	**Remarks**	

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TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	SYA-PLN-ENV-GEN-007	REV	STATUS
		P4-0	IAAC
Document Title :	Erosion Control, Reinstatement & Landscaping Plan		
Tag Nos.			
Contractor :	SYA - Sicim-Yuksel-Akkord JV		
Contractor Document No.		REV	

		Signature	Date
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Work may proceed.		
	C2- Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Work may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Work shall NOT proceed.		
	C4- Review not required. Resubmit for information only rev P4-0 - IFI. Work may proceed.		

Remarks:

Prepared by:

On behalf of:

SICIM-YUKSEL-AKKORD JV

TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT – LOT 2

TANAP

WorleyParsons resources & energy

EROSION CONTROL, REINSTATEMENT AND LANDSCAPING PLAN

Rev.	Status	Date (dd/mm/aa)	Document status Description	Issued by	Checked by	Approved by	TANAP Approval
P4-A	DIC	14/03/15	Discipline Internal Check	ARAO	KURV	TENP	
P4-B	IDC	16/03/15	Inter Discipline Check	ARAO	KURV	TENP	
P4-C	IFR	15/04/15	Issued for Review	ARAO	KURV	TENP	
P4-D	Re-IFR	08/05/15	Re-Issued for Review	ARAO	KURV	TENP	
P4-0	IAAC	25/05/2015	Issued as Approved for Construction	ARAO	KURV	TENP	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	14/03/15	Discipline Internal Check
P4-B	IDC	16/03/15	Inter Discipline Check
P4-C	IFR	15/04/15	Issued for Review
P4-D	Re-IFR	11/05/15	Re-Issued for Review
P4-0	IAAC	25/05/2015	Issued as Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

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Appendix-7: Non-Conformance Report Register and Incident Register

LIST OF TABLES

LIST OF PHOTOGRAPHS

LIST OF ABBREVIATIONS

AGI	Above ground installations
BAP	Biodiversity Action Plan
BVS	Block valve stations
CH	Critical Habitat
CST	Compressor station
e.g.	such as
ERLP	Erosion Control, Reinstatement and Landscaping Plan
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management System
etc.	etcetera
IFC	International Finance Corporation
ISO	International Organization for Standardization
KP	Kilometre Point
OHSAS	Occupational Health & Safety Advisory Services
RoW	Right of Way
RVX	River crossings
SYA	Sicim-Yüksel-Akkord JV
WHO	World Health Organization
TANAP	Trans Anatolian Natural Gas Pipeline Project

LIST OF DEFINITIONS

EPCM	Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi

1. PURPOSE AND SCOPE

The aim of Erosion Control, Reinstatement and Landscaping Plan (ERLP) is to comprehensively present the requirements for the reinstatement of the areas to be damaged due to the impacts of the land preparation and construction phases of the project. Moreover, the plan establishes the minimum requirements for temporary and permanent erosion control and taking the related measures and revegetation (bio-restoration).

The provisions in this plan are applicable for the temporary used areas such as construction corridor, access roads, pipe lay down areas, construction camp sites, other additional lands utilized during the construction of the project, besides for the permanent facilities such as above ground installations (AGI).

The main objective of the activities presented in ERLP is the return of the site disturbed during the pipeline construction to a land capability equivalent to the pre-used land capability by means of relaying and preparation of the soil material and revegetation of protective vegetation. The targets of these activities that are under the responsibility of SYA are summarized as follows:

- Management of surplus soil and rocks,
- Preserving seed bank through topsoil,
- Re-laying the topsoil to its original location and the subsoil,
- Temporary measures to minimise erosion and maximize sediment control during construction,
- Permanent erosion control berms, drainage for long term stability against erosion,
- Retaining the hydrologic regime as before and reinstatement of the natural drainage of the site,
- Restoration of the land to the original contours or maintaining a landscape visually compliant to the adjacent landscape,
- Restoration of the impacted habitats and ecological processes to their original state where it is technically applicable,
- Re-vegetation of sites with appropriate native plant types; re-seeding,
- Prevention of forbidden or dense access to the areas that cannot be accessed before via removal of the temporary construction roads,
- Utilization of engineering solutions and bioengineering techniques to attain the best environmental outcomes.

2. LEGISLATION FRAMEWORK

All activities in the management and monitoring plans will comply with the Environmental and Social Management System (ESMS) of TANAP Project that aligns with:

- TANAP's environmental and social management policies;
- National statutory and regulatory requirements;
- International Organization for Standardization (ISO) 14001:2004 Environmental Management System Standard;
- ISO 9001: Quality Management Systems;
- OHSAS 18001: Occupational Health and Safety Management System;

All requirements/ mitigations/ commitments stipulated in TANAP Project's Environmental and Social Impact Assessment Report.

2.1. TANAP Environmental and Social Management Policies

Sicim-Yüksel-Akkord JV (SYA) recognises that it has the responsibility to ensure that all the potential adverse impacts on the environment associated with the Project are either avoided or appropriately mitigated through the implementation of good environmental management practices.

Accordingly, all work shall be conducted in compliance with applicable environmental laws and regulations as well as the standards and best-practices, which support the protection, preservation and enhancement of the environment.

All project personnel employed by SYA shall be individually and collectively responsible for adherence to, and effective application of the ESIA.

3. ROLES AND RESPONSIBILITIES

SYA is responsible for the preparation of Erosion Control, Reinstatement and Landscaping Plan (ERLP) that is prepared in compliance with the principles, guidelines and standards included in the following documents and also TANAP procedures and commitments included in Environmental and Social Impact Assessment (ESIA) Report and the registers presented in its appendices for the site specific details and measures.

- WRP-SPC-EGG-PLG-001 P4.0: Specification for Reinstatement
- TNP-TDT-ENV-GEN-001: KP Table for Biodiversity Action Plan

SYA will be responsible for the implementation of all reinstatement works in accordance with the requirements of this ERLP, project specific plans and procedures of their own, commitments stated in the ESIA and to the satisfaction of on-site EPCM Environmental Inspectors.

SYA will also be responsible for the training and performance of all sub-contractors with respect to the ERLP and shall comply with all relevant project standards, statutory requirements, permit and licence conditions and secure all applicable permits and licences.

SYA will prepare site specific method statements for specific activities relevant to the reinstatement including but not limited to the following and submit to EPCM for approval;

- Installation of Soil Erosion Protection (including trench and slope breakers and outlets, erosion matting, crushed rock, lined chutes, riprap, gabions and gully remediation measures),
- Topsoil Removal and Storage,
- Subsoil Removal ad Storage,
- Trench Excavation and Padding,
- Reinstatement of Soils,
- Reinstatement of Side Slopes and Steep Slopes,
- Reinstatement of Narrow Ridges,
- Reinstatement of Topsoil,
- Erosion and Sediment Control (including silt fences, straw bale barriers, wooden fences any other sediment interception),
- Water disposal,
- Biorestoration including detailed scheduling, plant species protection of plant materials, aftercare, monitoring and corrective action,
- Reinstatement in karstic areas,
- Reinstatement in areas of thin topsoil cover,
- Reinstatement of land other than TANAP ROW (including AGIs, construction support facilities, spoil disposal sites, access and existing roads).

SYA will conduct pre-construction surveys along the Right of Way (RoW) to facilitate the development of site-specific reinstatement method statements for all special areas, by using specialist sub-contractors, who are to provide expert advice, particularly for erosion and sediment control and seeding and planting of indigenous vegetation.

SYA's Environmental Manager will be responsible for the development and oversight of reinstatement activities; while SYA's Reinstatement Team to be appointed for each spread will be responsible for the supervision of the pre-construction and construction works in line with the erosion control, landscaping and reinstatement requirements and the technical design of the erosion control measures, reinstatement and landscaping program. The Reinstatement Team will be comprised of Soil Specialist and Biologists. The team will be supported by the SYA's Environmental Inspector, who will monitor the activities performed by the Reinstatement Team on behalf of Environment Manager.

SYA will maintain the integrity of the pipeline route during the reinstatement activities after construction. Moreover, all temporary and permanent erosion measures will be carried out by SYA.

EPCM will investigate the performance of SYA on the reinstatement activities and will give the final approval and consent for the reinstatement works prior to handover of work by SYA.

4. ACTIVITIES ON SITE

The project pipeline route shall be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of soil is essential to achieve this objective.

General reinstatement shall achieve:

- Final surface up to 100 mm above level of undisturbed adjacent ground and blended to the existing contours (excluding trench berm).
- Final re-planting. Planting within pipeline final corridor to be approved by EPCM.
- In barren areas, a semi- natural appearance is required: rocks or processed rock may be distributed over the final surface provided the particle size distribution is similar to that of adjacent undisturbed rocks.
- Erosion control measures (if any) may remain visible.

Upon completion of reinstatement, disturbed areas shall be inspected by EPCM for slope stability, relief, topographic diversity, acceptable surface water drainage capabilities and compaction and shall be approved by EPCM if deemed adequate. The issues stated in “Pipeline Construction Specification (WRP-SPC-PPL-PLG-001)” shall be considered.

4.1. Topsoil Removal and Storage

Topsoil is to be the uppermost layer of the soil profile, where the bulk of the rooting zone is located. Compared to subsoil materials, healthy topsoil has a higher organic matter content and more nutrients. Topsoil also acts as a seed bank, which is often an important source for revegetation with native species. Moreover, it is vital to both bio-restoration work and erosion control.

The depth of the topsoil shall be established by SYA along the TANAP RoW. As per the “Specification for Reinstatement (WRP-SPC-EGG-PLG-001)”, procedures shall be developed by SYA for topsoil stripping in advance of all work fronts. Work shall not commence until EPCM approval. The topsoil shall be carefully stripped to its full depth if it is less than 300 mm thick. The depth of topsoil stripping is between 100 mm and up to a maximum of 300 mm, depending on the existing vegetative soil depth over the full working corridor and extra working areas, except for the area to be used for stacking topsoil. In the areas where little or no topsoil is present, SYA shall agree the depth (if any) of topsoil to be stripped with the EPCM environmental inspector. Topsoil shall be stacked separately. Isolated piles of topsoil shall be clearly signed as Topsoil in Turkish and English. The information on where the topsoil is stripped including the KPs and the environment will be recorded for each spread in Topsoil Stripping Register presented in Appendix-1. SYA’s Reinstatement Team shall also keep and maintain records of the depths stripped by the use of Topsoil Stripping Register.

In line with the on-site observation of SYA’s Reinstatement Team, the amount of flints will be assessed and if it is decided that excessive flints are present within the topsoil, the topsoil shall be stripped in two separate layers and subsequently maintained in separate stacks. This two layer stripping

will also be recorded in the Topsoil Stripping Register. Topsoil replacement in this case will be returned in separate layers.

Stripped topsoil shall be stacked on the opposite side of the construction corridor to subsoil and shall not be mixed with the subsoil. Topsoil stacks shall be drained with open ditches. The height of the topsoil stockpile will be 2 m at maximum with side slopes <45º in order to prevent anaerobic conditions. In critical habitats, topsoil pile height will be limited to 1 m. In order for the stripped topsoil to be kept free from the passage of vehicles and plant, gaps shall be left in the topsoil heap and thus, the topsoil shall not be compressed by the vehicles and machinery. The topsoil shall be stored where it will not be compacted by vehicles or contaminated and shall be stored in a manner that will minimise its loss and/or degradation.

Topsoil shall not be stored within 5 m distance of a ditch or watercourse stream crossing.

The surface of the stockpile shall be lightly compacted to reduce rainfall penetration but not enough to promote anaerobic conditions. Topsoil stockpiles shall be turned over every 2 months to re-oxygenate and avoid development of anaerobic conditions. In areas of very limited working space, topsoil stockpiles of up to 3m high and <45º slope may be permitted with EPCM's approval. Where necessary, the stockpile shall be protected from flooding by placing erosion and sediment control devices around the outside. Under no circumstances shall topsoil be used as padding material or other purposes. In critical habitats topsoil must be replaced as soon as possible after the removal (refer to BAP).

A watching brief will be maintained during all excavation works for potentially contaminated soils / materials.

Where the risk of severe damage to soil structure is high due to high moisture content, topsoil stripping operations shall be delayed until the convenient dryness level is maintained.

SYA shall maintain the integrity of the topsoil stack throughout the storage by the application of the above given measures and necessary drainage and erosion control measures will be taken.

4.2. Subsoil Removal and Storage

The subsoil will be excavated from the pipe trench and, in some cases, from ridge-top widening or cutting of benches on sides of slopes and shall be stored as separate stacks. Under no condition shall subsoil be mixed with topsoil. The subsoil shall be stored on the opposite side of the pipeline corridor to topsoil; other than in restricted areas where mixing will be prevented by physical means, e.g. geotextile sheeting.

Removed subsoil shall be kept free from the passage of vehicles and plant. Subsoil stacks shall be placed to ensure that they are free draining. Gaps shall be left in the stack to permit reasonable access across the construction corridor and at low areas where surface water may be held against the stack.

The surface of the stockpile shall be lightly compacted to reduce rainfall penetration but not enough to promote anaerobic conditions. Where necessary, the stockpile shall be protected from flooding by placing berms/barriers around the outside.

SYA shall maintain the integrity of the subsoil stack throughout the storage by the application of the above given measures and necessary drainage and erosion control measures will be taken.

A watching brief will be maintained during all excavation works for potentially contaminated soils / materials.

4.3. Trench Excavation and Pipeline Padding

Excavated Material

The creation of surplus excavated material shall be minimised as far as practicable since it is significant in terms of waste management. All material that is excavated shall be re-used to the maximum extent practicable. SYA shall produce a waste minimization statement justifying the extent to which surplus material shall be minimised and reuse maximised.

Blasting

Blasting will only be used where other excavation methods are considered technically infeasible or uneconomic, and it shall be demonstrated in a way that the blasting will minimise over-break of ground and minimise the generation of spoil material. Special reports related to the sections where blasting will be performed shall be prepared including the information such as blasting methodology on section basis, all blasting related calculations (vibration, dust, noise, etc.), and upon the approval of EPCM, the activity shall be performed in accordance with Pipeline Construction Specification (WRP-SPC-PPL-PLG-001) and Specification for Blasting (BCH-SPC-PPL-PLG-012) following the approval of related Provincial Directorate of Environment and Urbanization and Special Provincial Administration.

Backfill and Bedding

Bedding is required in areas where the stones and other materials inside the pipeline trench can damage the coating of the pipe and the surrounding soil is not convenient for bedding. When the surrounding soil is considered unsuitable for bedding, the bedding material shall be imported by the SYA upon approval of EPCM. Imported material used for bedding shall be sand and shall be salt free (to be verified by sampling and analysis before selecting the material quarry) and shall not contain clay, roots, stones or other material which is likely to cause damage to the pipe coating.

The excavated material shall be graded by crushing as required and returned to the pipeline trench in layers not exceeding 250 mm and compacted. If stored backfill material is excessively wet, it shall not be used until dried out.

In the event that the excavated material cannot be used, the required backfill material shall be imported. The material shall be either granular or cohesive and be free from any material or chemicals which may be detrimental to the integrity of the pipeline or incompatible with the native soil conditions.

The material shall be supplied only from licensed and authorized sites or sources (existing or new) and all imported material from these facilities will be recorded in Off-Row Aggregate Consumption Register (see Appendix-2). The list of quarries along the pipeline corridor is provided in Appendix 5.6 of ESIA Report.

The borrow material shall not be provided from riverbeds.

Beddding and backfill operations shall be performed in in accordance with Pipeline Construction Specification (WRP-SPC-PPL-PLG-001).

The quarry material will be tested as per Pipeline River Crossing Civil Protection Works Specification (WRP-SPC-PPL-PLG-030).

Management of Excess Spoil and Rock

Generally, all soil and rock shall be returned to the excavated areas. However, in some areas, the rocks removed during the clearing and grading activities have to be replaced as per the Biodiversity Action Plan (BAP) requirements.

These materials can be used as follows in the project activities:

- Where it is suitable for use as a construction material, reusing on the construction corridor,
- Using as project infrastructure works materials for providing stability, erosion control, construction camp sites, AGIs, and similar purposes,
- Using for restoration purposes, e.g. hillside and adjacent land contour blending,
- Using for localised increase in finished surface height of the construction corridor where approved by EPCM.

Except for the project activities, the material can be transferred to third party for re-use purposes, e.g. crushed andesite that may be suitable for road construction materials or for rail ballast.

SYA shall enter into negotiations and agreements with third parties regarding the feasibility, material specifications, terms and conditions for supplying spoil materials off the construction corridor as materials acceptable for reuse. The requirements presented in “Waste Disposal Assessment Report (SYA-REP-ENV-GEN-011)” regarding waste transfer shall apply.

The excess spoil and rock shall be disposed at waste disposal sites outside the construction corridor. Spoil shall not be deposited at the following locations:

- in valley bottoms, creeks, gully crossings or sink holes,

- where they will potentially interrupt concentrated overland flow,
- forestry areas,
- areas where spoil may trigger land instability / landslides.

The amount excess spoil soil/rock will be recorded in the waste registers presented as Attachment-1 of Environmental Monitoring Plan (SYA-PLN-ENV-GEN-002).

4.4. Return of Subsoil to the Trench and Reinstatement

On return of the subsoil to the trench, the subsoil shall be compacted to a similar compaction to that in the adjacent undisturbed area (see Pipeline Construction Specification (WRP-SPC-PPL-PLG-001)). The depth of subsoil after settlement shall not be above the level of the surrounding ground. After the subsoil has been returned and the land levelled, the subsoil shall be rendered to a loose and workable condition to a depth of 300 - 400 mm and contoured in keeping with the adjacent undisturbed ground. Both the Environmental Inspectors of EPCM and SYA shall regularly monitor subsoil replacement and contouring.

SYA shall provide a detailed method statement for standard reinstatement for approval prior to mobilisation.

Side cut topsoil shall be stripped and removed from the area and stockpiled. Both the topsoil and subsoil shall be stored separately. The side slope cut shall be restored, as far as practicable, to the original contours, so that the cut surface blends with the original contours. The subsoil layers shall be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account should subsoil extend beyond the original line of slope or a new slope be created which is steeper than the original slope. Following compaction of the subsoil, the topsoil shall be spread over the site, harrowed and reseeded.

The reinstatement of side sloped RoW section shall include drainage measures to avoid erosion taking place across the reinstated RoW. Compaction of the backfilled subsoils shall be sufficient to ensure long term stability of the slope and shall as a minimum match the existing density of the surrounding ground. The reinstatement shall be carried out in accordance with the typical drawings for side slopes unless otherwise approved by the EPCM. In exceptional circumstances where full reinstatement is not possible and the created cut slope will remain, SYA shall prepare a methodology statement proposing an alternative slope reinstatement solution subject to EPCM approval. This shall set out as a minimum how the long term slope stability, visual impact, and environmental project requirements are met. The progress of the reinstatement works will be recorded for each spread in Reinstatement Register that will be filled out by SYA's Reinstatement Team (see Appendix-3).

4.5. Clean-up of Sites

SYA shall, after backfilling, clean-up all areas affected by construction operations. That will include removal of all plant, equipment and materials not required for replacement of soil and

subsequent bio-restoration. The clean-up of the sites will be managed considering the Waste Management Plan (SYA-PLN-ENV-GEN-003) of SYA.

4.6. Reinstatement of Topsoil

Topsoil shall be segregated and shall not be mixed with spoil material before or during replacement. Only topsoil shall be segregated and re-spread over the surface. Topsoil shall not be used as bedding material in the trench, and topsoil from non-stripped / undisturbed areas shall not be used to cover adjacent disturbances. Topsoil shall not be handled during excessively wet conditions or at times when the ground or topsoil is frozen.

Once the disturbed areas have been re-contoured and compacted, topsoil shall be redistributed over the entire disturbed areas from which it was stored.

All disturbed areas shall be subject to final grading; however, measures shall be taken prior to seeding to ensure disturbed areas remain in rough condition to help protect the stability of topsoil after its re-distribution. On sites where harrowing and similar activities are not practical (e.g. steep slopes, rocky areas etc.), the sites should be dozer-tracked perpendicular to the slope or otherwise left with adequate roughness following topsoil placement.

When the topsoil is replaced over the construction corridor, a slightly rough, loosely consolidated texture shall be achieved in order to promote vegetation growth.

4.7. Third Party Properties

Following completion of backfill and initial reinstatement activities, SYA shall reinstate any damaged or relocated third party properties. This shall be in accordance with the access to site agreements and be to the satisfaction of the appropriate regulatory authority and/or landowners.

4.8. Erosion Control

Insufficient restoration and reinstatement measures can result in soil erosion on the lands that becomes barren owing to the construction.

Erosion stabilisation practices are essential on all sloping lands disturbed by construction. The studies on surface run-off management are performed to divert the direction of the surface run-off and thus, the surface erosion and ground instability shall be prevented. The methods used to control surface runoff comprise of different kinds of channels constructed across and down slopes.

Soil erosion class 3 or better will be achieved as a result of both temporary and permanent reinstatement along the pipeline RoW. Erosion class 2 will be achieved for soil of special areas (see Table 4.1). The erosion classification will be determined by the use of USLE calculation, as explained in Section 5.2 of this report under “Steep Slope” heading.

Table 4.1: Definitions for Soil Erosion Classes 2 and 3 (Moore, H. M., Fox, H. R., & Elliott, S., (2003))

Erosion Class		Erosion rate (t/ha/y-)	Visual assessment
1	Very slight	< 2	No evidence of compaction or crusting of the soil. No wash marks or scour features. No splash pedestals or exposed roots or channels.
2	Slight	2-5	Some crusting of soil surface. Localised wash but no or minor scouring. Rills (channels < 1m2 in cross-sectional area and < 30cm deep) every 50-100m. Small splash pedestals where stones or exposed roots protect underlying soil.
3	Moderate	5-10	Wash marks. Discontinuous rills spaced every 20-50m. Splash pedestals and exposed roots mark level of former surface. Slight risk of pollution problems downstream.
4	High	10-50	Connected and continuous network of rills every 5-10m or gullies (> 1m2 in cross-sectional area and > 30cm deep) spaced every 50-100m. Washing out of seeds and young plants. Reseeding may be required. Danger of pollution and sedimentation problems downstream.
5	Severe	50-100	Continuous network of rills every 2-5m or gullies every 20m. Access to site becomes difficult. Revegetation work impaired and remedial measures required. Damage to roads by erosion and sedimentation. Siltation of water bodies.
6	Very severe	100-500	Continuous network of channels with gullies every 5-10m. Surrounding soil heavily crusted. Integrity of the pipeline threatened by exposure. Severe siltation, pollution and eutrophication problems.
7	Catastro phic	> 500	Extensive network of rills and gullies; large gullies (> 10m2 in cross-sectional area) every 20m. Most of original surface washed away exposing pipeline. Severe damage from erosion and sedimentation on-site and downstream.

The erosion control works will require a Method Statement for EPCM approval. The temporary and permanent erosion control techniques are discussed in the following paragraphs:

Temporary Erosion Control

SYA shall be responsible for employing temporary erosion and sediment control measures in order to protect the construction corridor and adjacent areas during construction activities and they will be installed as soon as the ground disturbance activities are started. Moreover, in the event that the pipeline trench remains open for an extended period, SYA shall ensure trench integrity and employ temporary erosion and sediment control measures as deemed necessary.

The following temporary erosion control measures shall be incorporated along the construction corridor in order to protect the environment:

- On longitudinal slopes with open trenches, plugs of unexcavated material shall be left in the trench to interrupt surface flow and prevent scouring of the trench bottom.
- Stumps should be left in place wherever possible to provide soil stabilisation.

- Drainage channels shall be installed on all longitudinal and transverse slopes as required.
- Where slopes require cutting, flumes shall be installed across the construction corridor. These shall carry water from drainage sumps on the upslope.
- The construction corridor shall be monitored by SYA's Reinstatement Team on-site throughout the entire construction phase to prevent the following:
  - subsidence of the pipeline trench below natural grade;
  - breaching of diversion berms;
  - slope wash from improperly placed berms;
  - slumping and soil movements from cut and fill slopes;
  - loss of stored topsoil, subsoil or cuttings.

Sediment Interception

Where the construction corridor intersects or is parallel to a watercourse, sediment interception shall be provided to prevent sediment entering the water. Sediment interception shall be provided for runoff that may occur during construction and reinstatement activities until the establishment of sufficient vegetation.

Sediment interception devices may take the form of a silt fence or straw bale barrier. Sediment filters and trapping devices are applicable to sites expected to remain bare during the rainy season.

Silt Fence

Silt fences shall be installed in areas of low sheet flow and are installed to intercept runoff on eroding slopes.

The filter cloth is draped over the fence and secured in a 15-cm-deep trench. Filter fences installed across the working width should follow a slight gradient towards a natural outlet, waterway, or lined chute, into which they drain.

The following requirements shall be satisfied:

- ponding shall not be allowed behind a silt fence;
- drainage area shall not exceed 0.1 hectares per 30m of fence length;
- for slopes between 2% and 20%, the maximum allowable upstream flow path length shall be 30m;
- for slopes steeper than 20%, the maximum shall be 6m;
- maximum upslope grade perpendicular to the fence line shall not exceed 100%;
- silt fences shall be used for sheet flow only.

Silt fences shall be inspected daily during periods of prolonged rainfall, immediately after each rain event and weekly during periods of no rainfall. Any repairs required shall be made immediately.

Sediment shall be removed prior to the sediment reaching 1/3 of the height of the silt fence. Care shall be taken during sediment removal to ensure integrity of the fence is maintained. Sediment removed from silt fences will be reintegrated into topsoil.

The silt fence shall not be removed until the upslope area has been permanently stabilised. Any sediment deposits remaining in place after the fence has been removed shall be dressed to conform to the existing grade, prepared and revegetated.

Straw Bale Barrier

Straw bale barriers shall be installed in areas where small amounts of temporary sediment interception are required.

Straw bale barriers shall not generally be installed where sediment control is required for periods greater than three months. Where they are installed on the working width, they should follow a slight gradient towards a natural channel, waterway, or lined chute.

The requirement for locations of straw bale barriers along the ROW is to be established during the work jointly between SYA and EPCM representative. Generally these sediment control areas with slopes >10% will include:

- areas of protection for longitudinal down slope to water bodies and roads;
- edge of construction corridor with adjacent down slope water bodies or roads;
- edge of construction corridor with adjacent down slope to defined environmentally sensitive areas.

Straw bales shall be bedded into the ground and anchored with reinforcing rods. Anchors are driven at an angle towards the neighbouring bale so as to tie them firmly together.

Straw bale barriers shall not be used in areas of rock or other hard areas, where full and uniform anchoring is prevented.

Straw bale barriers shall be inspected daily during periods of rainfall, immediately after each rain event and bi-weekly during periods of no rainfall. Any repairs required shall be made immediately. While the life expectancy of bales is not more than 3-6 months, deteriorated bales can be broken up and used as straw mulch or are often left to decompose in place.

Wooden Fences

Wooden fences shall be installed in areas of side slope and ridge construction and shall be installed to retain cuttings during construction and reinstatement of the construction corridor (see Photograph 4.1). The use of wooden fences will be subject to EPCM approval.

Reference: ESIA Report of TANAP Project

Photograph 4.1: An Example for Wooden Fences

The requirement for locations of wood fences is to be established during the work jointly between SYA and EPCM representative.

SYA's Reinstatement Team shall ensure that fences are capable of safely supporting the loads imposed. Fences shall be regularly inspected to ensure safe operation and structural integrity. SYA shall be aware that the use of wooden fences may pose localised problems. In certain areas, firewood is a valuable commodity; therefore, the fence material will be attractive to locals for firewood.

Fences shall be removed, during reinstatement of the construction corridor unless directed otherwise by EPCM.

Water Disposal

Pipeline trenches commonly collect water during construction. Because it is turbid and often sediment laden, trench water requires filtering before it can be discharged to an unpolluted location.

Trench water is commonly removed using a pump. Disposal of trench water shall be in accordance with the requirements of the "Pollution Prevention Plan (SYA-PLN-ENV-GEN-005)".

Appropriate measures to prevent erosion during the disposal of hydrotest water shall be adopted. Such measures are specified in "Water Pollution Control Regulation" and "Pollution Prevention Plan (SYA-PLN-ENV-GEN-005)".

Moreover, water disposal activities will also comply with “Water Course Impact Management Plan (SYA-PLN-ENV-GEN-010)”.

Permanent Erosion Control Devices

Soil erosion can be particularly active on sites laid bare by construction, where it reduces land productivity and damages rural economies. The sediment it creates makes its way to streams, where it reduces water quality and invades infrastructure such as reservoirs and irrigation works.

Careful construction and reinstatement can reduce soil erosion and sedimentation to within manageable limits. Utilising mechanical (hydraulic) methods of controlling soil erosion and sedimentation, planting and fencing further protect the land surface. Both methods, hydraulic and biological through the use of vegetation, complement each other and are essential to controlling soil erosion and sediment from construction areas.

Stabilisation practices are essential on all sloping lands disturbed by construction. The methods used to control runoff comprise of different kinds of graded channels constructed across and down slopes. Graded slope breakers (interceptor cross drains), contain and remove runoff from the construction corridor and other disturbed areas. They discharge into natural channels, vegetated waterways or lined chutes, depending on the situation. Dissipation of the energy anticipated from the flow is necessary.

Slope breakers acting alone are inadequate on all but the shallowest slopes in the absence of complementary vegetation. They are important to the success of the project, because they simplify the task of protecting the vegetation at the disturbed lands and they safely divert the runoff that might otherwise erode pipeline cover and eventually damage the pipeline.

SYA will be responsible for the installation of the permanent erosion control devices under the supervision of EPCM.

Slope Breakers (Interceptor Cross Drains)

Slope breakers (interceptor cross drains or water bars) are graded channels constructed across the working width (see Photograph 4.2). Their purpose is summarized as follows:

- To decrease surface water velocities through disturbed lands by reducing slope lengths,
- To remove water from the disturbed area in a controlled manner and at frequent intervals to reduce its erosive power,
- To direct water into a stabilized location to minimize surface scour,
- To maximize water infiltration along the pipeline construction corridor,
- To slow water flow across the construction corridor to help maintain soil moisture for restoration efforts.

Reference: ESIA Report of TANAP Project

Photograph 4.2: An Example for Slope Breakers

Slope breaker details can be seen on Drawing WRP-DGA-PPL-PLG-046, with different types depending on the requirements of the individual slopes.

Slope breakers can be temporary or permanent. This has been determined taking into consideration factors including slope angle and length, rainfall intensity and soil erosivity.

Temporary slope breakers are required to be functional for the first 5 years after the pipeline reinstatement takes place; whereas, permanent slope breakers (diversion ditches), which will be in the form of stone dressed or rock formed slope breakers, are required to remain functional for the design life of the pipeline (25 years).

The final slope breaker design will be subject to EPCM approval.

Slope breakers discharge runoff into energy dissipaters, vegetated waterways or lined chutes. Slope breakers are typically stabilised by vegetation. Where soil erosion potential is predicted to be high or vegetation cannot be established, erosion control matting or crushed gravel will be applied. Erosion control matting will be fastened to the ground using corrosion resistant wire staples.

Water outlets shall provide disposal of runoff generated along the construction corridor. Thus, the runoff shall not cause soil erosion or sediment transportation. Outlets shall be installed at the end of each slope breaker. Outlets shall effectively dissipate the energy of runoff from the construction corridor and take the water to a disposal point that is safe and avoids environmental impact. The local conditions will dictate the style and location of outlet. At outlet locations where stable vegetation is not present, the outlet will be lined with rock or erosion control matting will be positioned at the slope breaker outlet.

Soakaways shall not be taken beyond the construction corridor uless EPCM approval has been granted.

Gabions

Gabions are cellular structures consisting of parallel piped elements formed by galvanized steel wire filled with suitable sized rock or rip rap. Simply, gabions are free-draining walls constructed by filling large baskets with broken stone (see Photograph 4.3).

Reference: ESIA Report of TANAP Project

Photograph 4.3: An Example for Gabion Wall

Gabion structures are suitable for all kinds of riverbeds, especially wide flood plains, due to their easy application facility. The permeability and flexibility of gabions make them suitable where the retained material is likely to be saturated and where the bearing quality of the soil is poor. At such locations, the gabions shall be used.

Erosion (Jute) Matting

Erosion matting shall be installed to provide an immediate protection to the slope against erosion, prevent washing-out of seeds and enhance the micro-climatic conditions in the soil for plant growth (see Photograph 4.4). Erosion matting shall provide temporary protection to the soil surface until sufficient vegetation cover has been established to control erosion.

Reference: ESIA Report of TANAP Project

Photograph 4.4: An Example for Erosion (Jute) Matting

The erosion matting shall be geojute or similar. The mat shall be biodegradable, open weave 11mm x 18mm mesh size and 2mm thick fibres with a mass/area ratio of 500g/m^2. The mat shall absorb water to 500% of its dry weight on saturation. The mat should rot in approximately two years. For river crossings reinstatement, biodegradable erosion matting shall be Geojute Plus or similar. SYA shall submit data sheets and samples of the proposed erosion matting for EPCM approval.

Where revegetation is taking place topsoil preparation and grass seeding work shall be undertaken prior to laying erosion matting.

The erosion mat shall be unrolled from the top of the slope, allowing it to lay naturally on the soil surface over all the local undulations. On no account shall the material be taught so that it forms 'bridges' over local soil mounds and stones. Matting shall be fastened to the slope surface as described on typical drawing WRP-DGA-PPL-PLG-050.

Since the mat is liable to slip, it shall be secured to the slope using wooden or metal pegs as recommended by the manufacturer.

Erosion mats, once installed shall be regularly inspected for degradation and installation integrity. Where matting has remained in place for longer than 12 months, SYA shall be responsible for maintaining and replacing matting as required through the construction and maintenance period.

Crushed Rock

Crushed rock may be required as a permanent erosion control measure at locations where it is impossible to establish vegetation and with prior approval of EPCM. As a temporary measure, it serves to reduce muddy conditions and sediment production during construction.

Crushed rock is applicable to locations where vegetation cannot be established and where erosion poses a risk to the pipeline or sediment threatens nearby streams. This also applies to stone dressings outside of the working width such as construction camp sites, temporary roads, pipe lay down areas and crew quarters.

Following project completion, temporary areas dressed with crushed rock will be ripped, fertilised and seeded or planted. These areas shall be subject to the acceptance of EPCM.

Lined Chutes and Vegetated Waterways

Lined chutes and vegetated waterways are specially designed channels created to collect and convey runoff to where it can be safely disposed of without erosion. Chutes or waterways serve to receive and concentrate runoff from slope breakers, from small gullies that cross the pipeline construction corridor, and from other areas that require water disposal. Their design is such that channel velocities remain non-erosive, even on steep slopes. The discharge point is to be designed and installed sufficiently to dissipate discharge energy and avoid erosion at the discharge point. See typical drawings WRP-DGA-PPL-PLG-047 and WRP-DGA-PPLPLG-051 presenting the lined chutes and attenuation pond designs.

Vegetated waterway serves to collect and dispose of runoff from slope breakers. They rely on their shallow depth and vegetated cover to reduce velocity of runoff water to within non-erosive limits. Where nearby natural channels offer a safe alternative to a vegetated waterway, these are preferred.

Waterways require fertilising and seeding with a grass mixture suited to the specific location. This seeding must be protected by suitable mulch, mats or netting to allow establishment of the seeded area.

Gully Remediation

The objective of gully remediation is to prevent existing gullies from increasing in size and extent through continued erosion.

The structures described in this specification reduce the velocity of concentrated storm water flows and thus reduces erosion of the swale or ditch. They also trap small amounts of sediment flowing in the gully.

Additional mitigation measures shall be applied for gully heads close to the pipeline using a gabion solution as detailed in drawing WRP-DGA-PPL-PLG-047 (Detail 1). Gabions in combination with a geotextile and rockfill will ensure that further erosion will be mitigated and gully head migration and possible exposure of the pipeline prevented.

Gully head remediation shall be applied as shown on the alignment sheets or directed by the EPCM representative. Final design of the gully head mitigation measures shall be proposed by SYA subject to EPCM approval.

Geotextile

Geotextile shall be as defined in the Pipeline River Crossing Civil Protection Works Specification (WRP-SPC-PPL-PLG-030) (or EPCM-approved equivalent).

Geotextile shall be handled and installed according to the manufacturer's recommendations, and/ or as shown on the Drawings. Geotextile shall not be stored in direct sunlight. Construction equipment and/ or vehicles shall not be allowed to operate directly on geotextile.

Where geotextile is joined with overlapping joints, a minimum 500 mm overlap shall be allowed at adjoining borders. For geotextile placed on slopes, the geotextile shall be secured at the top of slope by embedding in an anchor trench, as shown on the Project Drawings.

Marking of Erosion Control Works

SYA's Reinstatement Team are to walk the pipeline RoW along Lot 2 to stake the route immediately prior to clearing and grading of the RoW. Due to the length of the pipeline and the spread allocation, two Reinstatement Teams of SYA will be appointed for Spread 3 and Spread 4.

The erosion control works are to be marked, taking into account the topographical alignment of the right of way, the cutting to be performed, and the type of land. If the amount of material to be removed is considerable, the locations of temporary storage areas shall be marked and agreed with EPCM. The marking of preliminary erosion control works shall be approved by EPCM and recorded by SYA prior to beginning the works.

4.9. Bio-restoration

Vegetation, by intercepting rainfall and binding the soil, reduces soil erosion and sediment. Revegetation in the project area means returning the land to its use prior to construction. The objectives of the bio-restoration studies are to reinstate the variety and distribution pattern of the original plant species with the long term objective of reinstating the local ecology and to establish sufficient vegetation cover to reduce erosion or better through restoration of the local plant community.

The long-term cover shall be the native flora with the exception of areas that were planted with crops or other non-native species prior to construction. The bio-restoration strategy is based on supplementing the seed bank of local species that will remain in the topsoil when it is replaced. All bio-restoration materials including seeds and plants are to be collected by SYA according the BAP.

The critical terrestrial and freshwater habitats and the seed collection periods for the target flora species along the Lot 2 Section of the route are presented in Chapter 10 of Biodiversity Action Plan (CIN-REP-ENV-GEN-017). All reinstatement works to be carried out at critical terrestrial and freshwater habitats will be recorded in Sensitive Areas Register given in Appendix-4.

Depending on the land use, it can be required planting grasses in grazing areas or on highly erodible landscapes, such as those belonging to moderately steep and steeper slopes; or planting

alpine plants where the land is unsuited to grass. Trees shall not be planted within a 8 m wide strip over the pipe in compliance to “Specification for Reinstatement (WRP-SPC-EGG-PLG-001)”. On the other hand, trees shall be planted in areas appointed by the Regional Directorates of Forestry and suitable for reforestation and the amount of trees to be planted shall be at least equal to the cut trees. The location and number of the trees that are inevitably cut will be recorded for each spread in Tree Cutting Register by SYA’s Reinstatement Team (see Appendix-5). In addition, the pipeline construction corridor, its temporary roads and other disturbed areas shall be reinstated by SYA to its original position.

The aim in arable lands is to sustain its pre-project arability potential and agricultural productivity. The main objective of bio-restoration at the forestry lands is re-creating the ecological functionality of the vegetation by planting of native flora species and the related fauna components. To properly design the measures related to the revegetation activities, the pre-project structure, dynamic development and composition of the vegetation should be considered.

When the forest vegetation is degraded in certain level, appropriate vegetation measures shall be taken to enhance the environmental quality through the permits of the landowner and related authorities. Hence, even not found at the area previously, various trees, scrubs and grass/weed types can be used with the stipulation to consider the vegetation on site. This shall enhance the success of the reclamation works and provide the creation of a habitat for self-generation through development.

A target of 70% cover of ground vegetation will minimise surface erosion and provide a sustainable, self-generating plant community under virtually all conditions within one year of planting. Rates of vegetation growth depend on soil, slope and climatic conditions.

SYA’s Reinstatement Team shall carry out bio-restoration work in the appropriate growing seasons according to BAP. Sowing or planting must take place in moist ground and be followed by sufficient rainfall to promote germination and establishment.

SYA’s Biologist in the Reinstatement Team shall be responsible for the choice of species and form of materials; the choice shall be based on the objectives and pre-construction survey records. Besides for the advice of SYA’s Biologist in the Reinstatement Team on existing species and their distributions, the seeding regime identified in Table 4.2 shall be followed (see Specification for Reinstatement (WRP-SPC-EGG-PLG-001)). SYA shall produce “Site Specific Special Area Reinstatement Plans and Generic Reinstatement Plans” describing the species, number and material forms to be planted for approval by EPCM. Moreover, bio-restoration will follow the BAP requirements in sensitive areas.

Table 4.2: Proposed Seeding Combinations

Biological Restoration Reference (See alignment sheet codes for allocation to slopes)	Region	Kilometer Point (KP) From (m)	Kilometer Point (KP) To (m)	Elevation (m)	Seeds of the species to be collected	Life Form	Seed Collection Time	Planting Method (see Alignment sheet code)
4a	Erzincan	393000	450000	<1700	*Alopecurus vaginatus*	Herb	July-August	Hydroseed or Hydromulch
					Bromus japonicus	Herb	July-August	
					Fumana procumbens	Herb	July-August	
					Coronilla orientalis	Herb	June-July	
					Trigonella monantha	Herb	June-July	
4b	Erzincan	393000	450000	1700< slope< 2100	*Phleum montanum*	Herb	July-August	Hydroseed or Hydromulch
					Koeleria macrantha	Herb	July-August	
					Chrysopogon gryllus	Herb	July-August	
					Alopecurus vaginatus	Herb	July-August	
					Scabiosa argentea	Herb	July-August	
4c	Erzincan	393000	450000	>2100	*Bromus cappadocicus*	Herb	July-August	Hydroseed or Hydromulch
					Hordeum violaceum	Herb	July-August	
					Koelaria cristata	Herb	July-August	
					Phleum pratense	Herb	July-August	
					Poa bulbosa	Herb	July-August	
5a	Bayburt& Gumushane	450000	495000	all	*Bromus erectus*	Herb	July-August	Hydroseed or Hydromulch
					Poa nemoralis	Herb	July-August	
					Artemisia chamaemellifolia	Herb	July-August	
					Poa alpina	Herb	July-August	
					Festuca pratensis	Herb	July-August	
5b	Bayburt& Gumushane	495000	580000	all	*Alopecurus myosuroides*	Herb	July-August	Hydroseed or Hydromulch
					Bromus erectus	Herb	July-August	
					Koeleria cristata	Herb	July-August	
					Poa nemoralis	Herb	July-August	
					Artemisia chamaemellifolia	Herb	July-August	
6	Erzincan (2)	580000	605000	all	*Alopecurus vaginatus*	Herb	July-August	Hydroseed or Hydromulch
					Bromus japonicus	Herb	July-August	
					Fumana procumbens	Herb	July-August	
					Coronilla orientalis	Herb	June-July	
					Trigonella monantha	Herb	June-July	
7a	Sivas	605000	840000	<1400	*Artemisia austriaca*	Herb	July-August	Hydroseed or Hydromulch
					Aegilops umbellulata	Herb	July-August	
					Bromus japonicus	Herb	July-August	
					Elymus elongatus	Herb	July-August	
					Poa bulbosa	Herb	July-August	
7b	Sivas	605000	840000	1400< slope< 1600	*Artemisia austriaca*	Herb	July-August	Hydroseed or Hydromulch
					Aegilops umbellulata	Herb	July-August	
					Bromus inermis	Herb	July-August	

Biological Restoration Reference (See alignment sheet codes for allocation to slopes)	Region	Kilometer Point (KP) From (m)	Kilometer Point (KP) To (m)	Elevation (m)	Seeds of the species to be collected	Life Form	Seed Collection Time	Planting Method (see Alignment sheet code)
					Poa bulbosa	Herb	July-August	
					Poa trivialis	Herb	July-August	
7c	Sivas	605000	840000	1600< slope< 1700	*Poa bulbosa*	Herb	July-August	Hydroseed or Hydromulch
					Poa alpina	Herb	July-August	
					Lolium perenne	Herb	July-August	
					Koeleria cristata	Herb	July-August	
					Hordeum murinum	Herb	July-August	
7d	Sivas	605000	840000	1700< slope< 1900	*Poa bulbosa*	Herb	July-August	Hydroseed or Hydromulch
					Poa alpina	Herb	July-August	
					Lolium perenne	Herb	July-August	
					Koeleria cristata	Herb	July-August	
					Hordeum murinum	Herb	July-August	
7e	Sivas	605000	840000	>1900	*Koeleria cristata*	Herb	July-August	Hydroseed or Hydromulch
					Phleum exaratum	Herb	July-August	
					Poa angustifolia	Herb	July-August	
					Poa bulbosa	Herb	July-August	
					Poa pratensis	Herb	July-August	

Furthermore, SYA's Reinstatement Team shall take erosion preventive measures such as fertilizer, jute mat and mulch to contribute to the planting of vegetation.

Fertiliser will be applied to disturbed surfaces, as necessary, where vegetation is to be seeded or planted.

Fertilization shall be applied during hydroseeding and hydromulching process. The fertilizer should contain 4.0% Fe, 3.0% Mn, 0.1% Mo, 2.0% Zn. The amount of fertilizer should be 25 kg per 1000 m². SYA shall ensure that this fertilizer is appropriate for each location, or vary the fertilizer if necessary following approval from the EPCM. The TANAP project is best suited to combination fertilizer types, such as ammonium sulphate nitrate or calcium ammonium nitrate. Local advice from landowners and from the Provincial Directorate of Agriculture shall be obtained to confirm or revise the stated fertiliser application rates at specific locations.

The fertilizer can be placed by mixing into the topsoil or injecting to the soil and among them, mixing with topsoil is preferable.

For vegetation to protect adequately against soil erosion, it needs to be seeded at adequate densities and using methods that ensure a dense growth. Proposed seed mixes and quantities are presented in Table 4.2, for use on site following site specific validation from competent biologist.

SYA is to provide and transport grass seeds from reputable suppliers. If temporary storage is necessary, cool and dry conditions shall be provided. The delivery by the supplier shall include a datasheet identifying the type of seed and the ‘use by’ date. Data sheet to be provided to EPCM for approval prior to use.

Chisel harrow the topsoil to a depth of not more than 100mm. On slopes up to 20%, harrowing can be carried out mechanically up-and-down slope; the narrow width of the TANAP ROW will prevent contour cultivation. Hand tillage will be used on steeper slopes.

Following seeding the reinstated slopes shall be watered for a minimum of 5 litres per square metre. The time intervals for watering to be followed as per the seasons is indicated in Specification for Reinstatement (WRP-SPC-EGG-PLG-001) together with The details on the conditions to be considered in the selection of the seeding method, namely seed drill, hydroseeding, or hydromulching.

A requirement of a minimum of 70% of the pre-existing shrub community (based on number of individuals) established within one year of planting shall be set. If below-average rainfall is experienced, or where soil is lacking in nutrient, or where there are slopes of 25% or greater, a minimum of 50% cover (50% of the original cover where original cover <70%) shall be achieved in the first year with 70% occurring after the end of the following year. In r areas where third party activities have affected the level of vegetative cover, the original cover shall be determined by reference to adjacent, unaffected areas of similar topography and soil type.

SYA shall provide and transport plants and fertilizer from reputable suppliers. The delivery by the supplier shall include a datasheet identifying the type of shrub and the ‘use by’ date and the data sheet will be provided to EPCM for approval prior to use.

The steps to be followed for the plant shrubs to be arranged on a 1 m x 1 m spacing (or as advised by the Specialist) are presented in Specification for Reinstatement (WRP-SPC-EGG-PLG-001).

The jute mats, whose comprehensive information are presented in the preceding paragraphs, shall be placed to prevent the washout of the seeds and improve the micro-climatic conditions in the soil for plant growth.

Mulch is used to insulate the soil surface from evaporation and high temperatures, to protect young seedlings from desiccation, and to lessen soil erosion by intercepting rainfall. Its application varies with site condition, seeding practices, and phase according to the agricultural calendar. Mulch can comprise organic or synthetic materials, and is not to be confused with erosion cloth used to line chutes and interceptor cross drains.

Both hydromulching and jute matting will be used as part of the reinstatement works where detailed on the alignment sheets. The recommended options for jute matting and mulches and application details and also the anchoring details are presented in “Specification for Reinstatement (WRP-SPC-EGG-PLG-001)”.

The reforestation strategy will be to successfully replace every tree felled during RoW clearance. However, not all trees will be replaced in the same location from which they were removed as trees will not be able to be replanted along an 8m wide strip above the pipeline. It is noted that the re-vegetation strategy in all sections of the RoW will be to reinstate the pre-construction vegetation in terms of both composition and density.

Appropriate levels of irrigation/watering shall be provided for revegetated areas. The quantity and timing will be dependent on local climatic conditions, soil type and species requirements. Local advice such as from mukhtars, landowners, elderly, etc. should be sought.

Further detail on bio-restoration is presented in “Specification for Reinstatement (WRP-SPC-EGG-PLG-001).

5. ACTIVITIES AS PER SITE CHARACTERISTICS

5.1. Reinstatement of Land other than RoW

Land at Construction Support Facilities

The construction support facilities such as main and temporary construction camp sites, pipe lay down areas, etc. are temporary facilities and the main camps at Lot 2 section are as follows:

- Main Camp at Kilometre Point (KP) 419 near Çadırkaya District of Erzincan Province for Spread 3 (KP375 - KP585);
- Main Camp at KP710 near Hafik District of Sivas Province for Spread 4 (KP585 - KP825).

The fate of construction support facilities during the operation phase is to be agreed with EPCM before starting any activity connected with reinstatement. Reinstatement of the land shall commence immediately on removal of each individual facility. The reinstated condition shall be to a condition at least as good as that prevailing before establishment of the facilities.

Construction support facilities shall be avoided in Special Areas. Should this become unavoidable prior approval of EPCM is required. SYA shall prepare all necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority.

SYA shall reinstate the area and obtain written approval from the appropriate regulatory authority or the landowner about the level of reinstatement and then report these written approval to EPCM. A photograph album will be prepared by SYA's Reinstatement Team for all these lands before the commencement of construction activities and the condition of land after the reinstatement will be compared with the previous photographs. The photograph album will be kept at the camp site.

There shall be no waste remaining after removal of the facility and upon return of the site to the landowner. Except for new roads, facilities shall be removed and the land restored so that it is suitable for its original function. New roads shall be handed over as part of the completed project with shoulders finished in keeping with local environment. Erosion control and drainage features may remain visible.

Spoil and Waste Disposal Sites

SYA shall close, cap and landscape all temporary waste disposal sites at the temporary and permanent construction camp sites by the completion of the contract. Sites shall be dealt with in accordance with the relevant project requirements in compliance with the site specific plans to be developed by SYA for the special areas and temporary and permanent construction camp sites in accordance with the BAP and EPCM approved special area reinstatement method statements. Bio-restoration shall be carried out, where appropriate.

Spoil and waste disposal sites will be prohibited in ecologically sensitive areas.

The excess rock/stump material shall be compacted to a minimum of 75% of the Proctor value; the surface shall be landscaped to resemble local conditions and shall not extend more than 2m in height above the natural contour; the slopes of the surface shall not exceed 60º. The site shall be covered with soil and an erosion mat and planted with appropriate species.

Existing Roads and Access

SYA shall exercise care when using both public and private roads for travelling to and from the construction corridor and shall upgrade and maintain roads during the works as necessary for safe operations, and reinstate them to their original upgraded condition or better following completion of construction activities. SYA shall provide for such work all hard-core, tarmac, asphalt and other materials as required.

Details of the requirements for the use and construction of existing roads and access Roads are set out in the Pipeline Construction Specification (WRP-SPC-PPL-PLG-001).

Quarries

SYA shall ensure that all borrow material will only be sourced from (both existing and new) licensed and authorised sites or sources and all imported material from these facilities will be recorded in Off-Row Aggregate Consumption Register (see Appendix-2). Where new quarries need to be opened, all necessary permits and licences will be obtained either by SYA or its subcontractors.

Reinstatement of the quarries shall be carried out to the satisfaction of the respective landowners and local authorities.

For the general selection and approval process for quarries the “Pipeline River Crossing Civil Protection Works Specification (WRP-SPC-PPL-PLG-030)” should be referred to.

5.2. Reinstatement of Land along RoW

The reinstatement and reclamation works in the project are also evaluated in accordance to the features of the sites traversed by the pipeline route.

Rivers

The design and bank/river bed restoration shall be in accordance with project drawings.

Method statements shall be produced by SYA for all major river crossings, i.e. RVX1, RVX2, RVX3A and RVX8; whereas, generic method statements shall be produced by SYA for each type of minor river crossing i.e. RVX3B, RVX4 to RVX7 for EPCM approval. The works shall only commence upon the agreement with the Regional Directorate of State Hydraulic Works.

The disturbed portion of the riverbed shall be returned to pre-construction contours. The backfill over the pipe shall be at least as scour-resistant as the original bed material. For rivers with gravel bed,

the armoured bed (the sediment forming the surface layer that is coarser than the underlying sediment) shall be recovered during construction and replaced on the bed during reinstatement.

SYA shall minimise riparian disturbance wherever practicable. Bioremediation of river banks shall be undertaken to re-establish vegetation to the equivalence of the adjacent untouched areas.

River banks shall be restored to their original condition and contours. Where this is not possible, SYA shall propose site specific solutions with engineering justification and studies shall be performed in the content of Special Area Reinstatement Methods.

Erosion and sediment control devices, revegetation works shall be installed and maintained until re-vegetation and/or selected stabilization measures shown in Project Drawings are sufficiently established and functioning to meet the requirements of no accelerated or increased erosion. SYA shall detail erosion and sediment control measures in method statements and these shall be compliant with the project Special Crossing Design Drawings.

The classification for the river crossings (RVX) is summarized in Table 5.1.

Table 5.1: River Crossing Classification

Class/Type	
RVX1	Large River, width > 30m
RVX2	River, 10m < width < 30m
RVX3	Stream, 3m < width < 10m
RVX4	Small Stream, width < 3m

The reinstatement and scour protection activities to be applied at the river crossings along the Lot 2 Section of route are presented in Table 5.2.

Table 5.2: Reinstatement and Scour Protection for the River Crossings along Lot 2 (referenced from WRP-LST-PPL-PLG-003)

Class/Type	KP	TM Zone	Construction Method	Riverbed Scour Protection			Bank Protection			Other Civil Works		D50 Rip Rap Class	Site Specific Detail Drawing No.
				Type	Quantity	Typical Drawing No.	Required	Quantity	Typical Drawing No.	Requirements	Typical Drawing No.		
RVX2-0118	378+149	42	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX4-1111	393+458	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX4-0139	393+476	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX4-0143	395+101	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX4-1156	398+844	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX1-007	425+191	39	Open Cut with Civil Works	Type I	1	WRP-DGA-PPL-PLG-037	√	1	WRP-DGA-PPL-PLG-034	Flood Protection Bund	WRP-DGA-PPL-PLG-039	900/750	WRP-DXG-PPL-PLG-329
RVX4-1159	428+602	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX3-0055	428+729	39	Open Cut with Civil Works	-	-	-	√	1	WRP-DGA-PPL-PLG-034	-	-	750	WRP-DXG-PPL-PLG-330
RVX4-0168	480+067	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX2-0010	500+639	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	750	WRP-DXG-PPL-PLG-333
RVX2-0011	500+769	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	750	WRP-DXG-PPL-PLG-334
RVX3-0069	511+698	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX1-0008	571+261	39	Open Cut with Civil Works	Type II	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	750	WRP-DXG-PPL-PLG-338
RVX2-0015	588+004	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-018	√	2	WRP-DGA-PPL-PLG-018	-	-	750	WRP-DXG-PPL-PLG-341
RVX3-0073	628+944	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX3-0074	634+925	39	Open Cut with Civil Works	-	-	-	√	1	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX4-0282	641+618	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX3-0075	643+145	39	Open Cut with Civil Works	-	1	WRP-DGA-PPL-PLG-038	√	2	WRP-DGA-PPL-PLG-038	-	-	600	-
RVX2-0018	644+496	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	750	WRP-DXG-PPL-PLG-343
RVX3-0077	669+104	39	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX4-1066	699+940	36	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX1-0009	709+869	36	Open Cut with Civil Works	-	-	-	√	2	WRP-DGA-PPL-PLG-034	-	-	750	WRP-DXG-PPL-PLG-344
RVX4-1020	735+147	36	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX4-1172	736+152	36	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX4-0307	817+987	36	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX4-1021	818+010	36	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX3-0080	823+522	36	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-
RVX3-0081	837+104	36	Open Cut with Civil Works	Type III	1	WRP-DGA-PPL-PLG-037	√	2	WRP-DGA-PPL-PLG-034	-	-	600	-

Special Areas

Lot 2 Section of pipeline route contains topographical, geological and ecological features, which are characterized as Special Areas and these areas require particular attention throughout construction and reinstatement phases. A Class II erosion category shall apply to these Special Areas, therefore suitable erosion control to meet these criteria is critical. These areas, where mitigation approach for the construction impacts should be adopted, are listed below:

- Side slopes and spoils,
- Narrow ridges and landslide areas,
- Steep slopes,
- Critical Habitats,
- Karstic areas,
- Volcanic tuff and marl,
- Above ground installation (AGI) sites.

Furthermore, archaeological areas will also be considered as per the requirements given in Cultural Heritage Management Plan (SYA-PLN-SOC-GEN-006).

Based upon the information contained in the BAP and this ERLP, the results of pre-construction surveys, a site-specific Special Area Reinstatement Method Statement (SARMS) will be produced for each Critical Habitat, which will clearly specify the measures to be adopted and implemented.

The objectives of the pre-construction surveys are as follows:

- Improve understanding of the ecological resources and dynamics within, and in the vicinity of, the pipeline RoW and all those aspects which have a bearing on the environmental protection and community impacts;
- Improve the quality of existing data on the species and habitats potentially impacted by the construction. This would reduce the level of uncertainty and improve the quality of the mitigation measure, converting it from a generic mitigation measure into a specific mitigation measure;
- Provide a better understanding of the generic and specific environmental issues along the RoW;
- Assess and document the existing condition of the working area;
- Facilitate the preparation of the work method statements and programs like training activities;
- Provide the basis for determining an appropriate course of action;
- Indicate those areas where the seasonal sensitive activities are not occurring within the RoW (under such circumstances no further action would be required in respect to this specific issue); and

- Identify those issues that need further seasonal studies or prior to construction.

Special Areas will be identified uniquely in SARMS together with the clear identification of the consideration of schedule constraints within these areas (weather, planting seasons, animal breeding periods etc.).

The scope of SARMS will include the following:

- Identification of the presence of endangered or threatened species of plants within the RoW at the special area,
- Identification of the presence of endangered or threatened species of plants in the vicinity of the RoW at the special area, which could be impacted by construction activities,
- Determination of the population abundance of these species in these areas,
- Development of mitigation measures to restore the population of these species following construction,
- Restoration of the habitat of these species following construction,
- Recommendation of a follow-up monitoring program to measure the success of reinstatement of these species within the CH and in adjacent areas,
- Identification of construction impact items.

SYA shall provide suitably qualified and experienced Reinstatement Team including Soil Specialists and Biologists to assist in the reinstatement engineering and re-vegetation procedures for each spread and method statements will be prepared for the entire route and with particular consideration of these special areas. The Soil Specialist will be responsible with all topsoil and subsoil preservation related issues while biologists will be related to the stripping of vegetation cover and reinstatement of ecologically sensitive areas (as specified in the BAP).

In the course of the construction and reinstatement activities at these areas, SYA's Reinstatement Team shall continuously inspect and monitor the subcontractor's performance by the support of SYA's Environmental Inspector.

Side Slopes and Spoils

The contour restoration strategy is to 'contour blend'. The side slope cut shall be restored, as far as practicable, to the original contours, so that the cut surface blends with the original contours through the implementation of engineered spoil management. The subsoil layers shall be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account should subsoil extend beyond the original line of slope or a new slope be created that is steeper than the original slope.

Topsoil shall be stripped from the area and stockpiled at designated spoil storage areas which shall be subject to EPCM approval. Both the topsoil and subsoil shall be stored separately. Both

stockpiles shall be consolidated and adequately drained. Drainage from the spoils shall be provided and a safe outlet established.

On completion of all pipe installation, the subsoil shall be replaced in layers. The thickness of the layers, conditions of the soil and number of passes of the compactor shall be sufficient to produce a density of 95%-105% of the highest compaction measured in the adjacent undisturbed area. Compaction shall be carried out in accordance with the Pipeline Construction Specification WRPSPC-PPL-PLG-001-P3.

Following compaction of the subsoil, the topsoil shall be spread over the site, harrowed and reseeded. Erosion mats shall then be laid.

Final slope measures and reinstatement details shall be subject to EPCM approval. Moreover, SYA shall carry out site inspections with EPCM in order to define required design measure to ensure long term stability of the slope and that the environmental requirements are met.

After scaling of the slopes to remove loose rock, rock netting shall be applied by SYA as required. Adequate drainage shall be applied to assure stability and controlled water runoff. In cases where these requirements apply, EPCM pre-approval of the detailed construction drawings is required.

The side slopes will be identified during the pre-construction surveys to be carried out by SYA. Side slope identification will also be complemented by the geological profile, soil nature, features in the vicinity and the presence of any water bodies nearby. All these will facilitate the preparation of the SARMS.

Narrow Ridges and Landslide Areas

The construction, where pipeline route crosses hilly terrain and is routed along narrow ridges, shall be carried out in accordance with the Construction Specification WRP-SPC-PPL-PLG-001 and strategy set out in the Slope Assessment Report WRP-REP-EGG-PLG-010. For the construction works on narrow ridges and in proximity to landslides in these areas, SYA shall prepare a SARMS subject to EPCM approval as shown on AFC alignment sheets.

The stability of the RoW shall be proven following the clearance of the RoW and prior to construction works by geotechnical inspection by SYA under the supervision of EPCM. These stability inspections shall carried out at regular intervals throughout the construction works and will focus on any signs of potential slope movement. The landslide areas identified on the AFC alignment sheets based on the landslide assessment studies should be verified and considered during construction.

In sections where topography, geohazards (such as landslides) and proximity to 3rd party pipelines will require a reduced working width, SYA shall propose an appropriate working method for these areas. Temporary and permanent reinstatement methods shall be carefully managed.

In case of signs of instability (such as tension cracks, backscarp, seepage on the slope etc.), SYA shall propose remedial measures (including dewatering, soil nail stabilisation, rock anchoring or preventing RoW from further inundation) subject to approval by EPCM.

Steep Slopes

Steeps slopes are those slopes with inclination 0.15% and >20m slope length that are predicted to exceed soil loss tolerance rates as defined in this specification. The following factors should be considered when assessing the erosion potential of slopes:

Rainfall Intensity: This parameter is a measure of the erosive force and intensity of the rain in a normal year. The rainfall intensity is based on rainfall records and probability statistics for risk evaluation. For the purpose of erosion assessment, the parameter is determined using a 1 hour 10 year return period storm.

Soil Erodibility: This parameter is a measure of the susceptibility of a soil particle becoming detached and transported by rainfall runoff. Soil parameters, which control soil erodibility are soil texture, structure soil space, organic content and hydraulic conductivity. Information from a particle size analysis (PSD) is used to estimate the soil erodibility using nomograms and correction factors.

Slope Angle and Length: Erosion potential increases proportionally to increases in the length and angle of slope, simply because runoff flow rates increase with increasing gradient and slope length.

Vegetation Cover: The effect of vegetative cover on soil loss is well researched. Bare soil represents high erodibility potential, whilst native vegetation will give maximum protection. Vegetation cover can be directly related to management options i.e. mulch, erosion control matting etc.

Erosion Control Practice: Further practices that influence erosion potential are roughening of the soil surface by tractor treads, or by rough grading, raking or disking.

Soil Temperature: Temperature is another climatic factor affecting the potential for erosion to occur. Consolidation by freezing of exposed soils during winter months and accumulation of precipitation (snow) until periods of thaw, result in rapid melting and high levels of runoff. This situation exists in Central and Eastern Anatolia.

One such method for calculating potential soil loss from slopes is the Universal Soil Loss Equation (USLE). This predicts the long-term average annual rate of erosion on a field slope based on rainfall pattern, soil type, topography, crop-system and management practices. USLE only predicts the amount of soil loss that results from sheet or rill erosion on a single slope and does not account for additional soil losses that might occur from gully, wind or tillage erosion. This erosion model was created for use in selected cropping and management systems, but is also applicable to non-agricultural conditions such as construction sites. The USLE can be used to compare soil losses from a particular site with a specific management system to ‘tolerable soil loss’ rates. Alternative management may also be evaluated to determine the adequacy of conservation measures in planning.

Five major factors are used to calculate the soil loss for a given site. Each factor is the numerical estimate of a specific condition that affects the severity of soil erosion at a particular location. The erosion values reflected by these factors can vary considerably due to varying weather conditions. Therefore, the values obtained from the USLE more accurately represent long-term averages. The equation is written as follows:

$$A = R \times K \times LS \times C \times P$$

Where:

A: potential long-term average annual soil loss in tons per acre per year
R: rainfall and runoff factor by geographic location
K: soil erodibility factor
LS: slope length-gradient factor
C: vegetation and management factor
P: support practice factor

This methodology will be used to determine the estimated removal rates and recommend appropriate mitigation measures required to meet the soil loss tolerance rates in the SARMS reports by SYA. In addition, this calculated soil loss rate can be compared with the threshold of 5 t/ha/year applicable for Erosion Class 2 and the threshold of 10t/ha/year applicable for Erosion Class 3 to asses the success of temporary and permanent reinstatement along the pipeline RoW and the special areas.

SYA shall establish steep slope areas by the help of pre-construction surveys and provide procedures and method statements as part of the site-specific SARMS. The procedure shall establish all planned temporary and permanent erosion measures in line with this ERLP and Project Drawings.

Construction in steep slope areas requires an increased awareness of safety and stability issues. SYA shall utilize proven construction techniques specific to such areas. SYA shall demonstrate that increased safety measures are planned and these measures are to be followed on site. An increased level of H&S Representative presence will be required at these locations.

The requirement for temporary RoW erosion/stabilization techniques shall be dependent upon the season. However, SYA shall be prepared to provide all resources necessary to avoid incipient slope erosion and stabilization issues, regardless of season, in order to be prepared for unforeseen inclement weather.

Critical Habitats

The BAP has identified critical habitats and comprehensive information is presented in BAP.

These critical habitats were identified due to the presence of endangered or threatened plants and animals or their habitats. Flora and Fauna Management Plan identify a number of outline

site-specific mitigation measures that will be carried out in each of these ecologically sensitive areas. These measures include, but are not limited to, the following types of technique:

- pre-construction surveys to accurately map the location of endangered or threatened species of plants and animals within critical habitats;
- translocation of species (plants and animals) to appropriate habitat outside of the construction area prior to construction as per the BAP;
- removal, nurture and replacement/reinstatement of turfs of endangered or threatened plant species at temporary construction areas;
- care in the use of fertiliser during reinstatement;
- seasonal limitations for particular construction activities;
- minimisation of tree felling and scrub clearance;
- measures to minimise the impacts of heavy machinery, e.g. moveable equipment mats or plates; and
- supervision by ecological advisors throughout construction and reinstatement.

Based upon the information contained in the BAP, this document, specialist advice and the results of pre-construction surveys, a site-specific Special Area Reinstatement Method Statement will be produced for each critical habitat, which will clearly specify the measures to be adopted in each critical habitat and the means by which these measures will be implemented. The planning and implementation of these Special Area Method Statements, might include, the following activities:

- Provision of specialist advice of Reinstatement Team: Specialist advice and input will be required in relation to a number of aspects of the planning and implementation of reinstatement activities including but not limited to pre-construction surveys ,selection of appropriate species for re-vegetation, planting methods, translocation of plants and animal, removal and replacement of turfs, use of fertiliser and species identification;
- Pre-construction surveys: In addition of critical habitats that were identified in BAP Report, detailed mapping of the presence of such species will be required prior to construction to facilitate the reinstatement of a similar plant community to that existing prior to construction and to confirm the presence of animal species that may require translocation prior to construction;
- Development of a reinstatement method statement for each critical habitats: Based upon the information contained in the BAP and this ERLP, specialist advice and the results of pre-construction surveys, a site-specific Special Area Reinstatement Method Statement will be produced for each critical habitat, which will clearly specify the measures to be adopted in each critical habitat and the means by which these measures will be implemented.
- On-site supervision: In addition to specialist input to the planning of reinstatement activities, ecological expertise will be present on site during all relevant activities within critical habitats (e.g. route clearance, revegetation) to provide advice and supervision. SYA

will provide appropriately qualified Reinstatement Team including soil specialists and biologists to undertake the day-to-day supervision of such activities.

Karstic Areas

Karst is the topography that develops in soluble rocks in which fissures may be enlarged (ultimately to form caves) by flowing groundwater. This may occur in areas of gypsum and limestone bedrock. Gypsum is more soluble than limestone; therefore, karstic areas develop relatively rapidly in areas of gypsum.

Lot 2 section of the pipeline route crosses the outcrops of gypsum on Sivas Gypsum Karst between KP651+000 and KP738+000. The gypsum is structurally complex, with strong folding that is locally discordant, and is also extensively faulted.

Restoration in the karstic areas shall proceed as follows:

- *soils from the dolines shall be stockpiled separately;*
- *mixing of the doline soil and the ridge material is prohibited, unless agreed with the EPCM;*
- *continuous environmental inspection will follow construction;*
- *excess rock material from ridges will be disposed off in accordance with the Waste Management Plan (SYA-PLN-ENV-GEN-003);*
- *spreading of rock is prohibited, unless agreed with the EPCM;*
- *discovery of subsurface voids during construction shall be immediately reported to EPCM; measures detailed on the IAAC alignment sheets and drawing WRP-DGA-EGG-PLG-001 shall be applied, alternative remediation of voids may be used if agreed with EPCM and Client.*

Temporary and permanent erosion measures shall be employed in accordance with the requirements of this specification and project drawings. SYA shall employ trench filtration and drainage control measures as necessary to ensure that suffosion (transport of soil from the trench and from subsoil beneath the trench into karstic voids) does not occur during the design life of the pipeline. Drainage plans will maximize the use of existing natural drainage i.e., sink holes and these plans in karstic areas shall be submitted to the EPCM for approval prior to construction. Plans should consider special requirements described in “Technical Note for Design of Pipelines in Karst (WRP-TNO-EGG-PLG-001)”. At the least, SYA drainage plans shall consider:

- preventing the pipeline becoming a new drainage conduit.
- preventing loss of pipe backfill into karst fissures.
- control groundwater flow in the trench.
- maximizing the use of existing natural drainage (i.e., sink holes >20m from the pipeline
- alignment) in a controlled manner.

SYA shall follow particular requirements for drainage control as noted on AFC alignment drawings and DGA-EGG-PLG-001.

A SARMS will be submitted for this Gypsum Karst located at the east of Sivas Province. Special attention will be given to drainage in this method statement that will be subject to EPCM approval.

Volcanic Tuff and Marls

Volcanic Tuff

Topsoil layers are typically thin, <10cm, in areas of volcanic tuff. Special care is necessary in such areas to ensure the preservation of topsoil and successful establishment of a natural vegetative cover.

In areas of volcanic tuff, or other thin topsoil, SARMS will clearly state the methods that will be adopted to avoid adverse impacts.

SARMS shall be drawn up by SYA for reinstatement in areas underlain by volcanic tuff. SARMS shall include the provision of Soil Specialist in SYA's Reinstatement Team, in addition to the required SYA's Environmental Inspector, who will provide expert advice and identify any additional measures and supervision in areas of volcanic tuff. The Soil Specialist may also provide input in other vulnerable soil areas. The role of the soil specialist will include the following tasks in such areas:

- consultation with landowners and local experts to determine the most appropriate construction and reinstatement methods;
- establishing the depth of topsoil to be removed on a site specific basis;
- supervision and advice regarding topsoil and subsoil removal, storage and replacement;
- supervision and advice regarding soil erosion control measures during and after construction and
- supervision and advice regarding re-vegetation.

It will be ensured by SYA that landowners and local specialists/regulators are fully consulted in determining the most appropriate methods of topsoil removal, storage and replacement, and methods of re-vegetation in areas of volcanic tuff in accordance with local conditions. Necessary mitigation measures will be developed as necessary in the SARMS reports, a general overview of the mitigation measures that can be implemented are as follows:

- Narrowing the RoW,
- Preservation of topsoil,
- SARMS reports,
- Temporary soil erosion control measures,
- Returning the land to its natural contours as practicable,
- Vegetation by use of fertilizer, and
- Erosion control measures and high level of inspection during construction, reinstatement and aftercare, especially in areas of volcanic tuff.

Marl

Marl is calcareous clay that is classified as a soft rock. Marl occurs as hills, plateaus and plateau scarps, and plains. This section treats marl soils that are too steep to play a role in rain fed agriculture, although they may support grazing. Adverse impacts affecting marls include the following:

- visual impact: the marl leaves a whitish trace across the landscape where the subsoil has been exposed;
- soil erosion: marl erodes easily – in areas near Turkey's coast marl can rotate as deep landslides;
- loss of soil productivity.

As with tuffaceous lands, an important mitigation will be to decrease the construction corridor to as narrow a width as possible. This is possible because marl topsoil on sloping lands is typically thin and requires little area when set aside for reinstatement.

Existing shrubs will be set aside for later replanting. Temporary soil erosion control measures (water bars, ditch breakers and runoff barriers) shall be installed.

Temporary ditch breakers will be particularly important as marls typically contain springs that are likely to drain into the trench from the middle two-thirds of most slopes. When drained, trench water will be pumped either into a filter bag or constructed barrier made of based hay and filter cloth; in no instance shall it drain onto unprotected soil. The pump will be in place in secondary containment at all time. In some instances, emerging springs may require lined chutes to convey water from the RoW to a safe disposal location.

The specifications for returning tuff to its natural contour and condition also apply to marl and similar considerations to tuff shall be applied as regards use of a soils expert and tailoring topsoil removal to the actual thickness present rather than a pre-prescribed specification.

The potential for replanting shall be determined by the frequency of natural vegetation prior to construction. If this is low or absent, then replanting is unlikely to succeed – the onsite environmental inspector/soils expert shall give a judgment. If the site is incapable of supporting sown grass or other vegetation, downslope agricultural lands shall be provided with protection from eroded sediment; e.g. through a diversion or sediment settling pond.

The onsite environmental inspector/soils expert shall give advice to be fulfilled by SYA. If replanting is to be done, it shall follow project specifications using a grass mix recommended by local agricultural and forestry expertise. If the season is too late for replanting, the topsoil berm shall be protected over winter by seeding it with a fast growing cover crop. It shall then be reinstated during the following spring.

Above Ground Installations (AGIs)

All areas on which permanent facilities and above ground installations are present shall be reinstated at the end of operation phase during abandonment phase in accordance with the specifications.

SYA shall reinstate the area surrounding AGIs to the satisfaction of EPCM and the appropriate authority or landowner and shall obtain written approval from EPCM and the appropriate regulatory authority or the landowner of the level of reinstatement. Notwithstanding other such approvals, all reinstatement shall be to the satisfaction of EPCM.

Landscape projects shall be prepared and implemented for these areas to minimise the visual impacts of the permanent buildings and facilities at AGI sites. Issues to be considered in the landscape projects are listed as follows:

- landscape planting within the site boundary where appropriate;
- maximising the opportunities to retain existing landform screening; i.e. site levelling will be avoided, if possible;
- introduction of new landform screening (e.g. bunds and mounds) where this compliant the existing landform character;
- the use of appropriate colour schemes to minimise the visual impact of buildings,
- external lighting will be minimised to that necessary for safety and operational purposes and downward facing lighting and lighting of the same colour will be used to minimise spill and offsite impacts.

There will be one compressor station (CST) and 14 block valve stations (BVS) along Lot 2 Section of route (see Table 5.3). The compressor station is not within the responsibility of SYA.

Table 5.3: AGIs along Lot 2 Section of Route

Type of Station	KPs	Province	District
CST-03	674+300	Sivas	Zara
BVS-12	407+700	Erzincan	Tercan
BVS-13	440+200	Erzincan	Otlukbeli
BVS-14	473+100	Gümüşhane	Kelkit
BVS-15	502+000	Gümüşhane	Kelkit
BVS-16	532+000	Gümüşhane	Kelkit
BVS-17	547+900	Erzincan	Refahiye
BVS-18	580+900	Sivas	Gölova
BVS-19	612+000	Sivas	Akıncılar
BVS-20	646+400	Sivas	İmranlı
BVS-21	706+900	Sivas	Hafik
BVS-22	734+200 - 734+500	Sivas	Merkez
BVS-23	758+300	Sivas	Merkez
BVS-24	790+800	Sivas	Yıldızeli
BVS-25	821+600	Yozgat	Yıldızeli

6. TRAINING, REPORTING AND MONITORING

6.1. Training

All workers to be employed for the erosion control, reinstatement and landscaping related works will receive the compulsory specific environmental trainings and will not start working before completing induction training. The induction training, which is required for all employees working on RoW, will be about performing work activities in a manner consistent with environmental permits, site specific conditions, and best practices for the environmental monitoring, waste management, reinstatement including the erosion control devices, pollution prevention, spill response, cultural heritage. The topics of the specific environmental trainings will be reinstatement, waste management, water and soil management, air quality management, cultural heritage management, traffic management, noise and vibration management, aggregate management and biodiversity action plan (see Environmental Training Plan (SYA-PLN-ENV-GEN-009) for further detail). Training manager will be responsible for implementation and maintenance of the training program and appointment of the relevant experts/instructors, who will perform the training. The training attendance form and training register will be kept by relevant experts/instructors and delivered to training manager (see Appendix-6).

6.2. Reporting

Topsoil Stripping Register, Off-Row Aggregate Consumption Register, Reinstatement Register and Tree Cutting Registers will be filled out for each specified activity and kept as records. Special Area Reinstatement Method Statement (SARMS) will be prepared for each special area and will be subject to the approval of EPCM before put into practice. SARMS will give information on the topography, land use, soil characteristics, etc. of the special area and also its ecological characteristic including the species of the site, the related mitigation measures including topsoil management, seed collection, etc., restoration of the habitat, recommendation of a follow-up monitoring program, etc.

The progress of the reinstatement works will be presented by SYA in the Monthly Report to be prepared in the scope of Environmental Monitoring Plan (SYA-PLN-ENV-GEN-002), together with the filled-out registers. Moreover, any incident and/or non-conformance, which results in environmental/social impact, shall be immediately communicated to the EPCM via verbal notification and the relevant registers will be filled out as soon as practical (not later than 24 hours) (see Appendix-7).

6.3. Monitoring

SYA's Reinstatement Team will be responsible for continous monitoring of all reinstatement related works to be performed by the workers and its sub-contractors throughout all construction works. SYA's Reinstatement Team will be monitored and supervised by Environmental Inspectors of SYA and EPCM for their performance in the implementation of this ERLP and Specification for Reinstatement (WRP–SPC-EGG-PLG-001). EPCM will give the final approval prior to handover of work by SYA. Subsequent to the final approval of reinstatement works, the future management of the reinstatement program and maintenance activities shall be under the responsibility of TANAP.

7. POST-CONSTRUCTION ACTIVITIES

7.1. Restricting Access

In order to prevent rutting, subsequent erosion problems, and damage to riparian areas, unauthorised use of the construction corridor as a roadway shall be prevented. Access should be blocked at locations specified by EPCM representatives, through the construction of barrier berms of sufficient height (minimum 1.5m high) to provide a barrier to vehicles. Warning tapes/berms should be tied to vegetation or rocks adjacent to the pipeline corridor to prevent traffic. Rocks excavated during construction, 0.3m in diameter or larger, may be used instead of the earthen berms. Timber cleared during the construction can also be staggered across the pipeline corridor so as to deter off-road vehicle use.

Such restrictions to access shall also apply after completion of topsoil reinstatement.

7.2. Handover and Post-Construction Maintenance

SYA's Reinstatement Team shall carry out the required aftercare (watering, further application of fertilizers, etc.) for successful re-vegetation and monitor the progress of bio-restoration and the records will be kept by filling out the Reinstatement Register (see Appendix-3).

SYA shall obtain sign-off of the pre-entry form from the landowner agreeing on the standard of reinstatement.

SYA, upon completion of reinstatement, shall accompany EPCM on an inspection of all project areas, before demobilising from site. EPCM will notify the SYA of any insufficiencies in the reinstatement of the construction corridor/ project areas. SYA shall carry out any further reinstatement to the approval of EPCM.

During the contract maintenance period to be defined by TANAP, SYA shall be responsible for maintaining the standard of reinstatement and for ensuring that the stated erosion class and bio-restoration requirements are met. As a minimum, SYA shall carry out inspections every three months and immediately after any significant rainfall event (1 in 2 year return period) and snow melt and implement corrective measures as required to the satisfaction of EPCM.

Before termination of maintenance period, final reinstatement inspection shall be carried out and the required corrective measures shall be encouraged until the reinstatement measures satisfy the project requirements. Upon the final approval of reinstatement studies, the future management of the reinstatement program and maintenance activities shall be under the responsibility of TANAP.

8. REFERENCES

TNP-REP-ENV-GEN-002	Environmental and Social Impact Assessment (ESIA) Report of TANAP Project
WRP-SPC-EGG-PLG-001	Specification for Reinstatement
WRP-SPC-PPL-PLG-001	Pipeline Construction Specification
CIN-REP-ENV-GEN-017	Biodiversity Action Plan
WRP-DGA-PPL-PLG-005	Typical Drawing - Working Strip in Side Slopes (18 - 30 Degrees)
WRP-DLP-EGG-PLG-006	Working Strip - Forest and Environmentally Sensitive Locations
WRP-DGA-PPL-PLG-044	Slope Breaker Arrangement - typical drawing
WRP-DGA-PPL-PLG-045	Slope Breaker Outlet Designs - typical drawing
WRP-DGA-PPL-PLG-046	Slope Breaker Cross Sections - typical drawing
WRP-DGA-PPL-PLG-047	Typical Lined Chute - typical drawing
WRP-DGA-PPL-PLG-048	Typical Drawing - Silt Fence and Straw Bale Barrier
WRP-DGA-PPL-PLG-050	Erosion Control Matting Installation - typical drawing
WRP-DGA-PPL-PLG-051	Sediment Trap/ High Flow Containment Pond - typical drawing
WRP-SPC-PPL-PLG-030	Pipeline River Crossing Civil Protection Works Specification
WRP-DGA-PPL-PLG-034	Typical Drawing - Riverbank Protection - Riprap Revetments Rvx1, 2 & 3
WRP-DGA-PPL-PLG-035	Typical Drawing - River Bank Protection - Gabions Revetments
WRP-DGA-PPL-PLG-035	Typical Drawing - River Bank Protection - Gabion Revetments And Bed Protection
WRP-DGA-PPL-PLG-036	Typical Drawing - River Bank Protection - Bio-Restoration
WRP-DGA-PPL-PLG-037	Typical Drawing - River Scour Protection Sill - RVX1, 2 &3 Major
WRP-DGA-PPL-PLG-038	Typical Drawing - Riverbed Scour Protection Sill - RVX3B And RVX4A
WRP-DGA-PPL-PLG-039	Typical Drawing - River Scour Protection - Flood Protection Bund With Rip Rap Facing
WRP-DGA-PPL-PLG-040	Typical Drawing - River Scour Protection - Groyne With Rip Rap Facing
WRP-LST-PPL-PLG-003	River Crossing Reinstatement and Scour Protection Schedule

APPENDIX-1: ***Topsoil Stripping Register***

TOPSOIL STRIPPING REGISTER
SPREAD ..

KP Start	KP End	Depth of topsoil stripped	Environment where topsoil is stripped*	Labelling of Topsoil Piles (Yes / No)	Implementation of Required Conditions for Topsoil Piles (Yes / No)	Name of Environment Inspector

*** Please specify the environment such as riverbank, potential erosion area, etc.**

APPENDIX-2: Off-Row Aggregate Consumption Register

OFF ROW AGGREGATE CONSUMPTION REGISTER - LOT 2

Date	**Source:**	**Volume (m3)**
	Total to date :	

Appendix-3: Reinstatement Register

REINSTATEMENT REGISTER
SPREAD …

KP Start	KP End	# of Photograph taken from the Location*	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date Permanent Erosion controls installed	Date area was signed off

*** to be included in the Photograph Album**

Appendix-4: Sensitive Areas Register

TERRESTRIAL CRITICAL HABITATS																									
KP Start REV J	KP End REV J	ID	Was the no-construction time frame enforced? (if required)	Which seeds were collected?	Date seeds were collected	Amount of seed collected	Seed storage location	Date seeds were planted on ROW	Location where seeds were replanted	Which plants/bulbs were collected?	Date plants/bulbs were collected	How many plants/bulbs were collected	Plants/bulbs Storage location	Date plants/bulbs replanted on ROW during restoration	How many plants/bulbs were replanted on ROW during restoration	Location where plants/bulbs were replanted	Date Herbaceous plants were on ROW	Storage location of herbaceous plants collected.	Date when herbaceous plants were laid on ROW during restoration	Date topsoil was stripped	Date topsoil was reinstated	Date when rocks were collected? (30cm or larger)	Rock storage location	Date rocks were relocated on ROW	Invasive flora species control	Terracing during reinstatement to prevent erosion
389+036	392+485	CH19																								
395+974	396+824	CH 20																								
435+077	437+304	CH21																								
453+943	456+605	CH22																								
520+252	523+585	CH23																								
539+798	545+703	CH 24																								
566+417	567+117	CH25																								
590+940	592+418	CH26																								
607+000	610+060	CH27																								
616+751	628+103	CH28																								
634+738	636+286	CH29																								
636+388	636+967	CH30																								
637+009	637+035	CH31																								
654+103	656+981	CH32																								
658+103	658+534	CH33																								
662+456	662+559	CH34																								
663+309	663+812	CH35																								
687+002	687+037	CH36																								
687+313	687+352	CH37																								
703+938	704+476	CH38																								
712+066	712+279	CH39																								
717+244	717+345	CH40																								
723+424	723+679	CH41																								
732+873	732+959	CH42																								
736+589	736+754	CH43																								
744+689	744+834	CH44																								
749+987	753+060	CH45																								
805+749	805+816	CH46																								
805+842	806+143	CH47																								
818+756	818+768	CH48																								

FRESHWATER CRITICAL HABITATS													
KP Start REV J	**KP End REV J**	**ID**	**Was the no-construction time frame enforced? (if required)**	**Start date of crossing (when banks are being topsoiled/graded)**	**End date of crossing (when final reinstatement completed)**	**Control of sediment release**	**Minimize erosion, sedimentation and impact to riparian vegetation**	**Avoid impact and removal of gravel**	**Date Erosion and sediment controls in place**	**Restoration of channel bottom**	**Restoration of riparian area (contours and vegetation)**	**Water protection zone marked/flagged? (30m buffer zone on either side of crossing)**	**Water sample taken upstream/down stream? Prior/during/post construction**
375+027	375+177	FCH8											
506+877	506+891	FCH9											
510+622	510+634	FCH10											
713+204	713+286	FCH11											
766+754	766+774	FCH12											

Appendix-5: Tree Cutting Register

TREE CUTTING REGISTER
SPREAD …

KP	Number of Trees Cut	Type of Trees Cut*

* Please include a photo

Appendix-6: Training Records

Training Attendance Form

PROJECT NAME	
JOB NO	

NAME OF TRAINING				
TOPIC				
INSTITUTION				
COMMENCEMENT DATE / TIME				
END DATE / TIME				
TRAINEES				
NO.	FAMILY NAME	NAME	DEPARTMENT	SIGNATURE
DEPARTMENT MANAGER		**TRAINER**		

Training Register Table

TRAINING REGISTER - LOT 2
Reporting Period:

Date	Subject	Duration (min)	Location	Attendees (who)	Number of attendees	Total Manhours

Appendix-7: Non-Conformance Report Register and Incident Register

Non-Conformance Report Register

NCR REGISTER - LOT 2
Reporting Period:

Total of NCR	
To date	This reporting Period

Total of NCR to date	
Open	Closed

Date	Doc Control Registration Number	Summary	Date Part A completed and form submitted to assignee	Date Part B Completed	Date Part C completed	Date Part D completed	NCR closed out (green/red)	Comments

Incident Register

INCIDENT REGISTER - LOT 2
Reporting Period:

Total of incidents	
To date	**This reporting Period**

Total of incidents to date	
Open	**Closed**

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close By	Actual Close-out Date	

WorleyParsons
resources & energy

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc.No.	**TKF-PLN-ENV-PL3-007**	**Rev**	**Status**
		P4-0	**IAAC**
Document Title :	**Tekfen Erosion, Reinstatement and Landscaping Plan**		
Tag Nos.			
Contractor:	**Tekfen Construction and Installation Co., Inc.**		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

TEKFEN CONSTRUCTION	TEKFEN EROSION, REINSTATEMENT AND LANDSCAPING PLAN	TANAP

TEKFEN EROSION, REINSTATEMENT AND LANDSCAPING PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	EPCM/TA NAP Approval
P3-A	DIC	20.02.2015	Discipline Internal Check	ZDEM	MASL	MKOP	
P3-B	IDC	27.02.2015	Inter-Discipline Check	ZDEM	SBAG	MKOP	
P3-C	IFR	06.03.2015	Issued for Review	ZDEM	ASON	MKOP	
P4-D	Re-IFR	30.05.2015	Re-issued for Review	ITAS	ASON	MKOP	
P4-0	IAAC	30.06.2015	Issued As Approved for Construction	ITAS	ASON	MKOP	

DOCUMENT REVISION HISTORY

REV.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P3-A	DIC	20.02.2015	First issue
P3-B	IDC	27.02.2015	Issued for IDC incorporating DIC comments
P3-C	IFR	06.03.2015	Issued for Review
P4-D	Re-IFR	30.05.2015	Re-Issued for Review
P4-0	IAAC	30.06.2015	Issued As Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1. INTRODUCTION

TEKFEN has developed this Erosion, Reinstatement and Landscaping Plan to set out requirements to minimize erosion and to provide the framework for temporary and permanent reinstatement activities related with TANAP Project activities.

1.1. PURPOSE

The overall objective of the Erosion and Reinstatement Plan that TEKFEN will be following for TANAP Lot 3 works will be to apply the requirements for the reinstatement and re-establishment of soil and vegetation following construction activities so as to minimize erosion.

The main purpose of this plan is;

- Achieving long-term stabilization against erosion
- Restoring the project affected areas as far as practicable to its pre-construction state.
- Reinstating all the disturbed areas by project activities according to EPCM Specifications for Reinstatement.
- Restoring the complex ecology existing before construction, particularly the variety and distribution pattern of plant species
- Restoring the contours and topography of the construction to pre-existing conditions, to the maximum extent practicable
- Restoring to original condition of any infrastructure, structures, or agricultural land during construction.
- Ensuring that sites are suitable for future use;
- Establishing sufficient vegetative cover to minimize erosion and to meet the performance target of Erosion Class 3 or better through restoration of the native plant community.
- Providing immediate protection against erosion during construction activities and provide permanent stabilization and prevent washing out of seeds after construction.
- Minimizing erosion by applying all necessary temporary and permanent erosion control methods in project activities in accordance with EPCM specifications.
- Restoring the hydrological regime and reinstate natural drainage pattern
- Returning the land to its original contours and minimize the visual impact of the reinstated land such that it is compatible with the surrounding landscape
- Replacing the topsoil carefully to encourage vegetation growth and revegetate sites with suitable native plant species

This Erosion and Reinstatement Plan is applicable to the reinstatement of all areas disturbed by work, including the RoW, facility construction worksite and all other Project areas which are used to support construction, including (but not limited to) pipe dumps, offloading areas, staging and maintenance areas, access roads/tracks and other transport facilities; waste transfer stations; and other facilities associated with the proposed TANAP Project. Moreover, temporary and permanent

erosion and sediment control planning and implementation of activities to be performed during the pre-construction and construction phases of the project are included.

Temporary and permanent erosion control measures will be installed by TEKFEN in order to protect the sensitive habitats and achieve the performance standards of Erosion Class-3 or better for both temporary and permanent reinstatement activities.

Erosion class 3 or better represents moderate erosion, <10 t/ha for a 1-hour 10-year return period storm.

As a minimum the following standards will be achieved:

- no risk of the depth of cover above the loading line being reduced;
- very low risk of off-site pollution and sedimentation;
- low risk of damage to biorestoration by washing-out of seeds and plants;
- continuous networks of channels over the slopes prevented, ensuring that the depth of material above the pipe is not reduced.

1.2. SCOPE

The Plan relates specifically to the following Erosion and Reinstatement management issues:

- Overall Reinstatement management
- Soils
- Seeding
- Biorestoration
- Surface water
- Landscape and social
- Special and Sensitive/Priority Areas
- Worksite clean-up and contaminated land
- Ecology
- Materials and waste management
- Temporary and permanent erosion and sediment control planning and implementation of activities.

1.3. RELATIONSHIP TO OTHER PLANS AND DOCUMENTS

This plan should be read in conjunction with the Environmental and Social Management Plan (TKF-PLN-ENV-PL3-001) that specifies general requirements for environmental and social management including training, inspection, monitoring, reporting and review and the following plans:

Document Number	Document Title
TKF-PLN-ENV-PL3-001	E&S Management Plan
TKF-PLN-ENV-PL3-008	Ecological Management Plan
TKF-PLN-ENV-PL3-009	Waste Management Plan
TKF-PLN-ENV-PL3-010	Pollution Prevention Plan

This plan should also be read in conjunction with the referred project specifications, ESIA and the other Project Standards provided below in Section 1.5.

1.4. ABBREVIATIONS

AGI	Above Ground Installation
BAP	Biodiversity Action Plan
EPCM	Engineering, Procurement and Construction Management
ESA	Ecologically sensitive areas
ESIA	Environmental and Social Impact Assessment
RoW	Right of Way
TBD	To Be Determined

1.5. REFERENCES

Document Number	Document Title
WRP-SPC-PPL-PLG-001	Pipeline Construction Specification
WRP-SPC-EGG-PLG-001-P4-0	Specification For Reinstatement
WRP-DGA-PPL-PLG-044	Typical Slope Breakers
WRP-DGA-PPL-PLG-045	Typical Outlet Of Slope Breakers
WRP-DGA-PPL-PLG-046	Typical Cross Section Of Slope Breakers
WRP-DGA-PPL-PLG-047	Typical Drawing - Erosion Protection - Typical Lined Chute
ILF-DID-PPL-PLG-005	Typical Silt Fence & Straw Bale Barrier
ILF-DID-PPL-PLG-006	Typical Subsoil Retaining Wooden Fences
WRP-DGA-PPL-PLG-050	Typical Erosion Control Matting Installation
TNP-REP-ENV-GEN-001	ESIA Report – Turkish version (Appendix 5.1- Construction Impacts Management Plan and Appendix 5.9- Erosion, Reinstatement and Landscaping Plan)
TNP-REP-ENV-GEN-002	ESIA Report – English Version
WRP-DGA-PPL-GEN-004-01-P4-0	Typical Working Strip -Standard
WRP-DGA-PPL-GEN-005-01-P4-0	Typical Working Strip -Reduced
BCH-DID-PPL-PLG-033	Typical Working Strip Parallel Pipelines (Regular/Reduced)
WRP-DGA-PPL-PLG-005-01-P4-0	Typical Working Strip Side Slopes (18 °-30°)
WRP-DGA-PPL-PLG-002-01-P4-0	Typical Working Strip-High Groundwater Conditions
WRP-DGA-PPL-PLG-003-01-P4-0	Typical Working Strip Highway/Main Road/Railroad Crossings
WRP-DGA-PPL-PLG-006-01-P4-0	Typical Working Strip Forest & Environmentally Sensitive Sections
WRP-DGA-PPL-PLG-020-01-P4-0	Typical Highway Crossing (Bored with Casing)
WRP-DGA-PPL-PLG-021-01-P4-0	Typical Road Crossing (Open Cut)

WRP-DGA-PPL-PLG-023-01-P4-0	Typical Railroad Crossing (Bored with Casing)
WRP-LST-PPL-PLG-003	Typical River Crossing Reinstatement And Scour Protection Schedule
WRP–SPC-EGG-PLG-001	Specification for Reinstatement
WRP-REP-EGG-GEN-004	Reinstatement and Erosion Control Requirements
WRP-SPC-PPL-PLG-001	Pipeline Construction Specification
CIN-REP-ENV-GEN-017-Rev-P3-1	Biodiversity Action Plan
WRP-SPC-PPL-PLG-030	Pipeline River Crossing Civil Protection Works Specification
WRPLST- PPL-PLG-003.	River Crossing Reinstatement and Scour Protection Schedule
WRP-DGA-PPL-PLG-036-01	Typical Drawing Riverbank Protection Bio Restoration
WRP-DGA-PPL-PLG-036-02	Typical Drawing River Riparian Restoration
WRP – SPC – PPL – PLG - 001	Construction Specification
WRP-REP-EGG-PLG-010-P3-D.	Slope Assessment Report
WRP-TNO-EGG-PLG-001	Technical Note for Design of Pipelines in Karst
DGA-EGG-PLG-001	

1.6. DEFINITIONS

Area of Influence: The Project Area of Influence (AoI) includes the areas likely to be affected by the physical facilities constituting the Pipeline system that will be directly owned, operated or managed by EPCM/TANAP and its contractors.

Backfilling: The technique for covering a completed pipeline so that adequate fill material is provided underneath the pipe as well as above it. Backfilling prevents pipe damage due to loose rock, abrasion, shifting and washouts.

Discharge: Outflow; the flow of a stream, canal, or aquifer.

Drainage: Refers to the collection, conveyance, containment, and/or discharge of surface and trench water runoff**.**

Ecologically Sensitive Areas: The areas that have a national or international conservation status, habitats of high conservation values and river crossings.

Erosion: The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep. Also, detachment and movement of soil or rock fragments by water, wind, ice, or gravity.

Erosion and Sediment Control: Any temporary or permanent measures taken to reduce erosion, control siltation and sedimentation, and ensure that sediment-laden water does not leave a site.

Gabion: A rectangular or cylindrical wire mesh cage filled with rock and used as a protecting agent, revetment, etc., against erosion.

Geotextile: Permeable fabrics which, when used in association with soil, have the ability to separate, filter, reinforce, protect, or drain.

Mulch: Any material used to cover a soil surface to reduce evaporation or prevent erosion

Outlet: Point of water disposal from a stream, river, lake, tidewater, or artificial drain.

Revegetation: Reestablishing vegetative cover on ground that has been disturbed, such as a construction site.

Right-of-Way (RoW): The strip of land above and below the pipeline; where construction, maintenance, test, replacement and operation activities occur.

Rill: A small intermittent watercourse with steep sides, usually only a few inches deep. Often rills are caused by an increase in surface water flow when soil is cleared of vegetation.

Runoff: Water originating from rainfall and other precipitation that is found in drainage facilities, rivers, streams, springs, seeps, ponds, lakes and wetlands as well as shallow ground water.

Scour: The erosive action of flowing water in streams that removes and carries away material from the bed and banks.

Sediment: Fragmented material that originates from weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.

Subsoil: The layer of soil under the topsoil on the surface of the ground. The material excavated from the pipe trench or is the result of the ridge top, widening and cutting of benches on side slopes.

Tackifier: Material sprayed onto a soil surface to bind soil particles and prevent erosion.

Topsoil: The top, fertile layer of material on the land surface, which is capable of supporting plant growth.

Trench breaker: Temporary or permanently installed barrier at regular intervals in pipe trenches. Trench Breakers are used for preventing erosion caused by the lateral movement of runoff in the open trench; and for allowing the pipeline contractor to backfill up to the breaker.

Silt Fence: Temporary sediment barrier consisting of filter fabric, sometimes backed with wire mesh, attached to supporting posts and partially buried.

Slope breakers: Graded channels constructed across the working width

Soil Stabilization: The use of measures such as rock lining, vegetation or other engineering structures to prevent the movement of soil when loads are applied to the soil.

Straw Bale: Temporary barriers made of straw bales are sometimes installed across a slope or around the perimeter of a construction site to intercept and detain sediment transported by runoff.

Wind Erosion: Removal of soil particles by wind, causing dryness and deterioration of soil structure; occurs most frequently in flat, dry areas covered by sands and loamy soils.

Table 1- Erosion Severity Classes

Erosion Class		Erosion rate (t/ha/y)	Visual assessment
1	Very slight	< 2	No evidence of compaction or crusting of the soil. No wash marks or scour features. No splash pedestals or exposed roots or channels.
2	Slight	2-5	Some crusting of soil surface. Localized wash but no or minor scouring. Rills (channels < 1m2 in cross-sectional area and < 30cm deep) every 50-100m. Small splash pedestals where stones or exposed roots protect underlying soil.
3	Moderate	5-10	Wash marks. Discontinuous rills spaced every 20-50m. Splash pedestals and exposed roots mark level of former surface. Slight risk of pollution problems downstream.
4	High	10-50	Connected and continuous network of rills every 5-10m or gullies (> 1m2 in cross-sectional area and > 30cm deep) spaced every 50-100m. Washing out of seeds and young plants. Reseeding may be required. Danger of pollution and sedimentation problems downstream.
5	Severe	50-100	Continuous networks of rills every 2-5m or gullies every 20m. Access to site becomes difficult. Re-vegetation work impaired and remedial measures required. Damage to roads by erosion and sedimentation. -
6	Very severe	100-500	Continuous networks of channels with gullies every 5-10m. Surrounding soil heavily crusted. Integrity of the pipeline threatened by exposure. Severe siltation, pollution and eutrophication problems.
7	Catastrophic	> 500	Extensive network of rills and gullies; large gullies (> 10m2 in cross-sectional area) every 20m. Most of original surface washed away exposing pipeline. Severe damage from erosion and sedimentation on-site and downstream.

2. METHOD

2.1. REINSTATEMENT AND CLEAN-UP

Reinstatement begins with the stockpiling of topsoil as one of the first steps of construction, and ends when the topsoil is replaced, seeded and protected against erosion with erosion protection works such as slope breakers, drainage and protection of river banks.

Disturbed areas within the pipeline RoW will be reinstated to pre-construction condition, as far as practical, and reinstatement plan to the greatest practical standards, the requirements of the project ESIA, and to the Contract Documents.

Reinstatement of the soils following the pipeline construction will be undertaken such that the potential for soil erosion is reduced to an acceptable level.

Collaboration and cooperation with farmers and land managers is important for the successful reinstatement.

2.1.1. Third Party Activities and Properties

TEKFEN will fully reinstate any land disturbance due to third party assets/activities where that disturbance is within or so close to project area that reinstatement is necessary in order to secure the effective reinstatement of the project area.

Following completion of backfill and initial reinstatement activities TEKFEN will reinstate any damaged or relocated third party properties. This will be in accordance with the access to site agreements and be in satisfaction of the appropriate regulatory authority.

2.1.2. Clean-up of sites

TEKFEN will, after backfilling and before the replacement of soil, clean up all areas affected by construction operations. That will include removal of all plants, equipment and materials not required for replacement of soil and subsequent bio-restoration.

In pre-developed areas (either for agriculture or industry) the cleaned condition will be reinstated in accordance with this plan. However, the remediation of contaminated land is not covered by this Reinstatement Plan and reference should be made to Contract Documentation.

2.1.3. Ecologically Sensitive Areas

The BAP provides the description of 9 terrestrial and 6 freshwater critical habitats for LOT 3, as well as mitigation and reinstatement measures to be applied in these areas. **According to latest revision (rev J) whereas, LOT 3 covers 8 terrestrial and 6 freshwater critical habitats.** Special protection measures will be applied during construction activities at the environmentally sensitive areas.

TEKFEN will comply with any instructions, including time of year restrictions, issued by the related authorities and the ESIA Report for the protection of any/all environmentally sensitive areas.

The loss of soil through the action of natural and manmade processes is termed “soil erosion”. Soil erosion is both a risk to the pipeline through reduction of cover/support, and a risk to the environment through the relocation of large quantities of sediment causing changes in drainage patterns, soil fertility etc. TEKFEN will ensure that water courses and ecologically sensitive sites are not affected by soil erosion and the migration of soils. In environmentally sensitive areas, and along water courses and in locations prone to erosion, TEKFEN will backfill and re-instate after installation of the pipeline. Also in these areas, TEKFEN will fully re-instate in accordance with the specifications.

For the temporary as well as permanent case erosion Class 2 or better will be achieved for all slopes where sediment may discharge into a watercourse or ecologically sensitive area, i.e. <5t/ha/year. For other slopes an erosion Class of 3 or better (<10 t/ha/year) will be achieved for reinstatement along the pipeline RoW.

2.1.4. Provision of specialist advice

Advice and input of ecologist or flora expert will be required in relation to a number of aspects of the planning and implementation of reinstatement activities. The expert will conduct re-vegetation with selected species by referencing BAP; planting methods; translocation of plants and animal; removal and replacement of turfs; use of fertilizers; and species identification.

2.1.5. Pre-construction plannings

The ESIA has identified ESAs in which particular species of plants and animals have been recorded. Detailed identification of the presence of such species will be required prior to construction to facilitate the reinstatement of a similar plant community to that existing prior to construction. It is also required to confirm the presence of animal species that may require translocation prior to construction. Preconstruction phase is explained in detail in the Ecological Management Plan (TKF-PLN-ENV-PL3-008).

2.1.6. On-site supervision

In addition to the planning of reinstatement activities, ecological expertise will be present on site during all relevant activities within ESAs (e.g. route clearance, re-vegetation) to provide advice and supervision. TEKFEN will provide appropriately qualified personnel to undertake the day-to-day supervision of such activities.

2.2. REINSTATEMENT OF LAND OTHER THAN TANAP-RoW

2.2.1. Land at Construction Support Facilities

Preconstruction planning and ecological surveys will document conditions in order to adequately reinstate the areas to at least as good as that prevailing before establishment of the facility.

The following requirements apply to all construction support facilities such as fly camps, pipe storage yards, etc. They do not apply to permanent facilities such as AGIs. The fate of construction support facilities will be agreed with EPCM before starting any activity connected with reinstatement.

Construction support facilities will be avoided in the Special Areas. Should this become unavoidable, a prior approval of EPCM is required. TEKFEN will prepare all necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority.

There will be no waste remaining after removal of the facility and upon return of the site to the landowner. Except for new roads, facilities will be removed and the land restored so that it is suitable for its original function. New roads will be handed over as part of the completed project with shoulders finished in keeping with the local environment with approval of EPCM. Erosion control and drainage features may remain visible.

2.2.2. Permanent Above-Ground Installations (AGIs)

All permanent installations will be reinstated in accordance with the Project Drawings and specifications.

TEKFEN will permanently reinstate the area surrounding AGIs to the satisfaction of EPCM, the regulatory authority or landowner and will obtain written approval of the level of reinstatement from EPCM, the appropriate regulatory authority or the landowner. TEKFEN's photographs of the condition of the area prior to construction may be referred to.

2.2.3. Spoil and Temporary Waste Storage Sites

TEKFEN will close, cap, and reinstate all (except as otherwise agreed with EPCM) temporary waste storage sites by the completion of the Contract. Sites will be dealt with in accordance with the relevant project requirements. Biorestoration, where appropriate, will be carried out in accordance with the requirements defined in BAP and EPCM approved Special Area Reinstatement Method Statements.

Spoil and temporary waste storage sites are prohibited in ecologically sensitive areas. Should this become unavoidable, prior approval of EPCM is required. TEKFEN will prepare all necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority.

2.2.4. Existing Roads and Access

TEKFEN will exercise care when using both public and private roads for travelling to and from the TANAP-RoW and will upgrade and maintain roads during the works as necessary for safe operations, and reinstate them to their original upgraded condition or better following completion of construction activities.

2.2.5. Quarries

TEKFEN will ensure that all borrow material will only be sourced from (both existing and new) licensed and authorized sites or sources. Where new quarries need to be opened TEKFEN will obtain the necessary permits and licences and conduct any necessary ESIA. Reinstatement of these quarries to be opened will be carried out to the satisfaction of the respective landowners and local authorities (pls refer to TEKFEN's Aggregate Management Plan - TKF-PLN-ENV-PL3-011).

2.3. TOPSOIL REMOVAL AND STORAGE

Topsoil is defined here as the top, fertile layer of material on the land surface that is capable of supporting plant growth. It contains the seed bank and is therefore an essential component of the re-vegetation program. Maintenance of topsoil quality, particularly its structure and the integrity of its seed bank, is vital to both bio-restoration work and erosion control.

The construction areas will be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of topsoil is essential to achieving this objective.

Topsoil and subsoil storage for a standard working area is given in Fig. 2.1 below.

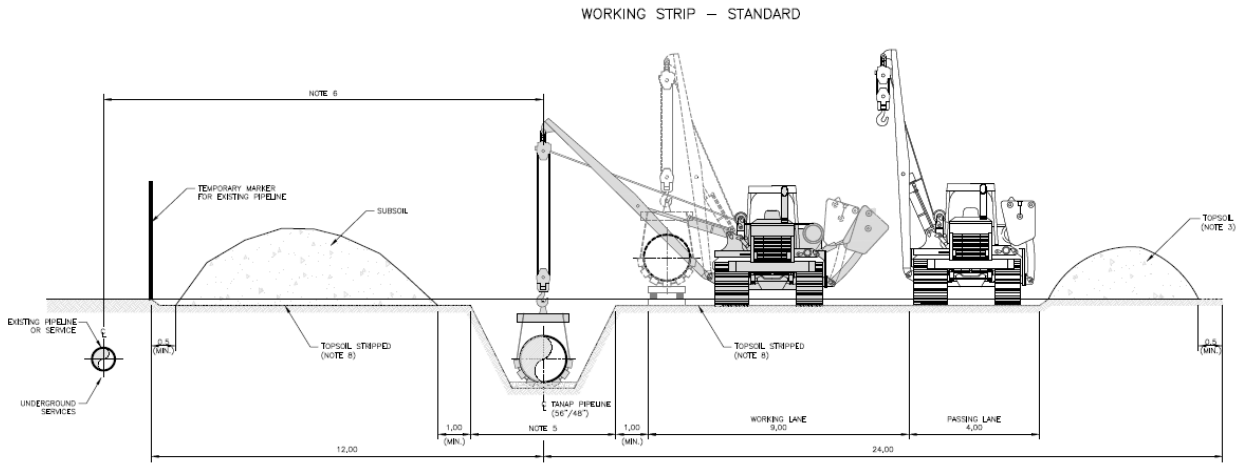


Figure 2–1. Topsoil and subsoil storage in a standard working area

2.3.1. Topsoil Stripping

TEKFEN will determine the depth of topsoil prior to construction. During construction, the determined depth of topsoil will be carefully stripped to its full depth and stored separately.

TEKFEN will develop procedures for topsoil stripping in advance of all work fronts.

The following requirements will apply to topsoil storage:

- Topsoil storage will be in compliance with the ESIA Report, BAP and project drawings.
- Topsoil will be stripped to a depth of between 10 cm and up to a maximum 30 cm. In areas where little or no topsoil is present the TEKFEN will agree the depth (if any) of topsoil to be stripped with the EPCM's representative.
- Topsoil will be stored in a stockpile not more than 3 m high with side slopes < 45º, and drained with open ditches as necessary
- Areas with a topsoil depth less than 10 cm will be identified in the site-specific procedures and method statements.
- Topsoil will not be stripped from areas that will only be used for storing topsoil as long as topsoil is not compacted/affected in any way.
- Topsoil will be stored where it will not be compacted by vehicles or contaminated and will be stored in a manner that will minimize its loss and/or degradation.
- Topsoil will not be mixed with subsoil and will be stored on the opposite side of the TANAP-RoW to subsoil; other than in restricted areas where mixing will be prevented by physical means, e.g. geotextile sheeting.
- Isolated piles of topsoil should be clearly signed as 'Topsoil' in Turkish and English.
- The surface of the stockpile will be lightly compacted, as necessary, to restrict rainfall penetration, maintain aerobic conditions, and will be protected from flooding by placing berms around the outside. Under no circumstances will topsoil be used as padding material.
- Erosion control measures (e.g., temporary seeding) will be installed as necessary to prevent loss of topsoil from the storage area and surface water contamination.
- Topsoil will be stored in a dedicated area where it will not be compacted by vehicles or exposed to contamination
- Topsoil and subsoil piles will be free draining and gaps will be left in linear topsoil piles to permit access and prevent canalization of water that may be held against the stack.

- During handling, damage to soil structure will be avoided. Soil handling under wet conditions is to be avoided other than in areas having obviously sandy soils. Construction is to be delayed 24 hours following a 24-hour rainfall of 10 mm or more during the preceding day, after which soil condition will be reassessed.
- Soils that are plastic when wet will not be worked until their dry consistence, increases to slightly hard or harder or until their moist consistence increases to firm or harder.
- Topsoil stockpiles will be regularly inspected for compliance with storage specifications and the aeration state will be tested and record on a quarterly basis

2.4. SUBSOIL REMOVAL AND STORAGE

Subsoil is material excavated from the pipe trench or is the result of ridge top, widening and cutting of benches on side slopes.

The objective is to manage the subsoil so that it is not subjected to, nor is the cause of excessive erosion.

The construction areas will be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of subsoil is essential to achieving this objective.

2.4.1. Management of Subsoil

Subsoil that will be reused, (i.e. returned to the trench or corridor TANAP-RoW) will be placed in stockpiles as shown on the drawings (See Figure 2-1).

During construction activities, subsoil will be stockpiled so that it is not subject to or the cause of erosion in accordance with construction drawings and project specifications. Topsoil will be stored in a stockpile not more than 2m high with side slopes <45°, drained with open ditches, and 1 m high in critical habitats according to BAP.

Topsoil stockpiles will be turned over every 4 months to re-oxygenate and avoid development of anaerobic conditions. In areas of very limited working space, topsoil stockpiles of up to 3m high and <45° slope may be permitted with EPCM's approval, but the pile will be turned every 2 months. The surface of the stockpile will be lightly compacted (a single pass of light hand compaction equipment) to reduce rainfall penetration but not enough to promote anaerobic conditions.

A drainage corridor will be provided on slopes more than 30° to deal with runoff from the stockpile. Other erosion controls measures (e.g., temporary seeding, silt fence) will be installed as necessary to minimize erosion.

Drainage will be provided which prevents standing water on or against the stockpile. Where necessary, the stockpile will be protected from flooding by placing berms/diversions around the perimeter. Under no circumstances will stockpiled topsoil be used as padding material.

Subsoil stripping and storage will be in compliance with TANAP document.

Removed subsoil will be kept free from passage of vehicles and plant. Subsoil stacks will be placed to ensure that they are free draining. Gaps will be left in the stack to permit reasonable access across the RoW and at low areas where surface water may be held against the stack.

The surface of the stockpile will be lightly compacted to reduce rainfall penetration, but not enough to promote anaerobic conditions.

Subsoil will be reused to bury the pipe and restore pre-construction contours, as appropriate, to the maximum extent possible. The excess subsoil which cannot be used during reinstatement activities or which cannot be reused will be treated as waste and be disposed of in accordance with the Waste Management Plan (TKF-PLN-ENV-PL3-009).

2.5. TRENCH EXCAVATION AND PIPELINE PADDING

2.5.1. Excavated Material

The creation of surplus excavated material will be minimized as far as practicable. All material that is excavated will be re-used to the maximum extent practicable. TEKFEN will ensure activities for the minimization of excess excavation material amount and maximizing its reuse.

2.5.2. Blasting

Grading and trenching in rock areas, which cannot be accomplished by ripping or other mechanical means, require blasting. Blasting will only be used where other excavation methods are considered technically infeasible or uneconomic, and it will be demonstrated to, and approved by, EPCM, that the blasting will minimize over-break of ground and minimize the generation of spoil material.

If blasting is required for the earthworks, TEKFEN will obtain all required permits from related authorities and all necessary measures to protect people, animals and property.

2.5.3. Fill and Padding

Padding and fill materials will not be imported unless demonstrated to, and approved by, EPCM that such fill is technically necessary and/or online processing is technically infeasible or uneconomic and that suitable backfill cannot be provided by excavation techniques (e.g. crushing).

No topsoil will be used for padding or filling.

Padding material placement, quality and quantity will comply with the requirement as defined in the Construction Specification and Project Drawings. TEKFEN will import suitable padding material where the local excavated material does not meet the Specification or as requested by EPCM.

2.5.4. Management of Waste Soil and Rock

Generally, all soil and rock will be returned to the excavated areas. In some locations, however, there will be surplus subsoil or rock that cannot be returned, and this must be disposed of both safely and in line with the environmental requirements of the contract and in accordance with the requirements of the “Waste Management Plan (TKF-PLN-ENV-PL3-009)”.

Any new borrow (e.g. padding material, rock) and disposal (e.g. excess soil, excess rock, tree stumps) sites will be identified and evaluated to support project activities.

All borrow sites will be evaluated to determine if they can be used as disposal sites for waste soil and rock. For those that can be used as disposal sites, method statements will be developed for EPCM approval.

For existing borrow or disposal areas, TEKFEN will evaluate operations to identify corrective actions required for current operations to meet project standards. Only those portions of existing operations that meet or can be adjusted to meet project requirements will be used. TEKFEN will provide information to the facility operators on the actions needed to bring their total facility operations into compliance with project requirements, and will assist them in making necessary changes.

The priorities for managing excess soil and rock are as follows:

1st: Reuse at a project facility or RoW section (e.g., trench backfill material, erosion control)

Where generated spoil is suitable for use as a construction material it will be first considered for reuse on the project facility or RoW for Project infrastructure works materials; stability, erosion control, AGIs, etc.

2nd: On TANAP-RoW Disposal

- For restoration purposes e.g. simulation of rock streams/glaciers in adjacent areas, hillside contour blending.
- Localized increase in finished surface height of TANAP-RoW where approved by EPCM.

3rd: Off TANAP-RoW Reuse

Transfer to third Party for re-use purposes as raw or semi-finished materials, e.g. crushed andesite that may be suitable for road construction materials or for rail ballast.

TEKFEN will enter into negotiations and agreements with third parties regarding the feasibility, material specifications, terms and conditions for supplying spoil materials off the TANAP-RoW as materials acceptable for reuse. Notification of such agreements will be duly noted and reported to EPCM.

4th: Off TANAP-RoW Disposal (permanent soil and rock)

All off RoW disposal sites are to be agreed prior to use with EPCM and are to be in accordance with the project Waste Management Plan.

Spoil will not be deposited:
- in valley bottoms, creeks, gully crossings, or sink holes;
- where they will potentially interrupt concentrated overland flow;

Earth works management will be engineered particularly in contour restoration.

2.6. REINSTATEMENT OF SOILS

The TANAP-RoW will be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of soil is essential to achieving this objective.

Upon completion of reinstatement, disturbed areas will be inspected jointly by TEKFEN and EPCM for slope stability, relief, topographic diversity, acceptable surface water drainage capabilities, and compaction.

2.6.1. Reinstatement of Subsoil

There are two types of reinstatement for subsoil: standard reinstatement and special area reinstatement. Both conditions of subsoil reinstatement will be applied to restore the complex terrain in accordance with TANAP Project documents. In addition to re-contouring the subsoil based on the contours of the undisturbed areas adjacent to, pre-construction survey data will be used in conjunction with the pre-construction photo documentation to reinstate natural contours and conditions.

Prior to backfilling, trench (ditch) breakers will be installed in locations where the natural profile, drainage pattern, and backfill materials may cause the trench to act as a drain (e.g., at the base of a wetland or bank of a stream). Trench breakers will be installed in accordance with TANAP Project documents.

2.6.1.1. Standard Subsoil Reinstatement

On return of the subsoil to the trench, the subsoil will be compacted to a similar compaction to that in the adjacent undisturbed area. The depth of subsoil after settlement will not be above the level of the surrounding ground. After the subsoil has been returned and the land levelled, the subsoil will be rendered to a loose and workable condition to a depth of 300 – 400mm and contoured in keeping with the adjacent undisturbed ground. TEKFEN Environmental Inspectors will regularly monitor subsoil replacement, compaction and contouring.

2.6.1.2. Special Area Subsoil Reinstatement

Special reinstatement is applied where it has been necessary to cut a bench into the hillside in order to lay the pipe and the intention is to restore the original slope by filling-in the bench, thereby removing any scar in the landscape.

Side cut topsoil will be stripped and removed from the area and stockpiled. Both the topsoil and subsoil will be stored separately. The side slope cut will be restored, as far as practicable, to the original contours, so that the cut surface blends with the original contours. The subsoil layers will be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account should subsoil extend beyond the original line of slope or a new slope be created which is steeper than the original slope. Following compaction of the subsoil, the topsoil will be spread over the site, harrowed and reseeded.

The reinstatement of side sloped RoW section will include drainage measures to avoid erosion taking place across the reinstated RoW. Compaction of the backfilled subsoils will be sufficient to ensure long term stability of the slope and will as a minimum match the existing density of the surrounding ground. The reinstatement will be carried out in accordance with the typical drawings for side slopes unless otherwise approved by the EPCM. In exceptional circumstances where full reinstatement is not possible and the created cut slope will remain, a methodology proposing an alternative slope reinstatement solution will be prepared. This will set out as a minimum how the long term slope stability, visual impact, and environmental project requirements are met.

Side Slope:

The contour restoration strategy is to 'contour blend'. The side slope cut will be restored, as far as practicable, to the original contours, so that the cut surface blends with the original contours through the implementation of engineered spoil management. The subsoil layers will be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account should subsoil extend beyond the original line of slope or a new slope be created which is steeper than the original slope.

Topsoil will be stripped from the area and stockpiled. Both the topsoil and subsoil will be stored separately. Both stockpiles will be consolidated and adequately drained. Drainage from the spoils will be provided and a safe outlet established. Please refer to Project Drawing "Typical Working Strip Side Slopes (18 °-30°) (WRP-DGA-PPL-PLG-005-01-P4-0)".

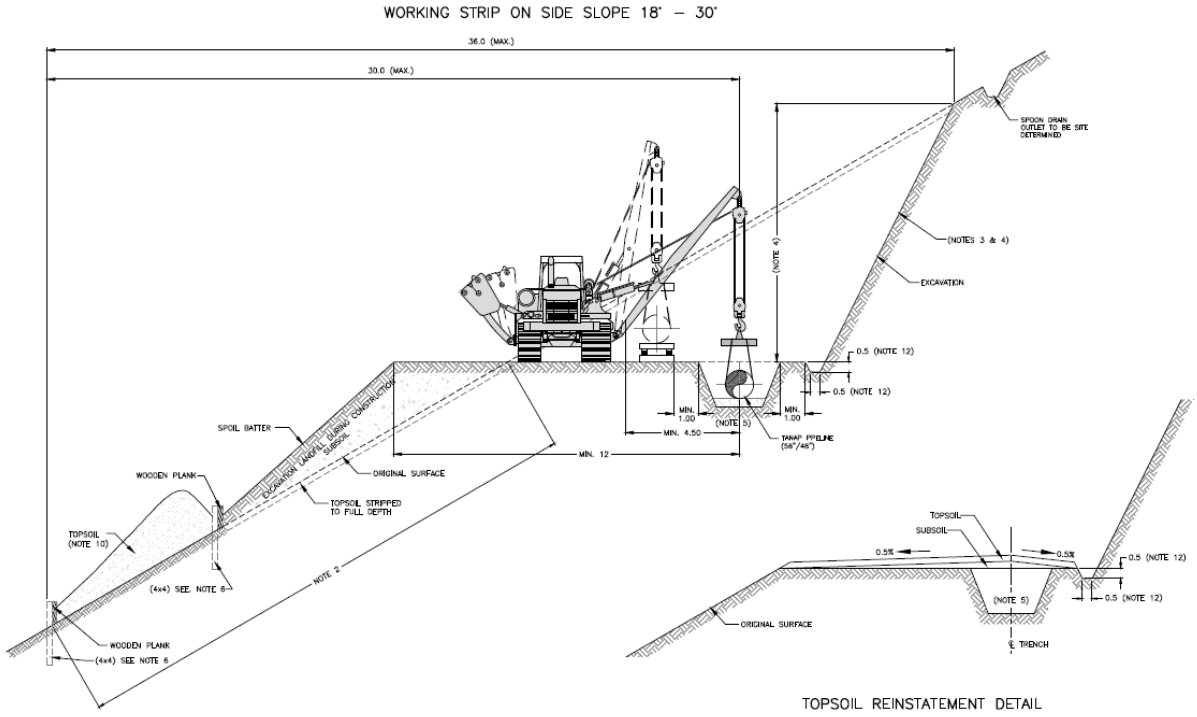


Figure 2–2 Special area reinstatement

On completion of all pipe installations, the subsoil will be replaced in layers. The thickness of the layers, conditions of the soil and number of passes of the compactor will be sufficient to produce a density of 95%-105% of the highest compaction measured in the adjacent undisturbed area.

Following compaction of the subsoil, the topsoil will be spread over the site, harrowed and reseeded. Erosion mats will then be laid.

Special Reinstatement – Side Slopes

Special reinstatement is applied where it has been necessary to cut a bench into the hillside in order to establish a flat working area from which to lay the pipe. It is the intention where possible to restore the original slope by filling-in the bench, thereby removing any scar in the landscape.

Side-cut topsoil will be stripped and removed from the area and stockpiled. Both the topsoil and subsoil will be stored separately. The side slope cut will be restored, as far as practicable, to the original contours, so that the cut surface blends with the original contours. The subsoil layers will be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account would subsoil extend beyond the original line of slope or a new slope be created which is steeper than the original slope. Following compaction of the subsoil, the topsoil will be spread over the site, harrowed and reseeded. The reinstatement of side sloped RoW section will include drainage measures to avoid erosion taking place across the reinstated RoW. Compaction of the backfilled subsoils will be sufficient to ensure long term stability of the slope and will as a minimum match the existing density of the surrounding ground. The reinstatement will be carried out in accordance with the typical drawings for side slopes unless otherwise approved by the EPCM.

2.6.2. Reinstatement of Topsoil

Topsoil will be segregated and will not be mixed with spoil material before or during replacement. Only segregated topsoil will be re-spread over the surface. Topsoil will not be used for bedding material in the trench, and topsoil from unstripped/undisturbed areas will not be used to cover adjacent disturbances. Topsoil will not be handled during excessively wet conditions or at times when the ground or topsoil is frozen.

Once the disturbed areas have been re-contoured and compacted, topsoil will be re-distributed over the entire disturbed areas from which it was stored.

All disturbed areas will be subject to final grading; however, measures will be taken prior to seeding to ensure disturbed areas remain in rough condition to help protect the stability of topsoil after its re-distribution. On sites where harrowing etc. is not practical (e.g. steep slopes, rocky areas etc.), the sites should be dozer-tracked perpendicular to the slope or otherwise left with adequate roughness following topsoil placement.

When the topsoil is replaced over the TANAP-RoW, a slightly rough, loosely consolidated texture will be achieved in order to promote vegetation growth.

2.7. RIVERS

Where required the design of riverbed and riverbank protection will be in accordance with Project Drawings.

Specific method statements will be produced by TEKFEN for all major river crossings, i.e. RVX1, RVX2, RVX3A and RVX8, generic method statements will be produced by TEKFEN for each type of minor river crossing i.e. RVX3B, RVX4 to RVX7 for EPCM approval. The method statement will detail all construction and restoration procedures.

Riparian vegetation (Plant habitats and communities along the river margins and banks) are of high importance to the long term stability of the river. TEKFEN will minimize riparian disturbance wherever practicable. Where riparian vegetation consists of shrubs and trees greater than 1m height, TEKFEN will transplant the plants wherever possible for re-planting during reinstatement works. Where it is not practicable to transplant or translocate the trees then new trees of the same species mix will be planted. Nursery trees of minimum 2 years old up to 5 year old will be planted

in order to restore the riparian environment, subject to the restrictions of the Planting Proximity Zones.

The *Planting Proximity Zones* are defined by the following:

- there will be no trees planted within 6m of the pipeline centerline,
- trees such as Willows (Salix) and Poplar (Salicaceae) or other native species with similarly deep and aggressive root structures will not be planted within 10m of the pipeline centerline.
- other tree species such as Ash, Alder, Lebanon cedar, larch, beech, elm, sweet chestnut, hornbeam, Turkish Pine, scotts pine, black pine, Kermes oak, Cilician Fir, sycamore, apple, plum, cherry, pear, and also included in this category are most conifers may be planted at a distance of 6m or greater from the pipeline centerline.

TEKFEN will plant sufficient density of vegetation to achieve the original plant densities subject to the restrictions of the Planting Proximity Zones. The planting density will take consideration of dieback rates of each plant.

Where originally present native shrubs will be re-planted above the pipeline and within the riparian zone: if no shrubs are originally present, TEKFEN will introduce shrubs native to the region to provide vegetative stabilization and erosion protection to the cleared riparian zone 6m either side of the pipeline centerline.

Acceptable plant types, suggestion of planting density and their location relative to the pipeline are outlined in drawings WRP-DGA-PPL-PLG-036-01 – Typical Drawing Riverbank Protection Bio Restoration and WRP-DGA-PPL-PLG-036-02 Typical Drawing River Riparian Restoration.

Bioremediation of river banks will be undertaken to re-establish vegetation to the equivalence of the adjacent untouched areas. This may include juvenile trees and shrubs the selection of, placement and planting will be supervised by a competent ecologist and approved by the EPCM. In addition, for erosion protection purposes, the regional planting and seeding regime will also be applied.

Unless stipulated on project documentation, river banks will be restored to their original condition and contours. Where this is not practicable, TEKFEN will propose site specific solutions with engineering justification; this will be included within EPCM approved method statements.

For gravel bed rivers, the armored bed (the sediment forming the surface layer that is coarser than the underlying sediment) will be recovered to a minimum depth of 30cm at the start of crossing excavations, stored in a segregated area and replaced as the top layer of bed material during reinstatement.

The backfill over the pipe will be at least as scour-resistant as the original bed material. Where rock is present the backfill material will be coherent and with similar properties to the adjacent undisturbed ground, the trench should not create a natural channel for preferential erosion or water run-off nor should it create localized hard areas, with the potential to increase future erosion rates across the watercourse.

The disturbed portion of the river bed will be returned to pre-construction contours where possible and in compliance with Project Drawings. Any deviations will be subject to EPCM approval.

Erosion protection and stabilization measures will be provided to prevent acceleration of and / or increase in the erosion as a direct or indirect result of the construction activities. Other than sites where civil protection measures are designed e.g. riverbank revetments and riverbed protection, erosion and soil stabilization measures, when implemented, will not be intended to permanently alter the pre-construction hydrologic and environmental regimes including natural erosion of the rivers. Trench backfill materials will meet the requirements of the Pipeline Construction Specification. Any material too wet to be suitable for reinstatement of the banks will be dried as required to ensure stability during reinstatement.

Erosion and sediment control devices will be installed and maintained until re-vegetation and/or selected stabilization measures shown in Project Drawings are sufficiently established and functioning to meet the requirements of “no accelerated” or “increased erosion”.

Where erosion matting and/or bio-restoration cannot achieve the project reinstatement performance requirements, or where otherwise indicated on Project Drawings, or as otherwise deemed necessary, erosion protection will be achieved by the installation of civil protection measures.

Where permanent river bed scour and riverbank protection is required it will generally be specified on site specific detail drawings and in the River Crossing Reinstatement and Scour Protection Schedule Document No. WRP-LST-PPL-PLG-003. Protection measures will be implemented as specified. TEKFEN is required to validate the river crossing reinstatement and scour protection schedule document and where additional protection requirements become apparent during either construction and/ or re-instatement, TEKFEN will propose additional measures, in accordance with project requirements, for EPCM review and approval prior to implementation.

Requirements for riprap, geotextile, gabions, sills, bunds, groynes etc, including but not limited to material specifications, placement and testing will be in accordance with Project Drawings, and meet the minimum requirements of the Pipeline River Crossing Civil Protection Works Specification WRP-SPC-PPL-PLG-030.

2.8. BIO-RESTORATION

Vegetation, by intercepting rainfall and binding the soil, reduces soil erosion and sediment. Re-vegetation in the project area means returning the land to its use prior to the construction. This means planting grasses in grazing areas or on highly erodible landscapes, such as those belonging to moderately steep and steeper slopes; or planting alpine plants where the land is unsuited to grass. Privately owned land will normally be replanted in accordance with the wishes of the landowner and EPCM.

Trees will not be planted within an 8 m wide strip over the pipe. However, trees will be planted in areas suitable for reforestation, such as the verge of the right-of-way. In addition to the TANAP’s working width, its temporary roads and other disturbed areas will be reinstated by TEKFEN.

All bio-restoration programs will be approved by EPCM. Landowners will be consulted by TEKFEN to assist in developing these programs. Where Landowners requirements cannot be achieved, TEKFEN will consult with EPCM to agree a final resolution of the issue.

2.8.1. Objectives

The objectives are:

- To reinstate the variety and distribution pattern of the original plant species with the long term objective of reinstating the local ecology; and
- To establish sufficient vegetation cover to reduce erosion to meet the performance requirement of Erosion Class 3 or better through restoration of the local plant community.

The long-term cover will be the native flora with the exception of areas that were planted with crops or other non-native species prior to construction. The bio restoration strategy is based on supplementing the seed bank of local species that will remain in the topsoil when it is replaced. All bio restoration materials including seeds and plants will be supplied by TEKFEN.

2.8.2. Requirements in Agricultural/Developed Areas

In agricultural (defined as arable land) and other developed areas TEKFEN will leave the land in the condition specified in the pre-entry agreements. Except where agreed otherwise, TEKFEN will assume that the land is to be made ready for re-planting with crops: the land will be graded and tined to remove compaction. Application of fertilizer and planting of seeds etc. on permanent growing areas will be carried out by the landowner or tenant.

2.8.3. Requirements in Undeveloped Areas

Original percentage cover will be estimated from TEKFEN's photographic record of the route, or, in case of doubt, by reference to adjacent undisturbed areas.

The vegetation cover will be composed of either:

- The species originally found in each section or project area; or
- Other species (for example, fast growth types) which are suited to the local environment and indigenous to the region; or
- An ecologically compatible mixture of those two groups.

2.8.4. Scheduling

TEKFEN will carry out biorestoration work in the appropriate growing seasons (blooming time for most of the plant species is spring, yet seeding time of each restored species will be considered). Sowing or planting must take place in moist ground and be followed by sufficient rainfall to promote germination and establishment. TEKFEN will identify from historical meteorological data suitable weather 'windows' for each area of the route. Bio-restoration schedule will be approved by EPCM.

TEKFEN will produce a Bio-restoration Schedule including pre-construction transplanting or cultivation in addition to post-construction soil preparation, planting and aftercare.

2.8.5. Selection of Plant Species

This section refers to the species and form of materials (seed, seed-mix, bulb, or plant etc.) chosen to supplement the seed bank of the topsoil. This section does not apply to agricultural or other developed areas.

- The selection of species will be designed to achieve the objectives.
- TEKFEN will be responsible for the choice of species and form of materials. The choice will be based on the objectives and ecological survey records. TEKFEN will refer to BAP for existing species and their distributions.

2.8.5.1. Species Selection

Where rapid growth is necessary for erosion control or other reasons, the species selected for initial planting will have the following properties:

- dense, fibrous horizontal root structure close to the surface;
- dense uniform ground cover, particularly during the season of the most intense rainfalls;
- resistant to damage by high-velocity run-off;
- resistant to damage from trampling by people and animals;
- not persistent – will allow the original species to re-colonise the area;
- if possible, not clumpy or tussocky as this may lead to concentration of run-off between the plants.

The species selected for long-term growth will reflect the variety and distribution pattern of the pre-construction flora.

2.8.5.2. Fertilizer

Fertilizer will be applied to disturbed surfaces, as necessary, where vegetation is to be seeded or planted. If topsoil has been restored, the rate of application will generally be 1.1 T ha^{-1} of 10-10-10 (N-P-K); if topsoil has not been restored, the application rate will generally be 2.0 T ha^{-1} of 10-10-10. In some circumstances, basal doses may be substituted. Local advice (universities, agronomists, and landowners) will be obtained to confirm or revise the stated fertilizer application rates at specific locations. Banned materials will not be used.

Timing of Fertilizer:

Fertilizer is generally not required during seedling establishment or during plant post-vegetative phases.

- For spring-sown plants, this would follow about 10–20 days after germination and end about 40 days later.
- For autumn-sown wheat, this would follow snowmelt and last about 50 days.

Local advice (universities, agronomists, and landowners) will be sought by TEKFEN.

Placement of Fertilizer:

Problems can be avoided if fertilizer is broadcast before topsoil replacement or is mixed into the topsoil. This effect would be similar to injecting fertilizer into the soil, albeit its depth if broadcast would be deeper than injection as it is currently practiced. Indeed, in-depth placement or mixing may be the only practical way of applying area if that is the only fertilizer available to the project.

Local advice (universities, agronomists, and landowners) will be sought.

2.8.6. Procedures to be followed by TEKFEN

Depending on local soils, slope and climate and the nature of the local plant communities, one or more of the following procedures for re-vegetation can be adopted:

- sowing of grass seeds;
- planting of shrubs / tree whips at 1m centers;

The procedure for each of the above is described below.

Procedure for Grass Seeding:

For vegetation to protect adequately against soil erosion, it needs to be seeded at adequate densities and using methods that insure a dense gRoWth. Seeding methods and species to be used will be specified in Special Area Reinstatement Method Statements. Species utilised for re-seeding and the seed-mix will be in sympathy with the pre-existing vegetative cover.

TEKFEN will provide and transport grass seeds from reputable suppliers. If temporary storage is necessary, cool and dry conditions will be provided. The delivery by the supplier will include a data sheet identifying the type of seed and the 'use by' date. Seed will be purchased in accordance with the manufacturers' seed specifications for seed mixes and used within 12 months of testing. Other alternative seed mixes specifically requested by the landowner or land managing agency may be used. Seed data sheet to be provided to EPCM for approval prior to use.

Chisel harRoW the topsoil to a depth of not more than 10 cm. On slopes up to 20%, harRoWing can be carried out mechanically up-and-down slope. Hand tillage will be used on steeper slopes.

In general, broadcast grass seeds at a rate of not less than 70 kg/ha. Certain species/mixtures of seed may require different densities.

Lightly harRoW (chain harRoW or similar) the soil to a depth of 25-50mm to bury the seed in a loose tilth.

In locations where erosion mat is not specified, mulch or windRoWed vegetation from clearance operations will be re-distributed over the seeded ground.

In sections where livestock may be present a stock-proof fence will be erected along the boundaries of the seeded area.

Seeding will be done either with a seed drill, hydroseeding or by broadcasting. If broadcast, seeding will be done within 10 days of topsoil replacement. Broadcast seed will be lightly harRoWed or disked. If sowing is seasonally out of phase, then an application of mulch is required on moderately high and highly erodible soils on slopes steeper than 16%, where seed will be applied in combination with mulch, chemical stabilizer (for some types of mulches), and fertiliser.

On extreme slopes, such as cut faces of right-of-ways and roads, and excluding slopes steeper than 1/4:1 (h:v), seed and fertiliser are to be broadcast followed by power mulching using straw and a suitable tackifier such as bitumen.

Vegetated waterways will be planted with species that offer good channel roughness such as alfalfa or a grass-legume mixture incorporating Italian rye grass and common lespedeza; low-gRoWing grasses such as Bermuda are unsuited to waterways above 3% slope.

Procedure for Shrub Planting:

A requirement of a minimum of 70% of the pre-existing shrub cover (based on number of individuals) established within one year of planting will be set. If below-average rainfall is experienced, or where soil is lacking in nutrient, or where there are slopes of 25% or greater, a minimum of 50% cover (50% of the original cover where original cover <70%) will be achieved in the first year with 70% occurring after the end of the following year. In other areas where third party activities have affected the level of vegetative cover, the original cover will be determined by reference to adjacent, unaffected areas of similar topography and soil type.

TEKFEN will provide and transport plants and fertilizer from reputable suppliers. The delivery by the supplier will include a datasheet identifying the type of shrub and the 'use by' date. The roots will be kept moist. Avoid excessive handling of the stems and roots since this will cause damage. Data sheet to be provided to EPCM for approval prior to use.

Plant shrubs on a 1m x 1m spacing (or as advised by the Specialist), arranged in echelon, in the following steps:

- clear the land of any vegetation around each planting position;
- dig a hole large enough to take the roots of the plant when spread out;
- place fertiliser as supplied in the hole;
- place the shrub in the hole and backfill with soil;
- if necessary to keep upright, support the shrub by tying to a stake;
- water the plant.

In locations where erosion mat is not specified, mulch or windRoWed vegetation from clearance operations will be re-distributed around the shrubs.

Arrangement will be done for repeated watering of plants during summer and other dry periods during the first year of planting.

2.8.7. Jute Matting and Mulch

Mulch is used to insulate the soil surface from evaporation and high temperatures, to protect young seedlings from desiccation, and to lessen soil erosion by intercepting rainfall. Its application varies with site condition, seeding practices, and phase, according to the agricultural calendar. Mulch can comprise organic or synthetic materials. The type of mulch will vary with the time of seeding, the slope, and the amount of relief. In interior plains and plateaux, temporary mulches using straw fiber or its equivalent are to be applied on undulating and rolling lands seeded in advance of the rainy season; mulch mesh or mats are to be applied on hilly and steeper lands. In the mountains and foothills, mulch mesh or mats are to be applied on rolling and steeper landscape classes that have been seeded to grass. Planted areas are to be temporarily fenced until such time as their vegetation

reaches a condition appropriate to the zone. In most cases this will be judged by its ability to resist soil erosion.

2.8.8. Interior plains and plateaus

In general, cereals on slopes less than 16% would not be mulched following seeding. An exception applies to cereals planted out of phase with the agricultural calendar, when a light straw mulch is to be applied.

Slopes steeper than 16% and vegetated waterways require a heavy mulch when seeded to grass, regardless of the situation.

2.8.9. Mountains and Foothills

Vegetated waterways and slopes steeper than 8% require a heavy mulch, slopes less than 8% require a light mulch if they are seeded out of phase with the agricultural calendar. An exception is areas to be reforested in conglomerate-derived soils, where planting basins or terraces following regional forestry practices replace the mulch requirement.

2.8.10. Reforestation

Reforestation of the RoW will occur wherever a forest existed before the construction. For the purposes of this Plan a forest is defined as “trees and small trees, naturally or artificially gRoWn, together with their surrounding area are considered as forest areas”. The reforestation strategy will be applied to every tree felled during RoW clearance. This must be performed in coordination with the Forestry Directorates.

A 24m working width is adopted in forest locations. A strip 8m wide above the pipeline is to remain fallow. Beyond this a 3m strip on either side is to be seeded; the outermost 4m on either side is reforested with trees if deemed necessary.

The number of felled trees and the tree species will be recorded. In reforestation, the composition of tree species will be considered and after care of re-planted trees will be done.

However, not all trees will be able to be replaced in the same location from which they were removed, as trees will not be able to be replanted along an 8m wide strip above the pipeline.

2.8.11. Protection of Planted Materials

In sections where livestock or wild animals may be present, precautions will be taken to protect the seeds and plants from damage. Some or all of the following techniques will be employed:

- Security patrols ;
- Erection of stock-proof fencing (designed/installed to discourage theft), along the project area boundaries;
- Supplement boundary fencing by internal area fencing to give double protection to particular areas;

2.8.12. Aftercare, Monitoring and Corrective Action

TEKFEN will carry out the necessary aftercare (watering, further application of fertilizer etc.) during the contract maintenance period in order to meet the revegetation requirements.

Where necessary, TEKFEN will provide appropriate fencing to prevent access by grazing animals and vehicles. Fences will be fitted with signs in Turkish indicating the purpose, i.e. the enclosure is a TANAP biorestoration project area and fencing is required for protection.

Appropriate levels of irrigation/watering will be provided for revegetated areas. The quantity and timing will be dependent on local climatic conditions, soil type and species requirements. Local advice will be sought where possible.

TEKFEN will examine the biorestoration process of each section every three months after planting against the performance criteria specified below. Where the criteria are not met, or it appears that they will not be met within the specified time, TEKFEN will take corrective action as specified in the Table 1.

Table 1- Bio-restoration Performance Criteria Guide

Plant type	**Performance criteria and corrective actions**
Grasses	The performance of the new gRoWth will be compared with the requirement described earlier in this section. GRoWth from both the existing seed bank and reseeding will be combined when determining the percentage cover. Corrective action will include over seeding and/or watering.
Shrubs & trees	Failures of planted trees must not exceed 30% of the total numbers planted. TEKFEN will replace failed trees and take further corrective action (watering, application of fertilizer etc.) if needed.

2.9. SPECIAL AREAS

The TANAP pipeline project contains topographical, geological and ecological features, which are characterized on the project as Special Areas, these require particular attention throughout construction and reinstatement.

Method statements of TEKFEN for these areas LOT-3 will demonstrate sufficient awareness and intent to minimize construction impact.

These Special Areas are as follows:

- side slopes;
- steep slopes;
- narrow ridges and areas prone to landslides
- ecological sensitive areas;
- karstic areas;
- volcanic tuff and marl;
- above ground installation sites.
- Areas of Contaminated Land

In addition to specialized construction techniques and increased levels of inspection, these areas will be specifically considered by TEKFEN during planning and project control. Consideration of schedule constraints within these areas (weather, planting seasons, animal breeding periods etc.) will be clearly identified by TEKFEN's environmental personnel on associated documents. Construction planning will achieve a 21-day period from the time when a Special Area is entered to the completion of reinstatement (to a level specified in EPCM approved Special Area Reinstatement Method Statement) unless otherwise approved by EPCM.

The general construction philosophy will address completion of these identified Special Areas with minimum delay. The back-end of the spread will follow directly behind the lowering-in crew. TEKFEN will minimize the exposure of these areas to inclement weather.
TEKFEN will provide suitably qualified and experienced specialists to assist in the reinstatement engineering and re-vegetation procedures and method statements for the entire LOT 3 and with particular consideration of these Special Areas. Such specialists will include geotechnical engineers (and/or engineering geologists) and ecological specialists in relation to the reinstatement of critical habitats (as specified in the BAP), who work for in-country specialist organizations. EPCM may also provide specialists to oversee and audit these activities.

TEKFEN will ensure that specialist subcontractors are appointed to provide both advice and specialist skills for reinstatement planning and execution in Special Areas if required.

2.9.1. Side Slopes and Spoils

The contour restoration strategy is to 'contour blend'. The side slope cut will be restored, as far as practicable, to the original contours, so that the cut surface blends with the original contours through the implementation of engineered spoil management. The subsoil layers will be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account will subsoil extend beyond the original line of slope or a new slope be created that is steeper than the original slope.

Topsoil will be stripped from the area and stockpiled at designated spoil storage areas which will be subject to EPCM approval. Both the topsoil and subsoil will be stored separately. Both stockpiles will be consolidated and adequately drained. Drainage from the spoils will be provided and a safe outlet established.

On completion of all pipe installation, the subsoil will be replaced in layers. TEKFEN will prove that the thickness of the layers, conditions of the soil and number of passes of the compactor will be sufficient to produce a density of 95%-105% of the highest compaction measured in the adjacent undisturbed area. *In-situ* and laboratory density testing will be carried out as required to confirm that the compaction requirements are met. In exceptional cases this may require compaction trials on request of the EPCM. Alternatively TEKFEN may prove 95% of the maximum dry density at ± 2% optimum moisture content as determined by the standard Proctor test.

Compaction will be carried out in accordance with the Pipeline Construction Specification WRPSPC-PPL-PLG-001-P3. Care will be taken when compacting above and surrounding any pipework or drainage to ensure the integrity of the pipe and adequate compaction is achieved.

Particular consideration will be given to the adequate drainage solutions and the appropriate 'keying-in' of the placed backfill material into the existing temporary cut slope in order to prevent any future slip surfaces along the boundary between newly placed and in-situ material. Final slope measures and reinstatement details will be subject to EPCM approval.

Following compaction of the subsoil, the topsoil will be spread over the site, harRoWed and reseeded. Erosion mats will then be laid.

In the event that side cuts are to remain as a permanent restoration feature. TEKFEN will prepare a methodology statement on the proposed works including (but not limited to) the degree of reinstatement, proposed drainage measures, process of slope inspections and programme of the works. The method statement will clearly state how the overall environmental project and stability requirements are adhered to.
TEKFEN will carry out site inspections with EPCM in order to define required design measure to ensure long term stability of the slope and that the environmental requirements are met.

Adequate drainage will be applied to assure stability and controlled water runoff. Final cut slope angles will be defined based on ground conditions encountered. Final slope angles and stabilisation measures (such as geotechnical slope drainage, scaling, rock netting or catchment benches, crest drains etc.) will be proposed by TEKFEN for EPCM pre-approval.

The reinstated condition of side slopes is not expected to have any significant inclination perpendicular to the pipeline, and only have a maximum slope length of the width of the RoW. Additionally drainage measures are typically implemented upslope of any sections of side slope the pipeline encounters. As such the anticipated slope erosion is considered minimal, and the prescribed mitigation measures for these lengths of pipe will be based on their downslope fall.

Where there is a cross-fall oblique to the pipeline resulting in an increase of slope angle (compared to the gradient parallel to the pipeline) the slope erosion measures as defined on the alignment sheets will be reviewed. For such slopes the TEKFEN and EPCM representative will determine any additional mitigation measures on a site specific basis in order to ensure that the slope erosion requirements are met. The reinstatement solution will be based on the standard reinstatement approach, with breakers across the RoW. The slopes as described above will be identified in the field and details for soil erosion measures verified by the TEKFEN subject to EPCM approval.

For the fully reinstated case (*i.e.* if the slope is reinstated to its original contours) the slope erosion will pose a negligible hazard to the pipeline due to the short distance of exposure of the pipe (main gravitational transport perpendicular to the pipe) and considerable cover depth. Final erosion measures will need to be determined on site during construction based on the slope geometry and materials placed.

2.9.2. Narrow Ridges and Areas Prone to Landsl ides

Along certain sections the pipeline route crosses hilly terrain and is routed along narrow ridges in order to avoid pre-existing landslides or potentially unstable ground which is typically on steep side slopes with backscarps reaching in some areas up close to the ridge line.

The construction in these areas will be carried out in accordance with the Construction Specification WRP – SPC – PPL – PLG - 001 and strategy set out in the Slope Assessment Report WRP-REP-EGG-PLG-010-P3-D. For the works in this area TEKFEN will prepare a methodology statement subject to EPCM approval detailing how the project and stability requirements are met.

For certain areas along narrow ridges site specific designs and reinstatement requirements will be developed as set out in the AFC documents. For these cases TEKFEN will ensure that all site specific design requirements are met subject to EPCM approval.

TEKFEN will assess and determine any requirements for additional earthworks and excavation. For any deviation from the overall project strategy to reinstate back to 'original contours' TEKFEN will detail these proposed changes in a methodology statement subject to EPCM approval.

TEKFEN will ensure that the following aspects are complied with:

The stability of the RoW will be proven following the clearance of the RoW and prior to construction works by geotechnical inspection by the TEKFEN and EPCM. These stability inspections will carried out at regular intervals throughout the construction works and will focus on any signs of potential slope movement.

In sections where topography, geohazards (such as landslides) and proximity to 3rd party pipelines will require a reduced working width, TEKFEN will propose an appropriate working method for these areas.

TEKFEN will choose appropriate plant and assess stability of RoW taking into account effects of plant surcharge.

No side casting will be allowed without the approval of EPCM in order to minimise the width of the construction corridor and avoid surcharge and uncontrolled drainage into potentially unstable ground. Spoil storage areas will be proposed by TEKFEN for approval by EPCM to avoid any storage on potentially unstable ground and to prevent triggering ground movements

Temporary and permanent surface water run-off will be carefully managed. Appropriate measures (such as appropriate falls, bunds, selection of outlet points from the RoW etc.) will be implemented in order to avoid ponding, seepage of water into RoW or uncontrolled run-off into potentially unstable ground.

In case of signs of instability (such as tension cracks, backscarp, seepage on the slope etc.), TEKFEN will propose remedial measures (including dewatering, soil nail stabilisation, rock anchoring or preventing RoW from further inundation) subject to approval by EPCM.

2.9.3. Steep Slopes

Steep slopes are those slopes with inclination >15% and >20m slope length that are predicted to exceed soil loss tolerance rates as defined in this specification. The following factors will be considered when assessing the erosion potential of slopes:

Rainfall Intensity. This parameter is a measure of the erosive force and intensity of the rain in a normal year. The rainfall intensity is based on rainfall records and probability statistics for risk

evaluation. For the purpose of erosion assessment, the parameter is determined using a 1 hour 10 year return period storm. .

Soil Erodibility. This parameter is a measure of the susceptibility of a soil particle becoming detached and transported by rainfall runoff. Soil parameters, which control soil erodibility are soil texture, structure soil space, organic content and hydraulic conductivity. Information from a particle size analysis (PSD) is used to estimate the soil erodibility using nomograms and correction factors.

Slope Angle and Length. Erosion potential increases proportionally to increases in the length and angle of slope, simply because runoff flow rates increase with increasing gradient and slope length.

Vegetation Cover. The effect of vegetative cover on soil loss is well researched. Bare soil represents high erodibility potential, whilst native vegetation can give maximum protection. Vegetation cover can be directly related to management options ie mulch, erosion control matting etc.

Erosion Control Practice. Further practices that influence erosion potential are roughening of the soil surface by tractor treads, or by rough grading, raking or disking.

Temperature. Temperature is another climatic factor affecting the potential for erosion to occur. Consolidation by freezing of exposed soils during winter months and accumulation of precipitation (snow) until periods of thaw, result in rapid melting and high levels of runoff. This situation exists in Central and Eastern Anatolia.

The Universal Soil Loss Equation used in the soil loss assessment predicts the long-term average annual rate of erosion on a slope based on rainfall intensity, soil type, topography, vegitation cover and management practices. This erosion model, originally developed to predict soil loss in agriculture, is also applicable to non-agricultural conditions such as construction sites. The USLE can be used to compare soil losses from a particular construction site with a specific management system to ‘tolerable soil loss’ rates. . The equation is written as follows:

$$A = R \times K \times LS \times C \times P \quad [1]$$

Where, A is potential long-term average annual soil loss in tons per ton ha-1 y-1, R is rainfall and runoff factor by geographic location, K is soil erodibility factor, LS is slope length-gradient factor, C is vegetation and management factor, and P is support practice factor.

- The slope geometry has been considered using GIS assessment of the DEM data. This has been used to extract average slope length and angle data and develop the slope length and steepness input parameter ‘LS’.
- The soil erodibility factor ‘K’ has been assessed from erodibility mapping of Turkey. The mapping considers the possible soil composition and uses published relationships to generate a K value for each slope.
- The rainfall –runoff erosivity factor ‘R’ was assessed based on rainfall mapping for Turkey held by Ankara University.
- The cover management factor ‘C’ was selected for a backfilled trench situation assuming the surface would be rough

- The support practice factor ‘P’ is dependent on deliberate rutting of the slope surface and is more appropriate to maintained agricultural land. As such for this assessment no benefit from this parameter has been taken.

This methodology was used to determine the estimated removal rates and recommend appropriate mitigation measures required to meet the soil loss tolerance rates. The mitigation measures, both bioremedial and engineering, are provided on the alignment sheets. These require verification at each location by TEKFEN and the EPCM', through validation or updating of the design assumptions.

TEKFEN will establish steep slope areas and provide procedures and methodology statements as part of the site-specific Special Area Reinstatement Method Statements for EPCM approval. The procedure will establish all planned temporary and permanent erosion measures in line with Reinstatement specification and Project Drawings.

Construction in steep slope areas requires an increased awareness of safety and stability issues. TEKFEN will utilise proven construction techniques specific to such areas. TEKFEN will demonstrate that increased safety measures are planned and these measures are to be followed on site. An increased level of Safety Engineer presence will be required at these locations.

The requirement for temporary ROW erosion/stabilization techniques will be dependent upon the season. However TEKFEN will be prepared to provide all resources necessary to avoid incipient soil erosion and stabilization issues, regardless of season, in order to be prepared for unforeseen inclement weather.

2.9.4. Critical Habitats

The Biodiversity Action Plan (BAP) identified 9 terrestrial and 6 freshwater critical habitats, ecologically sensitive areas with the presence of endangered or threatened species and their habitats, along LOT 3.

BAP and KP Table for the BAP will be referrred for the following information for each of the critical habitats:

- topsoil depth removal and storage for each critical habitat;
- species identification for seeds collection;
- translocation of plants and animals depending on a season;
- appropriate species for revegetation;
- planting methods;
- removal and replacement of turfs.

TEKFEN will provide site specific Reinstatement Management Plans that will further develop and clearly specify the means by which the measures committed to in the BAP and in Reinstatement specification will be implemented in relation to their scope of work, including pre-construction measures, (i.e. seeds collection, plants translocation) topsoil removal and storage and reinstatement measures.

2.9.5. On-site supervision

In addition to the planning of reinstatement activities, ecological expertise will be present on site during all relevant activities within critical habitats (e.g. route clearance, re-vegetation) to provide advice and supervision. TEKFEN will be expected to provide appropriately qualified personnel to

undertake the day-to-day supervision of such activities and EPCM will also provide specialists to advise and supervise the reinstatement works.

2.9.6. Karstic Areas

Karst is the topography that develops in soluble rocks in which fissures may be enlarged (ultimately to form caves) by flowing groundwater. This may occur in areas of gypsum and limestone bedrock. Gypsum is more soluble than limestone, therefore karstic areas develop relatively rapidly in areas of gypsum.

Restoration in the karstic areas will proceed as follows:

- soils from the dolines will be stockpiled separately;
- mixing of the doline soil and the ridge material is prohibited, unless agreed with the TANAP;
- continuous environmental inspection will follow construction;
- excess rock material from ridges will be disposed of in accordance with the project Waste Management Plan;
- spreading of rock is prohibited, unless agreed with the TANAP;
- discovery of subsurface voids (greater than 50 mm in plan dimension) during construction will be reported to EPCM, measures detailed on the IAAC alignment sheets and drawing WRP-DGA-EGG-PLG-001 will be applied, alternative remediation of voids may be used if agreed with EPCM and TANAP.

Temporary and permanent erosion measures will be employed in accordance with the requirements of this specification and Project Drawings. TEKFEN will employ trench filtration and drainage control measures as necessary to ensure that suffosion (transport of soil from the trench and from subsoil beneath the trench into karstic voids) does not occur during the design life of the pipeline.

Drainage plans in karstic areas will be submitted to the EPCM for approval prior to construction. Plans will consider special requirements described in WRP-TNO-EGG-PLG-001 (Technical Note for Design of Pipelines in Karst).

TEKFEN drainage plans will consider:

- preventing the pipeline becoming a new drainage conduit.
- preventing loss of pipe backfill into karst fissures.
- control groundwater flow in the trench.
- maximizing the use of existing natural drainage (i.e., sink holes >20m from the pipeline alignment) in a controlled manner.

TEKFEN will follow particular requirements for drainage control as noted on AFC alignment drawings and DGA-EGG-PLG-001.

2.9.7. Erodible Soils, Volcanic Tuff and Marls

Specific care is required for the reinstatement of areas underlain by volcanic tuff or marls in particular to ensure the re-establishment of a natural vegetation following the construction works due their thin topsoil cover.

Similar issues regarding the reinstatement may arise in other areas of highly erodible soils and soils with thin topsoil or other site specific ramifications. TEKFEN's Soils Specialist will identify these areas during the clearance of the ROW and give advice on any additional measures as required. The

specific examples of Volcanic Tuff and Marls are outlined below which will be applicable to any other soil reinstatement as deemed necessary by the TEKFEN's Soils Specialist as agreed with the EPCM representative.

2.9.7.1.Volcanic tuff

Topsoil layers are typically thin, <10cm, in areas of volcanic tuff. Special care is necessary in such areas to ensure the preservation of topsoil and successful establishment of a natural vegetative cover.

In areas of volcanic tuff, or other thin topsoils, Method Statements will clearly state the methods to be adopted to avoid adverse impacts.

Special Area Reinstatement Method Statements will be drawn up by TEKFEN for reinstatement in areas underlain by volcanic tuff.

The Special Area Reinstatement Method Statements will include the provision of a Soils Specialist, in addition to the required Environmental Inspection personnel to provide expert advice and identify any additional measures and supervision in areas of volcanic tuff. The Soils Specialist may also provide input in other vulnerable soil areas. The role of the soils specialist will include the following tasks in such areas:

- consultation with landowners and local experts to determine the most appropriate construction and reinstatement methods;
- establishing the depth of topsoil to be removed on a site specific basis;
- supervision and advice regarding topsoil and subsoil removal, storage and replacement;
- supervision and advice regarding soil erosion control measures during and after construction; and
- supervision and advice regarding re-vegetation.

The Soils Specialist will be responsible, in cooperation with the Community Liaison Officers and Ecological Specialist, for ensuring that landowners and local specialists/regulators are fully consulted in determining the most appropriate methods of topsoil removal, storage and replacement, and methods of re-vegetation in areas of volcanic tuff in accordance with local conditions.

The following mitigations are to be used:

- Although the topsoil layer in areas of volcanic tuff is thin, it is essential that this topsoil be reserved as the topsoil is the sole reservoir of fertility in tuffaceous soils and is also an important store of seeds. Since the topsoil is thin and variable in depth, it is inappropriate at this stage to specify a prescriptive thickness to be removed during ROW clearance.
Consequently, TEKFEN's Soils Specialist will establish the topsoil for removal and separate storage at regular intervals prior to topsoil clearance. The distance of such intervals may vary and will be determined by the Soils Specialist in consultation with EPCM's specialists. The Soils Specialist will also determine the most appropriate removal technique in consultation with the construction supervisor. Contractor will provide appropriately skilled and experienced operators to undertake topsoil removal in such areas.
- Method Statements will provide for pre-existing shrubs and turfs of coarse grasses to be set aside and replanted on the ROW in areas of tuffaceous soils. If possible, and in order to

minimise the time period between site clearance and replanting, they can be removed from one location and replanted at another where reinstatement is nearing its end provided the soil and soil climate are effectively identical to the area from where they were taken. Both the Soils Specialist and Ecological Specialists will provide input to the planning and implementation of such activities.

The Soils and Ecological Specialists will also provide advice on the use of fertilizer in areas of tuffaceous soils. It is anticipated that the use of additional micro-nutrients will be required in such areas. Local expert advice, including landowners and the Ministry of Forestry and Agriculture, will also be sought regarding fertilizer usage appropriate to the local conditions.

• Temporary soil erosion control measures will be established while constructing the pipeline. These will include temporary water bars, ditch breakers, and runoff barriers such as filter fences or straw bales.

• The land will be returned to as close to its natural contours as practicable. The infilled subsoil will be returned in layers following the same sequences as its removal. A crown no higher than 0.3m high will be left to allow for eventual settling of the soil. The resulting surface will then be profiled to conform to slope breaker and other specifications. Slope breakers will drain into a cuvette sculpted into the soil at each slope breaker outlet. Only then will the topsoil be replaced. If the growing season is nearing its end, the on-site soils expert may require the topsoil berm to be seeded with a fast growing cover crop, when it will be stored for spreading the following spring.

• Vegetation will be replanted accompanied by a basal dose of fertilizer mix. On tuff the usual 10-10-10 application of NPK will require additional micro-nutrients. Local expert advice will be sought from the Ministries of Forestry and Agriculture. Plants in addition to those recovered during topsoil stripping are likely be required if reinstatement is to succeed. Again, expert local advice will be sought in identifying seed or plant sources.

• Of critical importance alongside the above list of essential actions will be establishing communication links among the project's management, its contractors, authorities responsible for the management of public land, and owners and operators of private land. The wishes of land management authorities and land owners will determine, in large part, the actions that will be taken to mitigate environmental impacts of the pipeline. Importantly, these same individuals and institutions will have a signatory role in determining the adequacy of environmental mitigations enacted by EPCM and its contractors.

TEKFEN will give particular attention to erosion control measures in areas of volcanic tuff and will ensure a high level of inspection during construction, reinstatement and aftercare.

2.9.7.2.Marl

Marl is calcareous clay containing varying amounts of clays, silt and calcium carbonate (35%-65%) that is typically classified as an unconsolidated sedimentary deposit or extremely weak rock. This section treats marl soils that are too steep to play a role in rain fed agriculture, although they may support grazing. Adverse impacts affecting marls include the following:

• visual impact:
• the marl leaves a whitish trace across the landscape where the subsoil has been exposed;
• soil erosion:
• marl horizons can form the slip plane of deep instabilities;
• loss of soil productivity.

As with tuffaceous lands, an important mitigation will be to decrease the construction corridor to as narrow a width as possible. This is possible because marl topsoil on sloping lands is typically thin and requires little area when set aside for reinstatement.

Existing shrubs will be set aside for later replanting. Temporary soil erosion control measures (water bars, ditch breakers and runoff barriers) will be installed. Temporary ditch breakers will be particularly important as marls typically contain springs that are likely to drain into the trench. When drained, trench water will be pumped either into a filter bag or constructed barrier made of based hay and filter cloth; in no instance will it drain onto unprotected soil. In some instances, emerging springs may require lined chutes to convey water from the RoW to a safe disposal location.

The specifications for returning tuff to its natural contour and condition also apply to marl and similar considerations to tuff will be applied as regards use of a soils expert and tailoring topsoil removal to the actual thickness present rather than a pre-prescribed specification.

The potential for replanting will be determined by the frequency of natural vegetation prior to construction. If this is low or absent, then replanting is unlikely to succeed – the onsite environmental inspector/soils expert will set out appropriate mitigation measures as required. If the site is incapable of supporting sown grass or other vegetation, downslope agricultural lands will be provided with protection from eroded sediment; e.g. through a diversion or sediment settling pond. Again, the onsite environmental inspector/soils expert will give advice to be fulfilled by the TEKFEN.

If replanting is to be done, it will follow project specifications using a grass mix recommended by local agricultural and forestry expertise. If the season is too late for replanting, the topsoil berm will be protected over winter by seeding it with a fast growing cover crop. It will then be reinstated during the following spring.

2.9.7.3.Areas of Contaminated Land

Any materials encountered during the works, which show unusual colouring, texture, and / or odour will be stored separately and labelled as potentially contaminated materials. All suspected or confirmed materials will not be reused within the works unless contamination testing indicates the materials are suitable for use in accordance with the Turkish regulatory limits for soil quality.

Temporary stockpiling of potentially contaminated materials will be within an impermeable bunded and lined area, greater than 750m from any environmentally sensitive receptor.

2.10. RESTRICTING ACCESS

In order to prevent rutting, subsequent erosion problems, and damage to riparian areas, measures will be taken to prevent unauthorised use of the RoW as a roadway.

Access will be blocked, at locations specified by TEKFEN and/or EPCM, through the construction of barrier berms of sufficient height (minimum 1.5m high) to provide a barrier to vehicles. Where possible, the berms will be tied to vegetation or rocks adjacent to the RoW to prevent traffic from circumventing the barrier. Rocks excavated during construction, 0.3m in diameter or larger, may be

used instead of the earthen berms. Timber cleared during the construction may also be staggered across the RoW so as to deter off-road vehicle use.

The trees felled from Forest Land will not be used by TEKFEN.

2.11. HANDOVER, POST-CONSTRUCTION INSPECTION, AND MAINTENANCE

TEKFEN will obtain sign-off of the pre-entry form from the landowner agreeing on the standard of reinstatement. TEKFEN will notify EPCM prior to such meetings and allow for EPCM attendance/monitoring.

TEKFEN, upon completion of reinstatement, will accompany EPCM on an inspection of all project areas, before demobilizing from site. EPCM will notify TEKFEN of any insufficiencies in the reinstatement of the RoW / project areas. TEKFEN will carry out any further reinstatement to the approval of EPCM.

During the contract maintenance period, TEKFEN will be responsible for maintaining the standard of reinstatement and for ensuring that the stated erosion class and biorestoration requirements are met.

2.12. EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION

Temporary and permanent erosion control measures will be installed by TEKFEN in order to protect the sensitive habitats and achieve the performance standards of Erosion Class-3 or better. Particular attention will be paid to controlling erosion on the instable highland slopes.

The method statement and drawings will define both temporary and permanent erosion control measures to be implemented prior to, during, and following construction activity.

All the control measures will be constructed and installed in accordance with construction drawings and project specifications.

The main goals are to provide immediate protection against erosion during construction activities and provide permanent stabilization and prevent washing out of seeds after construction.

TEKFEN will be responsible for employing, to the satisfaction of EPCM, any temporary erosion and sediment control measures in order to protect the RoW and adjacent areas during construction activities. This plan will apply to all temporary and permanent areas affected by construction. In the event that the pipeline ditch remains open for extended period, TEKFEN will ensure trench integrity and employ such measures as temporary ditch breakers, silt fences, straw bales when deemed necessary.

Temporary ditch breakers are installed in the open trench and are removed before lowering the pipe. Temporary ditch breakers have the purpose of arresting flows inside the trench during construction.

The following temporary erosion control measures will be incorporated along the RoW in order to protect the environment and to achieve the performance standards.

- On longitudinal slopes with open trenches, plugs of unexcavated material will be left in the trench to interrupt surface flow and prevent scouring of the trench bottom.
- Stumps will be left in place wherever possible to provide soil stabilisation.
- Drainage channels will be installed on all longitudinal and transverse slopes as required.
- Where slopes require cutting, flumes will be installed across the RoW. These will carry water from drainage sumps on the upslope.
- Final grading of all cut or filled soil slopes will be restricted to a maximum gradient in accordance with EPCM/TANAP approved site specific designs.
- The RoW will be monitored to prevent:
  - subsidence of the pipeline trench (below natural grade);
  - breaching of diversion berms;
  - slope wash from improperly placed berms;
  - slumping and soil movements from cut and fill slopes;
  - loss of stored topsoil, subsoil or cuttings.

2.12.1. Silt Fences

Silt fences or other suitable sediment barriers will be installed in areas of low sheet flow and will be installed to intercept runoff on eroding slopes.

The filter cloth is draped over the fence and secured in a 15-cm-deep trench dug one metre uphill. Filter fences installed across the working width will follow a slight gradient towards a natural outlet, waterway, or lined chute, into which they drain.

TEKFEN will satisfy the following requirements:

• ponding will not be allowed behind a silt fence;

• drainage area will not exceed 0.1 hectares per 30m of fence length;

• for slopes between 2% and 20%, the maximum allowable upstream flow path length will be 30m;

• for slopes steeper than 20%, the maximum shall be 6m;

• maximum upslope grade perpendicular to the fence line will not exceed 100%; silt fences will be used for sheet flow only.

The minimum requirement for Filtering Efficiency of the filter fabric is 75% - 80%. While the minimum reuirement for the Tensile strength at 20% (maximum) elongation is 90 kg/ linear metre; the slurry flow rate is 11 liters/m^3/min

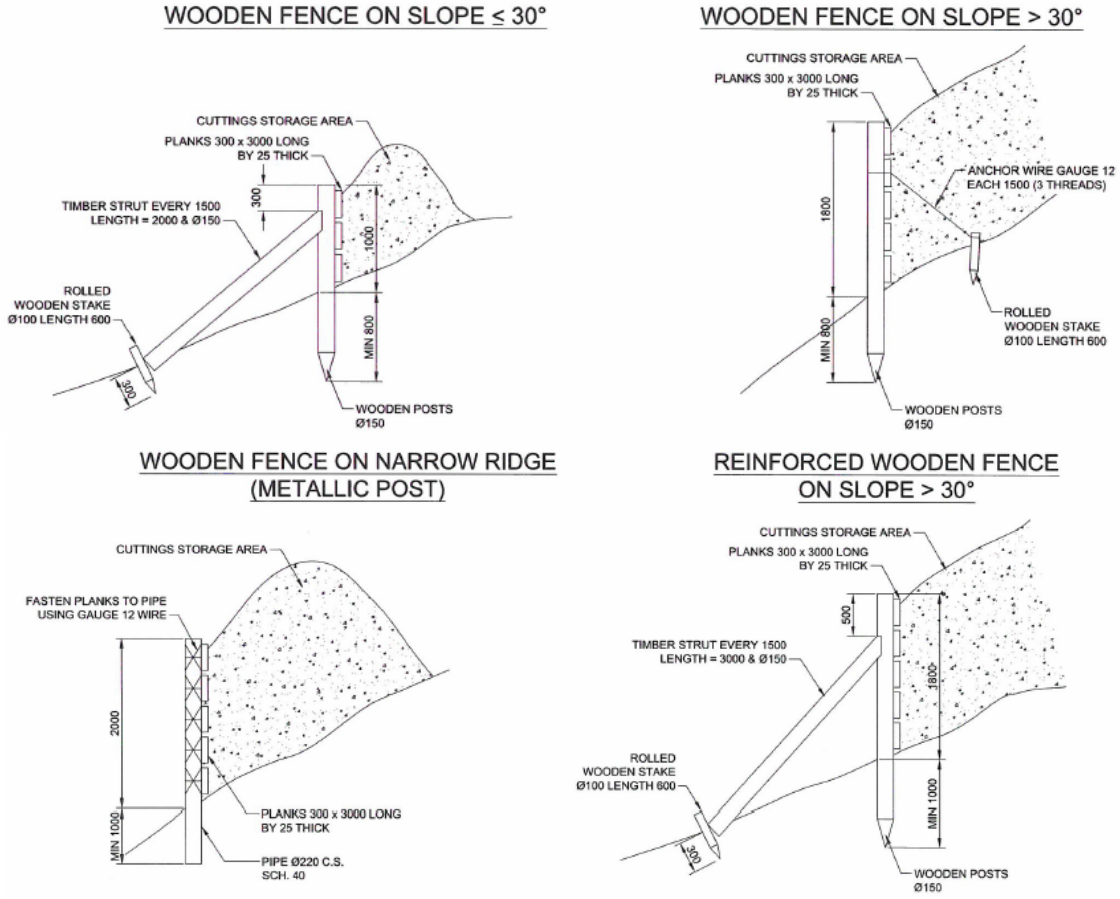
Synthetic fibre will contain ultraviolet inhibitors and stabilisers and meet the performance criteria for the entire length of installation and the environments encountered. Filter fabric will be installed in continuous lengths.

Silt fences will be inspected daily during periods of prolonged rainfall, immediately after each rain event, and weekly during periods of no rainfall. Any repairs required will be made immediately. Sediment will be removed prior to the sediment reaching 1/3 of the height of the silt fence. Care will be taken during sediment removal to ensure integrity of the fence is maintained. Collected sediment will be disposed of after the approved of EPCM.
The silt fence will not be removed until the upslope area has been permanently stabilised. Any sediment deposits remaining in place after the fence has been removed will be dressed to conform to the existing grade, prepared and re-vegetated.

2.12.2. Wooden Fences

Wooden fences will be installed in areas of side slope and ridge construction and will be installed to retain cuttings during construction and reinstatement. The requirement for locations of wood fences will be established during the work jointly between TEKFEN and EPCM/TANAP representative.

For typical details, see Project Drawing "ILF-DID-PPL-PLG-006 Typical Subsoil Retaining Wooden Fences".



TEKFEN will ensure fences are capable of safely supporting the loads imposed. Fences will be monthly inspected to ensure safe operation and structural integrity. Moreover, fences will be inspected after each rain event. TEKFEN will be aware that the use of wooden fences may pose localised problems. In certain areas, firewood is a valuable commodity, therefore; the fence material will be attractive to locals for firewood. TEKFEN will put warning signs on fences and inform local people and authorities about the importance of the structures.

2.12.3. Water Disposal

Pipeline trenches commonly collect water during construction. Because it is turbid and often sediment laden, trench water requires filtering before it can be discharged to an unpolluted location. Trench water is commonly removed using a pump connected to a 7–10 cm diameter flexible hose.

Appropriate measures will be adopted to prevent erosion during the disposal of hydro test water. Such measures are specified in the project "Pollution Prevention Plan (TKF-PLN-ENV-PL3-010)" and all water discharges will be undertaken in accordance with the requirements of that plan.

2.12.4. Slope Breakers (Interceptor Cross Drains)

Slope breakers (interceptor cross drains or water bars) are graded channels constructed across the working width. Their purpose is to remove surface runoff and, acting with vegetation, to protect against soil erosion. Slope breakers can be temporary or permanent.

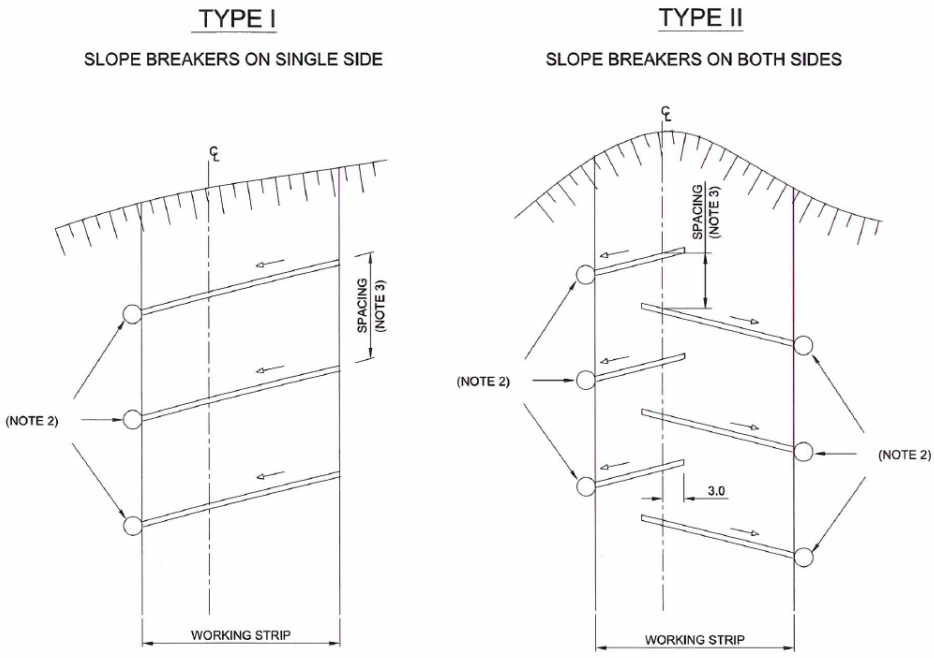
Slope breakers discharge runoff into energy dissipaters, vegetated waterways or lined chutes. They have a longitudinal gradient towards their outlet (not to be in excess of 2%). Slope breakers are typically stabilised by vegetation. Where soil erosion potential is predicted to be high or vegetation cannot be established, erosion control matting or crushed gravel will be applied. Erosion control matting will be fastened to the ground using corrosion resistant wire staples, having a length of at least 15cm on 50cm centres. The up-slope and down-slope ends of erosion cloth will be anchored into 15cm deep trenches cut 0.5m upslope and down slope of the cut portion of the channel.

Slope breakers acting alone are inadequate on all but the shallowest slopes in the absence of complementary vegetation. They are important for the success of the project, in part because they simplify the task of introducing vegetation to disturbed lands and, in large part, because they safely dispose of runoff that might otherwise erode pipeline cover and eventually damage the loading line.

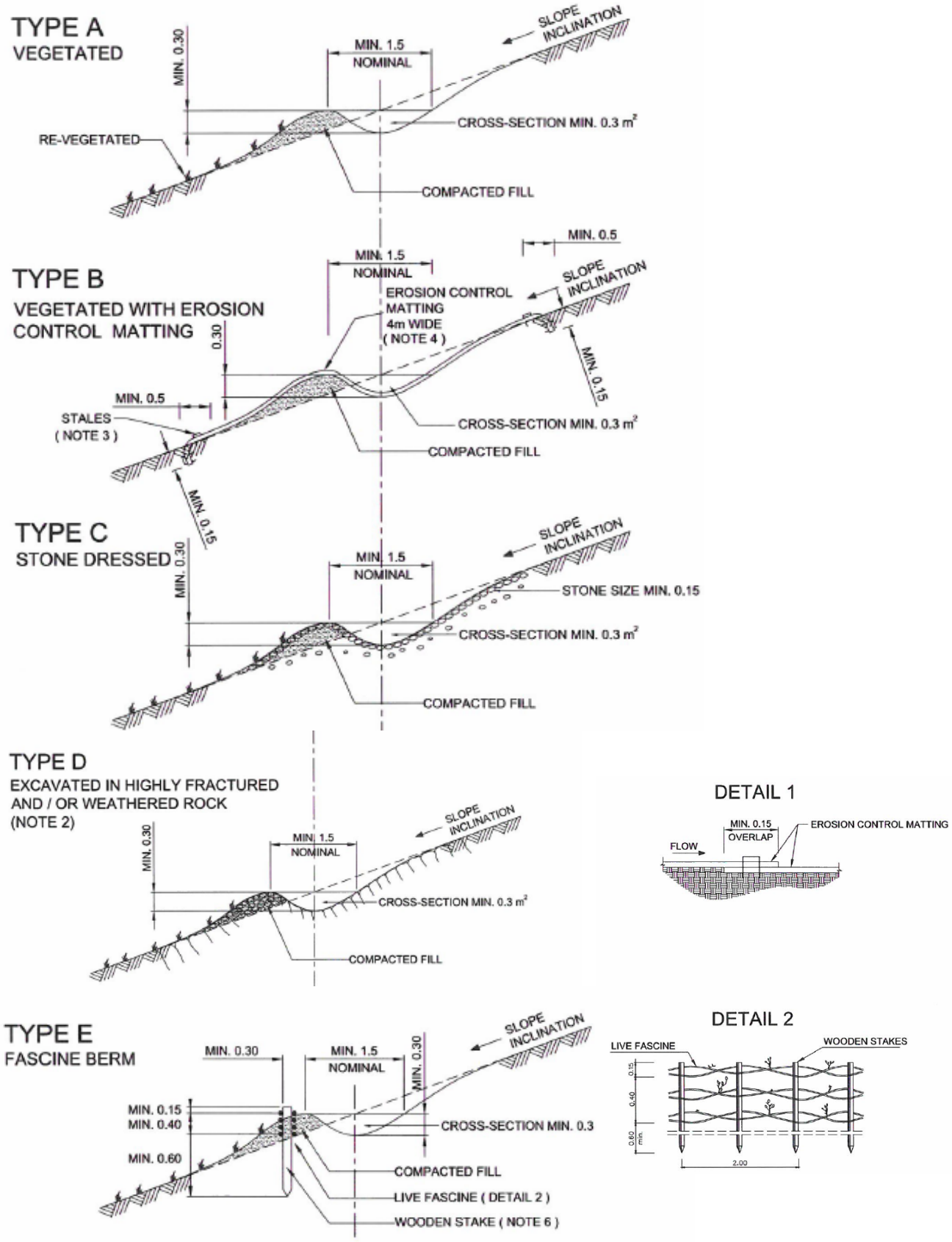
Monitoring to erosion control measures during construction will be regular, and directly after rain events. Repairs will be done in 48 hours maximum.

For typical details, see Project Drawing "WRP-DGA-PPL-PLG-044'' Typical Slope Breakers", "WRP-DGA-PPL-PLG-045 Typical Outlet of Slope Breakers" and "WRP-DGA-PPL-PLG-046 Typical Cross Section of Slope Breakers".

Typical Slope Breakers:



Typical Cross Section of Slope Breakers:



Slope Breaker outlets

Outlets will be installed at the end of each slope breaker. Outlets will effectively dissipate the energy of run off and take the water to a disposal point that is safe and avoids environmental impact. The local conditions will dictate the style and location of outlet and will be approved by EPCM/TANAP.

At outlet locations where stable vegetation is not present, the outlet will be lined with rock or erosion control matting will be positioned at the slope breaker outlet.

At these types of outlets the slope breakers will be extended into the surrounding land by:

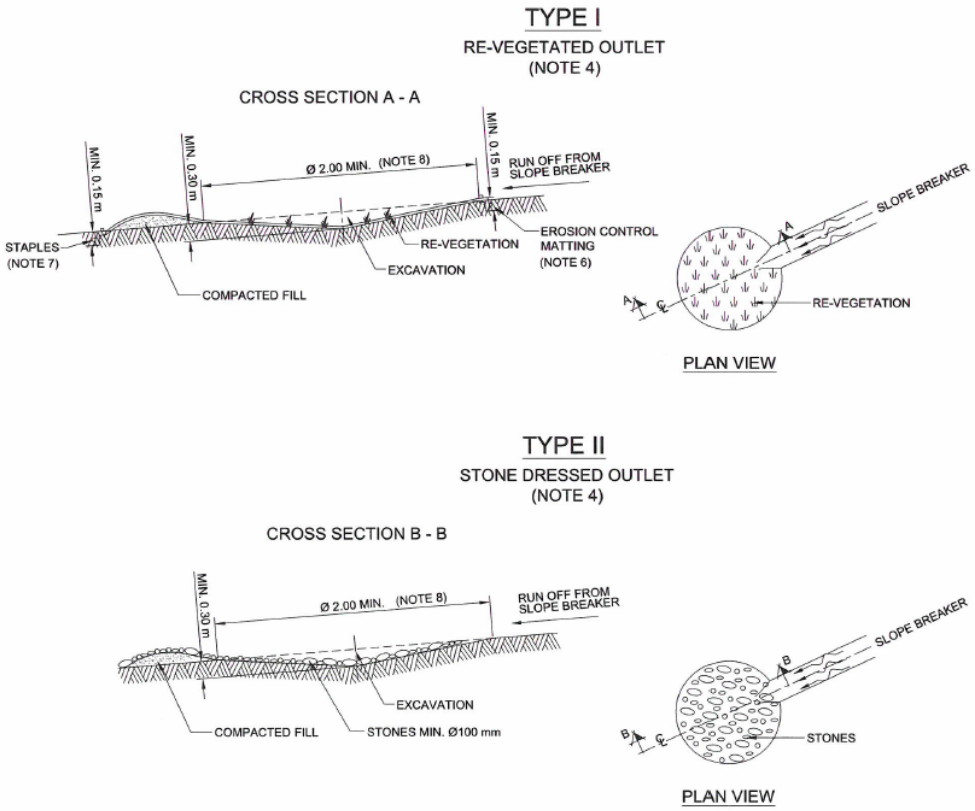
- 2m in low erodable conditions (cohesive soils) – Type I outlet;
- 6m in erodable conditions (non-cohesive soils) – Type II outlet.

Lined channels may be placed on the loading line RoW to take runoff at a safe velocity down slope to a suitable disposal point. Outlets from the channel will run along the inside of the loading line RoW slope.

For the duration of the RoW maintenance period, TEKFEN will monitor the condition of the outlets at two week intervals and any breaches or damage reported to EPCM/TANAP. Repair work will be carried out within 14 days or less, depending on the severity of the breach.

The local conditions will dictate final installation requirements. TEKFEN will provide proposals for all slope breaker outlets to the EPCM/TANAP for approval prior to installation.

Typical Outlet of Slope Breakers:

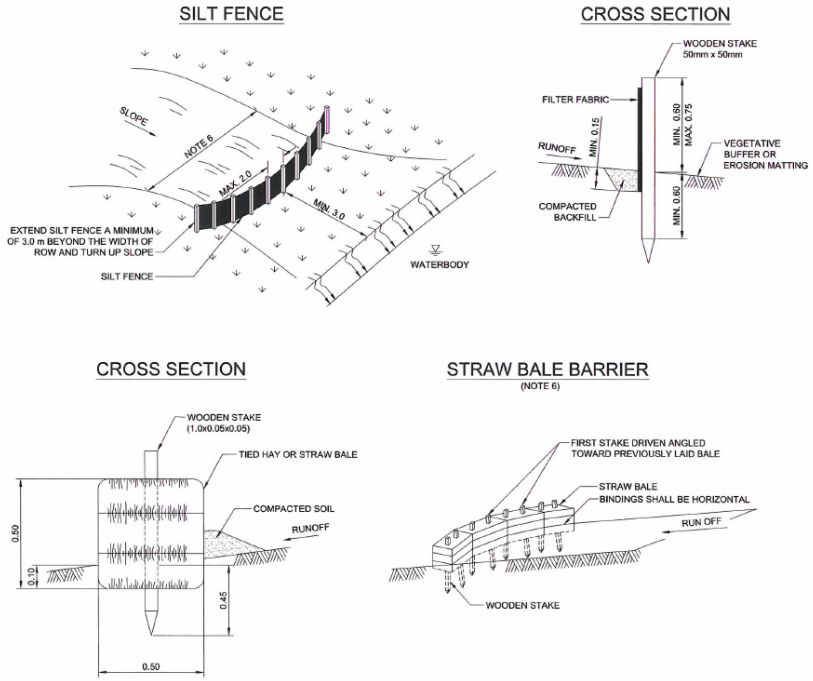


2.12.5. Sediment Interception

Where the RoW intersects or is parallel to a watercourse, sediment interception will be provided to prevent sediment entering the water. Sediment interception will be provided for runoff that may occur during construction and reinstatement activities until the establishment of sufficient vegetation to meet the requirements.

Sediment interception devices may take the form of a Silt Fence or Straw Bale Barrier. Sediment filters and trapping devices are applicable to sites expected to remain bare during the rainy season.

For typical details, see Project Drawing "ILF-DID-PPL-PLG-005 Typical Silt Fence & Straw Bale Barrier".



2.12.6. Silt Fence

Silt fences or other suitable sediment barriers will be installed in areas of low sheet flow and are installed to intercept runoff on eroding slopes.

The filter cloth is draped over the fence and secured in a 15-cm-deep trench dug one metre uphill. Filter fences installed across the working width will follow a slight gradient towards a natural outlet, waterway, or lined chute, into which they drain.

The following requirements will be satisfied:

- ponding will not be allowed behind a silt fence;
- drainage area will not exceed 0.1 hectares per 30m of fence length;
- for slopes between 2% and 20%, the maximum allowable upstream flow path length will be 30m;
- for slopes steeper than 20%, the maximum will be 6m;
- maximum upslope grade perpendicular to the fence line will not exceed 100%; silt fences will be used for sheet flow only.

The minimum requirements for filter fabric criteria are below:

- Filtering efficiency 75% - 80%
- Tensile strength at 20% (maximum) elongation 90kg/ linear metre minimum
- Slurry flow rate 0.11 liters/m^3/min

Synthetic fibre will contain ultraviolet inhibitors and stabilisers and meet the performance criteria for the entire length of installation and the environments encountered.

Filter fabric will be installed in continuous lengths.

Silt fences will be inspected daily during periods of prolonged rainfall, immediately after each rain event, and weekly during periods of no rainfall. Any repairs required will be made immediately.

Sediment will be removed prior to the sediment reaching 1/3 of the height of the silt fence. Care will be taken during sediment removal to ensure integrity of the fence is maintained. Sediment collected will be disposed of in an approved manner.

The silt fence will not be removed until the upslope area has been permanently stabilised. Any sediment deposits remaining in place after the fence has been removed will be dressed to conform to the existing grade, prepared and re-vegetated.

2.12.7. Straw bale barrier

Straw bale barriers (the term can include hay or other baled vegetative matter) will be installed in areas where small amounts of temporary sediment interception are required.

Straw bale barriers will not generally be installed where sediment control is required for periods greater than three months. Where they are installed on the working width, they will follow a slight gradient towards a natural channel, waterway, or lined chute.

The requirement for locations of straw bale barriers along the RoW is to be established during the work jointly between TEKFEN's earth works lead engineer and EPCM representative. Generally these sediment control areas with slopes >10% will include:

- areas of protection for longitudinal down slope to water bodies and roads;
- edge of RoW with adjacent down slope water bodies or roads; and
- edge of RoW with adjacent down slope to defined environmentally sensitive areas.

Straw bales will be bedded into the ground and anchored with reinforcing stakes. Anchors are driven at an angle towards the neighbouring bale so as to tie them firmly together.

The drainage area will be no greater than 0.1 hectares for each 30m of bale barrier. Straw bale barriers will not be used in areas of rock or other hard areas, where full and uniform anchoring is prevented.

Straw bale barriers will be inspected daily by inspectors during periods of rainfall, immediately after each rain event, and bi-weekly during periods of no rainfall. Any repairs required will be made immediately.

While the life expectancy of bales is not more than 3–6 months, deteriorated bales can be broken up and used as straw mulch or are often left to decompose in place. If non-biodegradable plastic or wire ties are used to bind the bales, these will be removed and disposed of. Straw bales will not be left in the trench from the point of backfilling.

2.12.8. Crushed Rock

Crushed rock may be required as a temporary measure it serves to reduce muddy conditions and sediment production during construction.

Crushed rock is applicable to locations where vegetation cannot be established and where erosion poses a risk to the pipeline or sediment threatens nearby streams. This also applies to stone dressings outside of the working width: e.g. camps, temporary roads, pipe storage locations, and crew quarters.

As required by local conditions and as agreed with EPCM representative, crushed rock may be used for temporary roadways, turning areas, and other locations from where sediment discharge poses a problem. Particle size will be determined for specific purpose.

Following project completion, temporary areas dressed with crushed rock will be ripped, fertilized and seeded or planted. These areas will be subject to the acceptance of EPCM.

2.13. PERMANENT EROSION CONTROL MEASURES

Soil erosion can be particularly active on sites laid bare by construction, where it reduces land productivity and damages rural economies. The sediment it creates makes its way to streams, where it reduces water quality and invades infrastructure such as reservoirs and irrigation works.

Careful construction and reinstatement can reduce soil erosion and sedimentation within manageable limits. Utilising mechanical (hydraulic) methods of controlling soil erosion and sedimentation, planting and fencing further, protect the land surface. Both methods, hydraulic and biological through the use of vegetation, complement each other and are essential to controlling soil erosion and sediment from construction areas.

Stabilisation practices are essential on all sloping lands disturbed by construction. The methods used to control runoff comprise of different kinds of graded channels constructed across and down slopes. Graded slope breakers (interceptor cross drains) contain and remove runoff from the working width and other disturbed areas. They discharge into natural channels, vegetated waterways or lined chutes, depending on the situation. Dissipation of the energy anticipated from the flow is necessary.

Little damage to the landscape occurs when soil erosion is in balance with the rate of soil formation. Due to its moderate rainfall and generally mesic soil climate, the annual rate of soil formation in the project area is about seven tonnes per hectare (T ha^{-1} y^{-1}); soil erosion from soil laid bare by construction, on the other hand, can easily approach several hundred tonnes per hectare. By the use of graded channels and vegetation to segment the working strip, soil erosion becomes equal to or less than the rate of soil formation.

2.13.1. Gabions

Gabions and gabion mattresses will be used where necessary to form flexible, permeable, monolithic structures such as retaining walls, revetments and weirs for earth retention.

Gabion walls will be constructed and utilised for permanent recovery of the right of way and prevention or stabilization of landslides that endanger stability of the land. Gabions structures will be designed and constructed in accordance with the manufacturer's specifications and EPCM/TANAP approved TEKFEN method statements.

2.13.2. Trench Breakers

Trench breakers will be installed within the pipeline ditch at locations along the pipeline route where the natural profile, drainage pattern and backfill materials may cause the trench to act as a drain.

TEKFEN will install the ditch breakers per design. The final installation will require approval of the EPCM/TANAP representative. Allowance for water movement through the ditch breaker will be made by installing pipes through the ditch breaker or a perforated pipe along side the pipeline along the entire section of steep slope.

Additionally, trench breakers are required at the bases of slopes adjacent to wetlands and where needed to avoid draining of wetlands. The materials of construction will be polyurethane bags filled with sand and cement 10:1 as detailed in the referenced Project Drawings, or polyurethane foam (subject to EPCM/TANAP approval).

Trench breakers are generally installed slightly upslope of slope breakers. This causes flow along the line of the trench to emerge onto the surface, where it is intercepted and removed by the slope breaker a short distance down slope. As with slope breakers, ditch breakers can be temporary or permanent.

2.13.3. Erosion (Jute) Matting

Erosion matting will be installed to provide an immediate protection to the slope against erosion, prevent washing-out of seeds and enhance the micro-climatic conditions in the soil for plant gRoWth.

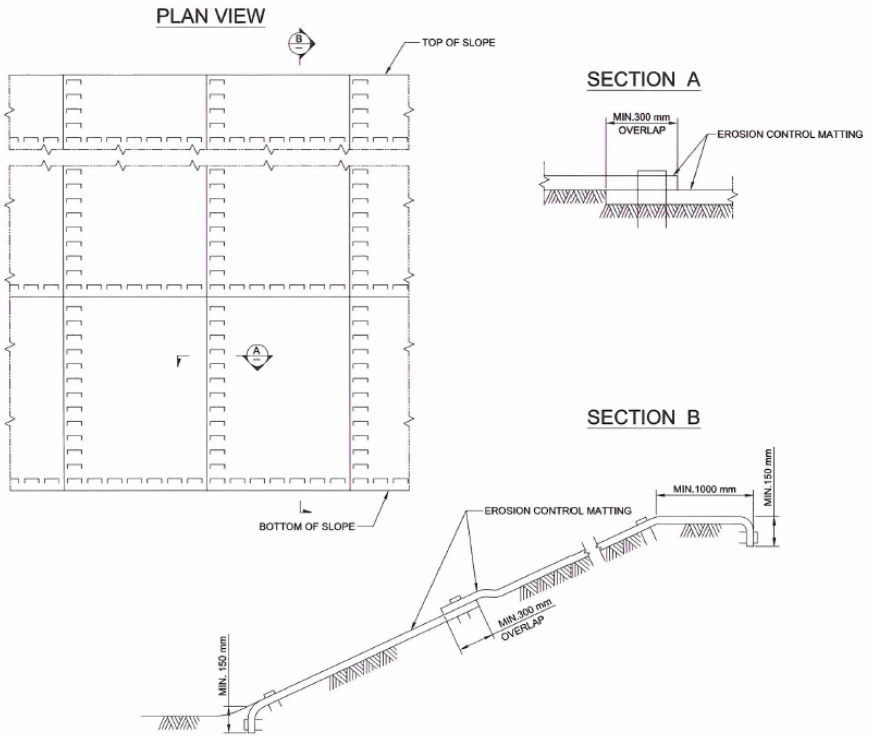
Erosion matting will provide temporary protection to the soil surface until sufficient vegetation cover has been established to control erosion and meet the performance criteria.

The erosion matting will be Geojute or similar. TEKFEN will submit data sheets and samples of the proposed erosion matting for EPCM/TANAP approval.

Where re-vegetation is taking place topsoil preparation and grass seeding work will be undertaken prior to laying erosion matting.

The erosion mat will be unrolled from the top of the slope, allowing it to lay naturally on the soil surface over all the local undulations. On no account will the material be taught so that it forms 'bridges' over local soil mounds and stones.

Typical Erosion Control Matting Installation:



For typical details and spacing requirements, see Project Drawing "WRP-DGA-PPL-PLG-050-Typical Erosion Control Matting Installation".

Where shrub planting is required, holes will be made in the mat at each planting point.

Erosion mats, once installed will be regularly inspected for degradation and installation integrity. Where matting has remained in place for longer than 12 months, TEKFEN will be responsible for maintaining and replacing matting as required through the construction and maintenance period.

2.13.4. Crushed Rock

Crushed rock may be required as a permanent erosion control measure at locations where it is impossible to establish vegetation and with prior approval of EPCM/TANAP. As a temporary measure it serves to reduce muddy conditions and sediment production during construction.

Crushed rock is applicable to locations where vegetation cannot be established and where erosion poses a risk to the pipeline or sediment threatens nearby streams. This also applies to stone dressings outside of the working width: e.g. camps, temporary roads, pipe storage locations, and crew quarters.

As required by local conditions and as agreed with the EPCM/TANAP representative, two cases apply: (1) for temporary roadways, turning areas, and other locations from where sediment discharge poses a problem, and (2) for slopes where soil erosion and sediment can be controlled only by means of a stone mulch.

Following project completion, temporary areas dressed with crushed rock will be ripped, fertilised and seeded or planted. These areas will be subject to the acceptance of EPCM/TANAP.

2.13.5. Lined Chutes and Vegetated Waterways

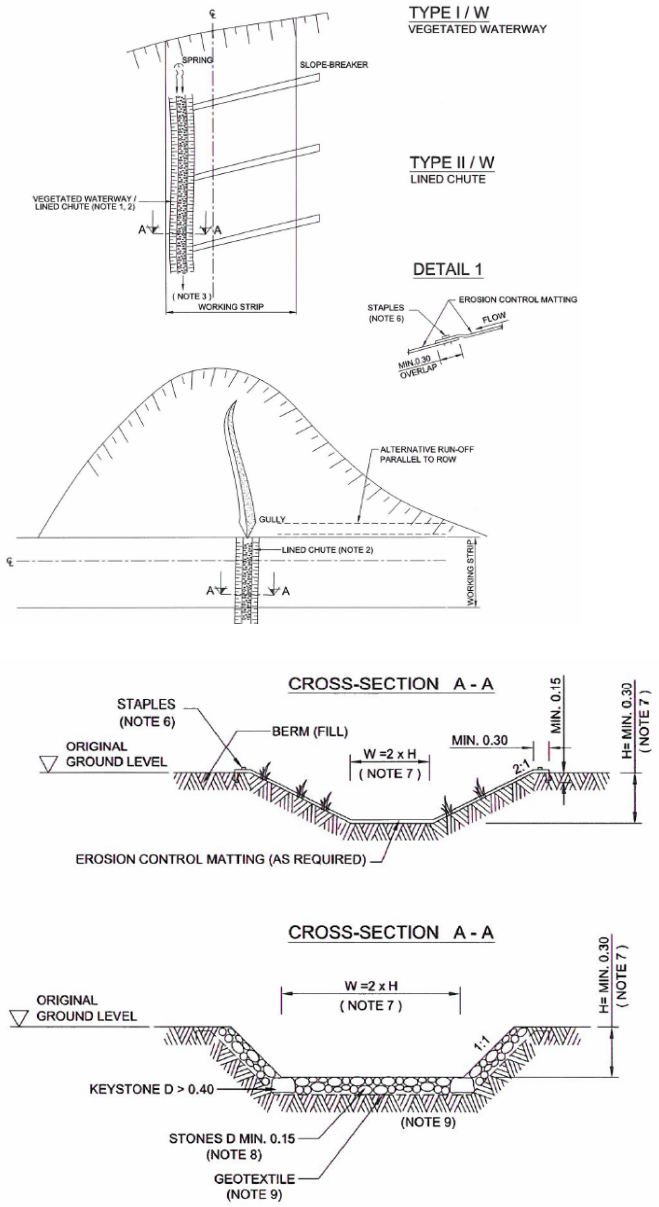
Lined chutes and vegetated waterways are specially designed channels created to collect and convey runoff to where it can be safely disposed of without erosion. Chutes or waterways serve to receive and concentrate runoff from slope breakers, from small gullies that cross the pipeline right-of-way, and from other areas that require water disposal. Their design is such that channel velocities remain non-erosive, even on steep slopes. The discharge point will be designed and installed sufficiently to dissipate discharge energy and avoid erosion at the discharge point. For typical details and spacing requirements, see Project Drawing “WRP-DGA-PPL-PLG-047-Typical Drawing - Erosion Protection - Typical Lined Chute”.

Commonly, lined chutes are designed to convey water from where springs emerge in the vicinity of the loading line RoW. They are inappropriate on most agricultural landscapes, where natural channels or grass-lined waterways may offer a preferred alternative.

Vegetated waterway serves to collect and dispose of runoff from slope breakers. They rely on their shallow depth and vegetated cover to reduce the velocity of runoff water to within non-erosive limits. Where nearby natural channels offer a safe alternative to a vegetated waterway – these are preferred.

Waterways require fertilising and seeding with a grass mixture suited to the specific location. This seeding will be protected by suitable mulch, mats or netting to allow establishment of the seeded area.

Typical Vegetated Waterway/ Lined Chute:



2.13.6. Gully Remediation

The objective of gully remediation is to prevent existing gullies from increasing in size and extent through continued erosion.

The structures described in this plan reduce the velocity of concentrated storm water flows and thus reduces erosion of the swale or ditch. They also trap small amounts of sediment flowing in the gully.

Additional mitigation measures will be applied for gully heads close to the pipeline using a gabion solution as detailed in drawing WRP-DGA-PPL-PLG-047 (Detail 1). Gabions in combination with a geotextile and rockfill will ensure that further erosion will be mitigated and gully head migration and possible exposure of the pipeline prevented.

Gully head remediation will be applied as shown on the alignment sheets or directed by the EPCM representative. Final design of the gully head mitigation measures will be proposed by the TEKFEN subject to EPCM approval.

2.13.7. Geotextile

Geotextile will be as defined in the Pipeline River Crossing Civil Protection Works Specification WRP-SPC-PPL-PLG-030 (or EPCM-approved equivalent).

Geotextile will be handled and installed according to the manufacturer's recommendations, and/ or as shown on the Drawings. Geotextile will not be stored in direct sunlight. Construction equipment and/ or vehicles will not be allowed to operate directly on geotextile.

Where geotextile is joined with overlapping joints, a minimum 500 mm overlap will be allowed at adjoining borders. For geotextile placed on slopes, the geotextile will be secured at the top of slope by embedding in an anchor trench, as shown on the Project Drawings.

2.13.8. Rip Rap

Rip rap will be required to reinstate specific river crossings. The minimum installation locations are defined in the River Crossing Reinstatement and Scour Protection Schedule Document No. WRPLST- PPL-PLG-003.

TEKFEN will identify any additional areas and propose them to EPCM for review and approval.

Rip rap may also be used in areas along the right of way other than at river crossings, TEKFEN will install rip rap wherever deemed necessary and suitable to achieve the erosion control requirements or for slope stabilization.

Rip rap will be as defined in the Pipeline River Crossing Civil Protection Works Specification WRPSPC- PPL-PLG-030.

3. TRAINING

Course Title	Erosion & Sediment Control and Reinstatement
Duration	TBD
Key Objective(s)	To make attendees aware of the work practices required to prevent and/or minimize erosion and sedimentation, reduce the extent of reinstatement needed.
Issues to be covered	General and site specific methods for erosion and sediment control methods. Reinstatement requirements Special Crossings (e.g., rivers) Construction phases (construction – maintenance) Working on steep slopes and side slopes
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

4. MONITORING AND REPORTING

All EPCM/TANAP, TEKFEN verification and monitoring activity related to the provisions of this plan will be in accordance with the requirements of the Environmental and Social Management and Monitoring Plan and mitigation measures for soil impact management during construction that are defined in ESIA and BAP. If TEKFEN will use subcontractors, they will comply with this plan.

The items below provide a guide to the Reinstatement, Erosion control and Stabilization issues that need to be monitored regularly by site environmental staff:

- Damage to seeding/Biorestoration by washing out of seeds and plants
- Continuous networks of channels over the slopes prevented, ensuring that the depth of material above the pipe is not reduced
- Number of sediment control measure or device failures that repair work has not started on within 24 hours of inspection or notification
- Number of non-compliances with top soil management requirements in Reinstatement Plan
- Stripping of Topsoil to the required depth, and over the required area of land
- Appropriate storage and handling of Topsoil
- Provision and maintenance of suitable sediment interception devices
- Success of seeding establishment
- At river crossing locations, return of the river bed and banks to their pre-construction condition and contours
- Minimal landscape impacts after Reinstatement
- Temporary erosion control methods (e.g. temporary ditch breakers, stumps, drainage channels, flumes, wooden fences, slope breakers).
- Sediment control methods (silt fence, straw bale barrier).
- Permanent erosion control methods (Diversion Channels, Jute Matting, Hydro-seeding, Gabion wall applications, Trench breaker, crushed rock, line chutes and vegetated waterways)
- Trench dewatering efforts (energy dissipation works at pump outlet).
- Surface water drainage patterns using appropriately designed, installed and maintained drainage structures (e.g., culverts, ditches)
- Recontouring the trench and graded areas to match natural contours, and replacement of topsoil evenly over disturbed areas
- Biorestoration procedures
- Revegetatetion of disturbed areas and/or using and maintaining surface treatments (e.g., erosion and sediment control structures)
- Re-use of excess soil and materials along the RoW/minimize material/aggregate resourcing from quarries/borRoW pits (e.g. by using padding machines)

5. RESPONSIBILITIES

Project Manager

- To provide necessary resources for the Erosion Control and Reinstatement activities.
- To ensure the application of all the commitments of this Plan.

Project HS&ES Manager

- To satisfy the need for all biorestoration, seeding, reinstatement activities.
- To ensure that appropriate permitted/licensed subcontractors are selected for erosion control and reinstatement consultancy

Environmental Manager:

- Supervision of Environmental team.
- Determining appropriate corrective action for non-compliance;
- To ensure that the actions stated in this Plan are carried out
- To send monthly progress reports to EPCM
- To monitor Reinstatement and Erosion control measures to achieve the erosion control and stabilization targets until the end of the Contract Warranty Period
- To interface with EPCM to facilitate successful biorestoration of the RoW and other temporary areas
- To consult with local experts, specialist organisations and government authorities in order to ensure the Reinstatement, Erosion control and stabilization works are appropriate to the local, worksite-specific conditions
- Keep the environmental records
- Analyse the reinstatement complaints to avoid recurrence of the concern or issues.
- Forward the grievance to the relevant department/ parties to take the necessary and timely actions as required.

Environmental Advisor:

- To advise on on-site erosion control measures and reinstatement actions.To implement seeding using an approved seed mix.
- To document pre-construction condition of the RoW via photos and/or video to compare for future reinstatement.
- Monitor the implementation of this Plan.
- Stop the work if it is an environmental inappropriate condition.
- Inspect inappropriate conditions and acts for ecology.
- Place the necessary and proper warning signs at certain locations of the workplace.
- To comply with land entry and exit in accordance with the Land Management Plan.
- To perform all required pre-entry surveys

Environmental Inspector:

- To monitor site applications related to the Erosion control and stabilization
- To carry out site inspections related to the environmental precautions
- To report all steps related to Erosion control and stabilization practices in RoW and temporary areas
- Conduct daily environmental inspections
- Warn people who do not comply with the environmental instructions

Construction Manager

- To follow-up actions associated with the implementation of this Plan each in his work area.

Geotechnical Engineer/Engineering geologist

- For site specific inspections and assessments for construction in side slope, steep slopes an on narrow ridges/landslides prone area.
- To deal with geological hazards like landslides, soil erosion and, in some extreme conditions.

6. RECORDS

- Comprehensive photographic record including key habitats and topographical features (e.g. river crossings, wetlands, woodlands, forests, meadows, gullies, slopes, outcrops, eroded terrain) prior to vegetation clearance, Topsoil stripping, grading, cutting and other major earthworks.
- Documentation of RoW pre-construction conditions
- Cut-tree register
- Terrestrial critical habitat registers including seed, plant bulb and herbaceous plant collection, storage and repantation
- Records of translocated plants
- Records of revegetated areas
- Records of biorestoration results during the construction period.
- Records of excessive slope instability or soil erosion
- Recorded sediment loading due to project related activities
- Non compliance records

ANNEX 1 –REGISTERS

SENSITIVE AREAS REGISTER

LOT 3

TERRESTRIAL CRITICAL HABITATS

KP Start REV J	KP End REV J	ID	Was the no-construction timeframe enforced? (if required)	Which seeds were collected?	Dates seeds were collected	Amount of seed collected	Seed storage location	Dates seeds were planted on ROW	Location where seeds were replanted	Which plants/bulbs were collected?	Date plants/bulbs were collected	How many plants/bulbs were collected	Plants/bulbs Storage location	Date plants/bulbs replanted on ROW during restoration	How many plants/bulbs were replanted on ROW during restoration	Location where plants/bulbs were replanted	Date Herbaceous plants were on ROW	Storage location of herbaceous plants collected.	Date when herbaceous plants were laid on ROW during restoration	Date topsoil was stripped	Date topsoil was reinstated	Date when rocks were collected? (30cm or larger)	Rock storage location	Date rocks were relocated on ROW	Invasive flora species control	Terracing during reinstatement to prevent erosion
849+409	849+612	CH49																							
948+615	949+002	CH50																							
996+630	997+352	CH51																							
1034+862	1035+061	CH52																							
1035+348	1035+567	CH53																							
1144+988	1145+800	CH54																							
1155+228	1155+398	CH55																							
		CH56																							
1229+052	1229+504	CH57																							

FRESHWATER CRITICAL HABITATS													
KP Start REV J	KP End REV J	ID	Was the no-construction time frame enforced? (if required)	Start date of crossing (when banks are being topsoiled/ graded)	End date of crossing (when final reinstatement completed)	Control of sediment release	Minimize erosion, sedimentation and impact to riparian vegetation	Avoid impact and removal of gravel	Date Erosion and sediment controls in place	Restoration of channel bottom	Restoration of riparian area (contours and vegetation)	Water protection zone marked/ flagged? (30m buffer zone on either side of crossing)	Water sample taken upstream/down stream? Prior/during/post construction
986+945	986+432	FCH13											
1040+654	1040+663	FCH14											
1093+394	1093+484	FCH15											
1222+948	1222+983	FCH16											
1321+758	1321+780	FCH17											
1329+399	1329+429	FCH18											

WATERCOURSE CROSSINGS REGISTER							
SPREAD 5							
KP Location of watercourse	Name	Crossing Start Date	Crossing Finish date	Reinstatement Start Date	Reinstatement Finish date	Date erosion and sediment control devices were installed	Comments

WATERCOURSE CROSSINGS REGISTER							
SPREAD 6							
KP Location of watercourse	Name	Crossing Start Date	Crossing Finish date	Reinstatement Start Date	Reinstatement Finish date	Date erosion and sediment control devices were installed	Comments

REINSTATEMENT REGISTER						
SPREAD 5						
KP Start	KP End	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

REINSTATEMENT REGISTER						
SPREAD 6						
KP Start	KP End	Original Countours restored?	Date topsoil was spread	Date seeding was conducted	Date permanent Erosion controls installed	Date area was signed off

Trees that were Relocated or Cut during Construction SPREAD 5								
Description of Site	**Tree/Shrub Species (Latin/English)**	**Number of Trees**	**Height of Trees**	**Photo Reference**	**Cutting or Relocation Date (C for cutting RL for relocating)**	**Reforestation Place**	**Reforestation or Relocation Date (C for cutting RL for relocating)**	**Verifier Name**

Trees that were Relocated or Cut during Construction SPREAD 6								
Description of Site	**Tree/Shrub Species (Latin/English)**	**Number of Trees**	**Height of Trees**	**Photo Reference**	**Cutting or Relocation Date (C for cutting RL for relocating)**	**Reforestation Place**	**Reforestation or Relocation Date (C for cutting RL for relocating)**	**Verifier Name**

WorleyParsons resources & energy	TANAP

TANAP

TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Document No.	**PLK-PLN-ENV-PL4-005**	Rev	Status
		P4-2	**Re-IAA**
Document Title	**POLUTION PREVENTION PLAN**		
Tag No's			
Contractor	**PUNJ LLOYD – LİMAK - KALYON JV**		
Contractor Document No.	**PLK-PLN-ENV-PL4-005**	Contractor Rev.	**P4-2**

Tick Box	Descriptions	Signature & Date
☐	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
☐	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
Comment Reponse Sheet

Document Title	POLUTION PREVENTION PLAN	Originator	PLK
Document Number	PLK-PLN-ENV-PL4-005	Rev	P4-1

Except for the following identified comments, all other comments on this document have been resolved or incorporated.

* O - Open, C - Closed

No.	Section/ Page	Comment	By	Response	By	Date	O/C *	Remarks
1	contents	**Please make sure the table of contents is correct**	**TANAP**	Revised	YOGD	10.07.2016	C	
2		**Correct all spelling and grammer / typos**	**TANAP**	Revised	YOGD	10.07.2016	C	
3	1.2 / pg 7	**Remove Solid waste pollution**	**TANAP**	Removed	YOGD	10.07.2016	C	
4	2.1 / pg 13	**add: - During construction works, provisions of Regulation on Control of Excavation Soil and Construction Debris and also provisions of the Regulation on Control of Soil Pollution and Contaminated Lands by Point Sources shall be complied with. CONTRACTOR will also comply with all other relevant Government regulations and the Project's technical specifications and requirements,,**	**TANAP**	Added	YOGD	10.07.2016	C	
5	2.4 / pg 22	**add: Not only quality but also quantity information of water source (surface and or ground water) will be studied in detail and submitted with specific method statement. Minimum flowrate, mean flowrate, maximum flowrate and seasonal informations and etc. will be defined in the method statement. After abstraction of water, minimum flowrate of water course will be maintained at all times to provide basic requirements for fishes and other livings. Moreover, downstream conditions will be considered for farming and other practices.**	**TANAP**	Added	YOGD	10.07.2016	C	
6	2.4 / pg 23	**add: The transfer of test water from one section to another will be accomplished through metal pipework provided no water is lost, or spilled or contaminated**	**TANAP**	Added	YOGD	10.07.2016	C	
7	2.4 / pg 23	**delete: Not only quality but also quantity information of water source (surface and or ground water) will be studied in detail and submitted with specific method statement. Minimum flowrate, mean flowrate, maximum flowrate and seasonal informations and etc. will be defined in the method statement. After abstraction of water, minimum flowrate of water course will be maintained at all times to provide basic requirements for fishes and other livings. Moreover, downstream conditions will be considered for farming and other practices.**	**TANAP**	Deleted	YOGD	10.07.2016	C	
8	2.4 / pg 24	**add: - If required, corrosion inhibition chemicals, oxygen scavengers or biocides will only be used in the hydrotest water with the prior permission of Client/EPCM and the appropriate Turkish regulatory authorities,**	**TANAP**	Added	YOGD	10.07.2016	C	
9	2.5 / pg 25	**delete: Construction drawings will enable fulfilment of site-specific construction methods and cover the work sites designated by the CONTRACTOR.**	**TANAP**	Deleted	YOGD	10.07.2016	C	
10	2.7 / pg 26	**add: • Spread Environmental inspectors will be responsible for the monitoring and inspections of the pollution prevention activities on a daily basis.**	**TANAP**	Added	YOGD	10.07.2016	C	
11	2.7 / pg 27	**delete: • Prevention activities will be done on daily basis.**	**TANAP**	Deleted	YOGD	10.07.2016	C	
12	3 / pg 27	**add: The spill prevention mitigations are intended to avoid, if not possible to minimize the release of contaminant to land or water and air.**	**TANAP**	Added	YOGD	10.07.2016	C	
13	3 / pg 27	**change: - There will containment bunds and spill trays for the storage of the hazardous material.**	**TANAP**	Changed	YOGD	10.07.2016	C	
14	4 / pg 30	**add: Small and medium spills will be cleaned with appropriate spill response equipment from the spill kits and in accordance with project requirements.**	**TANAP**	Added	YOGD	10.07.2016	C	
15	5 / pg 33	**Add add points**	**TANAP**	Added	YOGD	10.07.2016	C	
16	6 / pg 34	**Add: The monitoring, to be conducted as per project requirements and**	**TANAP**	Added	YOGD	10.07.2016	C	
17	6 / pg 34	**change / add: In case of any contamination / pollution, Contractor will take the required actions to prevent and clean up the pollution and will make the required inspections of the key performance indicators of for the prevention of pollutions/contaminations indicated above, either visualy andor by means of sampling and measurements, to prove there is no further contamination and/or pollution.**	**TANAP**	Changed and added	YOGD	10.07.2016	C	

Additional Notes (if any)

Distribution

Punj Lloyd / Limak / kalyon	**TANAP** **TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT** **48" ONSHORE PIPELINE CONSTRUCTION LOT 4**	TANAP / WorleyParsons resources & energy

POLLUTION PREVENTION PLAN

Rev.	Status	Date	Status Description	Issued by	Checked by	Approved by
P4-A	DIC	5/4/2016	Discipline Internal Check	YOGD	ÇING	KALF
P4-B	IDC	6/4/2016	Inter-Discipline Check	YOGD	ÇING	KALF
P4-C	IFR	7/4/2016	Issued for Review	YOGD	ÇING	KALF
P4-0	IAA	3/5/2016	Issued as Approved	YOGD	KALF	MALB
P4-1	Re-IAA	15/6/2016	Re-Issued as Approved	YOGD	KALF	MALB
P4-2	Re-IAA	11/7/2016	Re-Issued as Approved	YOGD	KALF	MALB

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P4-A	DIC	5/4/2016	Discipline Internal Check
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P4-0	IAA	3/5/2016	Issued as Approved
P4-1	Re-IAA	15/6/2016	Re-Issued as Approved
P4-2	Re-IAA	11/7/2016	Re-Issued as Approved

HOLDS

No	Section	Description	Input from	Planned Date

Table of Contents

1 INTRODUCTION

1.1 Background

The Trans Anatolian Natural Gas Pipeline will be built to transport natural gas emanating from the South Caucasus Pipeline Company Pipeline in Georgia to the Trans-Adriatic Pipeline in Greece. In addition to the mainline termination, dedicated off-takes will be provided to BOTAŞ at strategic points in the Republic of Turkey. Contract of Lot 4 of this project is awarded to PUNJ LLOYD – LİMAK Joint Venture and consists mainly of a 48" Onshore Pipeline Construction and also other Above Ground Installations.

1.2 Scope

During the construction stage of the Project; emissions and some kinds of pollutions will be generated at various stages. These pollution issues are classified as:

- Soil contamination
- Solid waste pollution
- Water Pollution (surface and ground water)
- Air Emissions
- Noise Pollution
- Vibration
- Spills

Each of these attribute will have a different way of control and management.

1.3 Purpose

The purpose of the PPP is to describe requirements to be fulfilled by the Contractor and it's all subcontractors' employees in order to avoid and minimize air pollution, surface and ground water pollution, soil and land pollution, spills and etc. resulting from preparation and construction activities. The PPP must fulfill the ESIA requirements. This document will be updated when project requirements are changed and required by Client/EPCM.

This plan elaborates all management action plans for compliance with the relevant project standards.

This plan will fulfil the requirements stated in ESIA Appendix 5.10 for kind of pollution types and for prevention of them and Environmental and Social Monitoring Plan (ESMP) (PLK-PLN-ENV-PL4-010) regarding sampling and measurement issues.

1.4 Definitions

CLIENT	TANAP DOĞALGAZ İLETİM A.Ş.
CONTRACTOR	PUNJ LLOYD – LİMAK Joint Venture
CONTRACT	48" Onshore Pipeline Construction Contract for Trans-Anatolian Natural Gas Pipeline Lot 4
Contamination	Refers to any environmental damage or hazard due to solid, liquid, gaseous and hazardous substances which could cause any detrimental effects on the environment
Dust	Refer fine (small) particles of dry matter resulted from traffic on road
Environmental	Refers to simple measures that tell us what is happening in the environment such as soil,

Indicators	water and air quality, turbidity
EPCM	WorleyParsons Proje Yönetimi ve Mühendislik Limited Şirketi
Impact	The consequence of an action or activity on the human or natural environment. Impacts may be positive, negative or neutral.
Noise	Refers to excessive noise that may harm the activity or balance of human or animal life
Pollution	Refers to the contamination of air, water, or land by the any adverse effects of human activities
PROJECT	Trans Anatolian Natural Gas Pipeline Project (TANAP)
Risk	The likelihood of occurrence of an adverse project effect
Subcontractor	Company working under a contract to a Contractor
TANAP Project	Trans Anatolian Natural Gas Pipeline Project
Waste	Refer to any solid, liquid, gaseous or hazardous materials cause environmental damage or hazard
Wastewater	Refers to all liquid wastes that have the potential to cause ground and surface water pollution.
Work	Any and all activities, services, and materials provided by the Contractor, subcontractors and suppliers

1.5 Abbreviations

TANAP	Trans Anatolian Gas Pipeline Project
EPCM	Engineering, Procurement and Construction Management
ROW	Right of Way
E&S	Environment and Social
ESIA	Environmental and Social Impact Assessment that was prepared by TANAP
ESMP	Environmental and Social Management Plan
IFC	International Finance Corporation
KPI	Key Performance Indicators
NCR	Non Conformance Register
PPP	Pollution Prevention Plan

1.6 References

	Document Number	Document Title
1.	TNP-REP-ENV-GEN-001–Turkish	ESIA Report
2.	TNP-REP-ENV-GEN-002 –English	ESIA Report
3.	WRP-PLN-ENV-GEN-002	EPCM Environmental and Social Management System

1.7 Relations to other plans

This PPP should be read in conjunction with the following plans and national and international legislations as indicated in App. 4.6. (Legislation Registers) of ESIA Report;

- Environmental and Social Management Plan (ESMP) (PLK-PLN-ENV-PL4-001)
- Construction Impact Management Plan (CIMP) (PLK-PLN-ENV-PL4-003)
- Employment and Training Plan (ETP) (PLK-PLN-SOC-PL4-003)

- Procurement and Supply Management Plan (PSMP) (PLK-PLN-SOC-PL4-006)
- Traffic Management Plan (TMP) (PLK-PLN-SOC-PL4-004)
- Erosion, Reinstatement and Landscaping Plan (ESCP) (PLK-PLN-ENV-PL4-002)
- Environmental Emergency Response Plan (EERP) (PLK-PLN-ENV-PL4-007)
- Waste Management Plan (WMP) (PLK-PLN-ENV-PL4-006)
- Camp Management Plan (CMP) (PLK-PLN-ENV-PL4-004)
- Environmental and Social Monitoring Plan (ESMP) (PLK-PLN-ENV-PL4-010)
- Hydrotest plan for onshore and offshore pipeline sections
- Chapter 4 & Appendix 4.6 of ESIA (Legislation Registers)
- Appendix 4.7 of ESIA (Commitments Registers)
- Appendix 5.10 of ESIA (Pollution Prevention Plan)

1.8 **Responsibilities**

1.8.1 Project Manager

- Will ensure that the Pollution Prevention Plan reflects any changes during the construction process that may have a significant environmental impact and manage them accordingly,
- Will ensure that there are sufficient resources (such as people, time, and equipment) to treat, manage, and monitor pollution prevention in the site,
- Will ensure Input is received from all specialist environmental sources,
- Will be responsible to ensure implementation of PPP and any relevant plans and procedures,
- Will ensure that non-conformities are investigated and corrective actions are taken,
- Will ensure that personnel are well aware of PPP,
- Will ensure that all personnel comply with commitments of PPP in line with project requirements,
- Will ensure that all personnel will receive pollution prevention, waste management and housekeeping trainings.

1.8.2 Construction Manager

- Will adhere to and be responsible for ensuring that all site personnel are aware of the requirements of the Pollution Prevention Plan,
- Will be responsible for implementing and supervising environmental issues on site,
- Will review the site-specific procedures written by the Environmental Manager,
- Will ensure that personnel are well aware of PPP,
- Will ensure personnel comply with requirements of PPP,
- Will ensure that pollution prevention activities and waste management performances in areas of activities

1.8.3 HS Manager

- Will, in conjunction with the Environmental Manager, write procedures for site-specific issues,
- Will ensure that all environmental incidents are reported and dealt with effectively,
- Will implement the requirements of the Pollution Prevention Plan relevant

1.8.4 Environmental Manager

- Will be site based during the project and will have responsibility for the identification and management of site environmental issues,
- Will identify the licenses/permits required and ensure timely application to the appropriate authority,
- Will ensure that all consents/licenses are in place prior to carrying out the associated works,
- Will ensure that the Project Manager and Construction Manager are fully informed on any environmental issues,
- Will carry out or supervise all environmental monitoring on the project ensuring that all records are fully completed and stored correctly,
- Will ensure that environmental staff are implementing or overseeing the implementation of site specific PPP requirements,
- Will keep the EPCM fully informed about pollution issues,
- Will have ultimate responsibility for the pollution prevention topics,
- Will coordinate pollution prevention activities,
- Will ensure all personnel including management level be aware of PPP and requirements,
- Will visit and monitor activities,
- Will participate relevant meetings,
- Will inspect and audit activities to be in line with PPP and project requirements,
- Will investigate incidents, near misses and ensure corrective actions,
- Will be responsible to update PPP when requirements are changed and or required,
- Will ensure personnel's to receive relevant trainings,

1.8.5 Environmental Inspector(s)

- Will monitor construction activities and their compliance with environmental plans, procedures and instructions,
- Will ensure that all remedial action identified by inspections are closed out,
- Will conduct all environmental monitoring on the project ensuring that all records are fully completed correctly,
- Will ensure that the Environmental Manager is fully informed on any environmental issues,
- Will implement the environmental management system on site and provide as necessary toolbox talks on pollution prevention and emissions control.

1.8.6 All Employees

- Fully trained regarding environmental requirements,
- Fully trained in dealing with environmental incidents and appropriate response methods,
- Notify others, including Environmental Manager and Project Manager, of all incidents, NCR, deficiencies, etc.
- Will implement the requirements of the Pollution Prevention Plan relevant to their activities.

2 POLLUTION PREVENTION AND CONTROL MEASURES

The pollution prevention and control measures adopted by CONTRACTOR consist of the following activities which will be pursued by the CONTRACTOR's environmental team;

- Training. These training programs will give an opportunity to the all personnel to understand the following topics:
  - requirements of PPP and how to implement them on the site
  - procedures to follow and mitigation measures to implement in case of any spill or other pollution incident
  - In addition to the above mentioned general training topics, contractors and TANAP will also provide specific trainings to the personnel based on their project specific tasks. These trainings will include but not limited to the following topics:
  - Environmental investigation;
  - Control of hazardous materials (collection, reuse, recovery, storage and disposal of hazardous materials);
  - Control of hazardous chemicals (collection, reuse, recovery, storage and disposal of hazardous materials);
  - Waste management (collection, reuse, recovery, storage and disposal of hazardous and non-hazardous wastes);
  - Pollution prevention management;
  - Dissemination response (especially spill response management for soil and water);
  - Usage of dissemination response equipment;
  - Prohibited Materials;
  - Vehicle maintenance requirements;
  - Dust control;
  - Noise control;
- Inspections
- Audits
- Monitoring

CONTRACTOR has constituted an environmental team and has been shown in the CONTRACTOR's Organization Chart submitted in the Environmental and Social Management Plan (PLK-PLN-ENV-PL4-001), which describes the organizational setup and the hierarchy of reporting.

2.1 Land Pollution

Land pollution is the deterioration of the earth's land surfaces often directly or indirectly as a result of human activities and their misuse of land resources. It also refers to soil pollution caused by spillages or leakages and similar point sources due to incidents which may occur during project activities.

Pollution to land from construction projects may occur through a variety of sources. These include:

- Inadequate waste and waste water management,
- Spillages resulting from the storage and handling of fuels, oils and other hazardous materials, in particular during refueling,
- Pollution resulting from contaminated water,
- Inadequate vehicle and plant maintenance.

Control Measures:

The complete list of mitigation measures is found in the ESIA (Appendix-4.7) and will be complied with by CONTRACTOR throughout the project duration. Following measures that will be implemented to reduce the risk of pollution to land, but not be limited to:

- During construction works, provisions of Regulation on Control of Excavation Soil and Construction Debris and also provisions of the Regulation on Control of Soil Pollution and Contaminated Lands by Point Sources shall be complied with. CONTRACTOR will also comply with all other relevant Government regulations and the Project's technical specifications and requirements,
- Chemicals and other hazardous/dangerous/toxic substances (e.g., fuels, lubricants, solvents, etc.) will be stored in sealed and clearly labeled containers or vessels,
- Sufficient fire protection systems will exist at storage facilities in order to control fires and/or the release of hazardous materials to the environment in case of an accident or emergency,
- Sufficient trained personnel, with proper equipment, will be on hand to deal with the possible release of toxic or ignitable gases to the environment,
- All flammable liquids will be stored in storage areas that are a suitable distance to be identified according to risk assessment and legal requirements from living quarters,
- All hazardous and non-hazardous wastes generated during construction activities will be stored and transported as per the requirements outlined in the Contractor's approved Waste Management Plan (PLK-PLN-ENV-PL4-006) by fulfilling project requirements and relevant regulatory requirements,
- The hazardous wastes would be stored temporarily in sealed and clearly labeled containers within the camp site separate from other wastes in a closed environment preventing any chemical reaction. They will be labeled in English and Turkish. MSDS forms will be located where they are stored. After that, these wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the Ministry of Environment and Urbanization,
- All the measures will be taken for the health and safety of the employees responsible for the

collection, transportation and temporary storage of the waste within the facility,

- Discharge of wastewater to surface water resources after treatment will be in compliance with the applicable regulatory requirements and Project Standards,
- Will avoid vehicle crossings to the extent practicable across the watercourse,
- Limit construction activities to periods of low flow where practicable, when sediments are minimal,
- CONTRACTOR will not disturb any other soils except ROW, working strip and additional work areas, and new access roads,
- Prevent vehicle travel on the pipeline ROW as much as practical during reclamation and operation to allow vegetation to establish,
- There will be containment bunds and spill trays for the storage of the hazardous material,
- All the fuel, grease and chemical storages will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir,
- Fuels, grease, oils, and other chemicals will be stored in containers that fulfill relevant legislations,
- No plastic bottle or any other unauthorized containers will be used for fueling, re-feuling or storages,
- Drip trays will be located under generators and other equipment that consumes fuels and such equipment will not be located on bare soil,
- Spill response material will be located nearby generators and other equipment that consumes fuels at camp sites and RoWs,
- Maintenance of vehicles on RoW will be limited and avoided. But in case of such situation, all relevant precautions will be taken to prevent spills,
- All vehicles, equipment and installations will be checked for any fuel and grease leakage before use and will be regularly monitored for leaks,
- Maintenance procedures in line with available manufacturing requirements will be in place for all machinery and equipment,
- Adequate amount of appropriate absorbents/spill kits will be in place in “designated maintenance area” in order to handle with minor leakages,
- Taps and valves will be checked regularly for signs of wearing; and be securely closed and locked when they are not in use,
- All the equipment and storage areas will be secured properly with safety fences, and gateways will be locked in order to prevent pollution,
- All containers of fuel, lubricant oil and chemicals will be sited on containment bund. The bund will be of sufficient capacity to contain at least the 110% of the volume of the largest tank,
- Containers of fuel and fuel storage tanks and secondary containment bund or pool must be protected from rain, snow and any other water sources like by building roof covering secondary containment or etc.,
- If the containment bund is not practical than dip trays will be used stored chemicals and fuels,

- Any soil contamination during the construction activities will be addressed in strict compliance of Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources,
- Contaminated soil due to spills or etc. will be cleaned up promptly by taken required actions,
- Contaminated soil will be stored temporarily in sealed and clearly labelled containers within a bounded area at the site. It will be labelled in English and Turkish,
- The top soil shall be stored along the RoW or in an appropriate area
- The area where the top soil would be stored shall not have more than 5% inclination
- Natural drainage patterns shall be maintained to the extent possible
- Double handling of top soil shall be minimized
- Soil handling activities shall be minimized during high wind conditions
- Necessary protection measures shall be taken to prevent top soil from being scattered by wind or water streams or other factors, from being mixed with foreign materials/subsoil and from being polluted and/or deteriorating with respect to soil quality.
- Necessary protection measures shall be taken to minimize erosion and sediment load as per the project requirements and Erosion Control, Reinstatement & Landscaping Plan (including use of geotextile where required e.g. at restricted spaces, grading, contouring and the maintenance of slope lengths and slope gradient, use of slope breakers, etc.)
- The excavation soil that will be taken out during the pipeline construction shall at first be accumulated throughout the route in order to be used for bedding, padding and backfilling. The excavation material remaining after bedding, padding and backfilling process shall be used for reinstatement of roads and land preparation. Remaining excavation soil shall be stored on permitted sites.
- Waste excavation material (soil, rock) shall be handled as per the project requirements and Waste Management Plan
- Any soil contamination identified shall be immediately addressed in strict compliance with the Regulation on Control of Soil Contamination and Contaminated Lands by Point
- Sources dated 08.06.2010 and numbered 27605.
- Special attention shall be paid in the areas where there is high contamination risk and heavy metal contamination potential (as per the ESIA Report, Appendix 4.5 and Chapter 8.1, Table 8.1.2.8).
- Hygienic, usable Mobile and Portable Toilets will be available at where construction activities take place on RoW, pipe stockyards, and etc.

2.2 Air Pollution

Air pollution is contamination of the indoor and outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. Dust emission during the site operations. The site operations are campsite, access roads and pipe stockyard leveling. In this concept emissions will generate from;

- RoW construction (stripping, grading, trenching and etc.
- Vehicular and equipment emissions

- Dust generation due to vehicle movement
- Site clearing
- Construction traffic
- Loading and unloading activities
- Fugitive release from chemicals, construction materials and etc.
- Generators

For the Project air quality standards please see Appendix-A

Control Measures:

The complete list of mitigation measures is found in the ESIA (Appendix-4.7) and will be complied with by CONTRACTOR throughout the Project duration. Following measures that will be implemented to reduce the risk of pollution to air but not limited to;

- Control of air emissions from heating equipment will be accomplished through observance of manufacturer's recommendations during use, and through following the waste screening and operational procedures detailed in the Waste Management Plan (PLK-PLN-ENV-PL4-006),
- CONTRACTOR will only use project approved travel routes. At roads used, CONTRACTOR will employ appropriate measures, such as speed limit, water dust suppression like spreading water and, etc. to control the generation of dust clouds along project roads and at the work sites. Water will not be taken from surface waters and shall not have contaminants and before usage local communities or landowners' probable complaints must be minimized. These measures will be implemented as often as required to provide safe driving conditions, protect the health of all nearby persons, employees, local habitats, sustain the integrity of adjacent flora and fauna, and control community complaints. In addition to dust control measures implemented on the CONTRACTOR's own initiative,
- Air emissions from vehicles and construction equipment will be kept to a minimum,
- CONTRACTOR will use low emission vehicles
- CONTRACTOR will use vehicles that were checked legally for their exhaust emissions,
- CONTRACTOR will restrict third party vehicle access to project related activities,
- CONTRACTOR will implement regular maintenance programs for vehicles and equipment,
- CONTRACTOR will restrict excessive idling of vehicles or equipment,
- CONTRACTOR will enforce speed limits along access roads at camp site and ROW,
- Types of prohibited cooling refrigerants by law will not be used in the air conditioning system of the camp (compliance with national legislation),
- Chemicals, construction materials and other possible materials that may have fugitive release will be organized, managed, and stored according to MSDS forms and vendors or producers' guidance.

2.3 Noise Pollution and Vibration

Noise is expected to be generated by the following sources, which warrant mitigation measures;

- Construction noise (generated through operation of plant and machinery)

- Various plant and machinery will be operated, both at the campsites and the site.
- Vibration may result from blasting and pilling activities.

Control Measures:

The complete list of mitigation measures is found in the ESIA (Appendix 4-7) and will be complied with by CONTRACTOR throughout the Project duration. Following measures that will be implemented to reduce the risk of noise pollution but not limited to;

- CONTRACTOR will adopt a "Best Practicable Means" policy for the minimization of the effects of noise and vibration during construction,
- Scheduling of inherently noisy operations to minimize/avoid disturbance to residents or users of facilities, unless where unavoidable if a construction activity cannot be stopped once started,
- CONTRACTOR construction activities will be undertaken during daylight hours,
- Screening or enclosing fixed equipment, such as compressors ("silent" running type),
- Providing and maintaining effective silencing to all motorized equipment,
- Installing mufflers and dampers wherever possible,
- Using inherently quieter techniques (as far as is practicable) for example using hydraulics instead of hammering actions,
- Avoiding idling or revving of vehicle and equipment engines (i.e., all engines will be switched off when not in use),
- Choosing transport routes that have the least impact to the sensitive receptors,
- Performing induction training and toolbox talks on noise prevention,
- Maintaining equipment on a regular basis,
- Local communities that may be affected by dust or noise will be informed of the construction activities,
- Speed limits will be controlled via posted signs on ROW and access roads,
- Replacing or repairing parts generating excessive noise,
- Night works will be avoided. if it is needed, it will be subject to EPCMs approval,
- Night-time activities will be kept to a minimum to reduce disturbance to local communities due to noise and vibration emissions; if night-time construction activities are necessary, local authorities and local communities will be informed with 48 hours' notice,
- CONTRACTOR will reduce noise associated with vibration and vehicle noise by selecting equipment and methods that limit the generation of unnecessary noise/vibration and by making the maintenance of the equipment and vehicles properly.,
- Blasting works will be subject to EPCMs approval,
- Temporary noise barriers will be deployed near sensitive areas or receivers,
- The exact locations at which piling and blasting activities will be done will agreed with EPCM prior to the commencement of the blasting or piling activities,

- Prior to the commencement of any underground works, a dilapidation survey of properties that may be affected by the works will be carried out. The survey will be carried out prior to the works commencing. Properties or services that are deemed to be at risk will be assessed for structural stability, photographed and the legal owner identified. This will include;
  - Impacts at properties that are considered to be potentially under the risk from either blast induced vibration damage or fly rock,
  - Impacts at properties that are liable to settling,
  - Effects on surface and subsurface water supplies, and
  - Effects on public utilities
- Inhabitants will be trained about blasting and piling activities according to a programme,
- Blasting will be performed at the suitable times concerning the local characteristics,
- Noise and vibration risk assessments will be performed for residential areas close to construction activities.

Noise limits for the project are presented in Appendix-B.

Noise Monitoring

Heightened attention to noise control measures will be needed and implemented at numerous locations because of nearby noise sensitive receptors (i.e., residences, schools, businesses, historic areas, wildlife resources). Noise sensitive receptors will be noted on the alignment sheets to increase awareness of the receptors and aid in the implementation of the monitoring program.

Vibration Monitoring

CONTRACTOR and subcontractors will use best management practices (e.g., selection of equipment and work methods) to limit vibration impacts, particularly nuisance vibration. Heightened attention to vibration control will occur when working within 50 meters of residences and other sensitive receptors.

In case of a requirement, prior to conducting any vibration monitoring, the resident(s) will be contacted and the monitoring program will be explained. Structural damage to buildings in the vicinity of construction activities will be documented. Vibration monitoring will be conducted, as needed using standardized monitoring methods. In general, vibration measurements will be taken outside of buildings (at the building line). Data will be compared with established vibration monitoring criteria in site specific Pollution Prevention Plan and interpreted in the context of potential structural damage as well as nuisance conditions.

2.4 Water Pollution

Water pollution is the contamination of water bodies (e.g.; rivers, lakes, seas, aquifers etc.) very often by human activities. Pollution occurs when pollutants (particles, chemicals or substances that make water contaminated) are discharged directly or indirectly into water bodies without enough treatment to get rid of harmful compounds.

Water pollution from construction projects may occur through a variety of sources. List of the sources are given below;

- Spillages of fuel, oil or other hazardous substance, especially during refueling,
- Uncontrolled discharge of wastewater from camps site and ROW,

- Washing of vehicles or equipment,
- Spills of fuel, oil or hazardous materials,
- Runoffs from the ROW,
- Sediment release to water courses,
- Pumping of silt water from trenches to receiving water bodies,
- Deterioration of watercourse banks and bed during crossing of vehicles,
- Discharge of hydrostatic testing water.

In order to minimize the impacts on water bodies, all of the activities will be performed by taking into consideration the Biodiversity Action Plan (CIN-REP-ENV-GEN-017).

Surface & Groundwater Control Measures:

The complete list of mitigation measures is found in the ESIA (Appendix 4-7) and will be complied with by CONTRACTOR throughout the project duration. Flowing measures that will be implemented to reduce the risk of pollution to water but not limited to;

- Avoiding vehicle crossings to the extent practicable across the watercourse,
- Ensuring the requirements of each water protection zone,
- Ensuring all equipment working in or near watercourses is clean and free of fluid leaks,
- Obtaining applicable water abstraction permits,
- Restricting fueling/refilling, chemical handling activities in close vicinity of the watercourses,
- Strictly prohibiting fishing by project personnel at watercourses,
- Groundwater quality and sustainability will be monitored periodically to confirm that the supply meets the needs of the project and does not impact adversely on water conservation initiatives will be undertaken with the aim to limit the potable water consumption (drinking water standards are given in Appendix-E);
- Use appropriate sediment and erosion control techniques (e.g., silt fences) during construction of the Project;
- Monitor watercourse turbidity during river crossings of the construction works and take corrective actions where required,
- Prevent turbid water from re-entering the watercourse to the extent practicable using natural or mechanized filtration processes,
- Record all volumes of water withdrawal from natural resources for project related activities for demonstration of no exceed of the allowance,
- Install temporary vehicle crossings/bridges,
- Measures to minimize scour and reduce sediment load will be implemented at locations where hydrotest water is discharged to watercourses and discharge velocities have the potential to create erosion (e.g. controlled rate of discharge and use of energy dissipaters, displacement of geotextile mats or other physical erosion prevention measures),
- The following mitigating measures will be followed in the camp areas,

- Water used for washing vehicles will be subject to an oil and water separator before discharge,
- No refueling or fuel storage will be allowed within 50 meters of a watercourse
- Where required, bunds, grips and other measures will be implemented adjacent to watercourses to prevent silt ingress from the construction site,
- No drainage water from run-off will be sent to WWTP,
- Upstream and downstream water quality will be checked regularly.
- Turbidity of the watercourses will be monitored as per indicated time intervals and times given in Contractor Environmental and Social Monitoring Plan.

Wastewater Control Measures:

- Discharge of wastewater to surface water resources after treatment in compliance with the applicable regulatory requirements;
- Camp domestic wastewaters will be collected and treated in WWTP in camp site. It will then be disposed of at the discharge point authorized by the authorities. All the incompliant wastewater will be transferred to another compliant facility to treat,
- No wastewater will be discharged to water body unless fulfills discharge requirements set by legislations,
- No wastewater can be given to sewer system which has no WWTP at downstream that meets discharge requirements,
- During the start-up process and or maintenance period (if any or in case), waste water given to municipality or any private firms must be treated at WWTP that meets discharge requirements,
- Wastewater must be treated at any fly camps and or at hotels that used for accommodation purposes before discharge to meet requirements,
- Wastewater of hydrotesting will be treated and discharged to receiving environment which is approved by the Client/EPCM after satisfying the parameter given in Water Pollution Control Regulation and hydrotest water discharge standards in IFC
- In the camp areas,
  - Discharge of wastewater to surface water resources after treatment will be in compliance with the applicable regulatory requirements given in ESIA (Chapter-4),
  - Domestic wastewater will be separated from oily water discharges,
  - No waste oils and vegetable waste oils will be sent to WWTP,
  - Monthly samples will be taken to test the treated wastewater,

- After takıng baselıne measurements the treated water will be dıscharge and not pollute the surface water. The treated water quality will be analyzed properly before and after the wastewater dıscharge to ensure compliance,
- Wastewater treatment plant will be regularly maintained,
- No drainage water from run-off will be sent to WWTP.

Wastewater arising from different sources and activities (camp area, trench, car washing area, hazardous liquid waste, etc) will be evaluated in detail and required control measures will be described in accordance with applicable Regulation and Project Standards.

Hydrostatic Testing:

The pipeline will be hydrostatically pressure tested to ensure that there are no leaks. All hydrotest abstractions and discharges will be identified in advance of testing and will be licensed in accordance with the appropriate permitting requirements. In the very unlikely event that leaks occur, an appropriate clean up response will be put into place in accordance with project requirements.

Hydrostatic testing will be planned so that the opportunities for water re-use are maximized. First priority is to use surface water for hydro testing, İf this is not possible (i.e. quality of the surface water doesn't meet the requirements as a result of analysis results or in the absence of sufficient surface water), groundwater resources can be used with permission and ensuring no impact (related site specific calculations proving the sufficiency of the groundwater capacity will be done) on public use and environmental sensitivities. The pipeline and storage tanks will be hydrostatically pressure tested to ensure that there are no leaks. Not only quality but also quantity information of water source (surface and or ground water) will be studied in detail and submitted with specific method statement. Minimum flowrate, mean flowrate, maximum flowrate and seasonal information and etc. will be defined in the method statement. After abstraction of water, minimum flowrate of water course will be maintained at all times to provide basic requirements for fishes and other livings. Moreover, downstream conditions will be considered for farming and other practices.

Water may need to be transferred from one test section to another along the pipeline due to conservation or supply difficulties. In such cases, necessary consideration will be given to complete the installation program taking full account of water supply and disposal requirements.

The transfer of test water from one section to another will be accomplished through metal pipework provided no water is lost, spilled or contaminated. As the water is transferred from one section to the next, it will be filtered and its chemical composition will be checked and adjusted as necessary.

If there are doubts as to the water quality, and if the water is kept for a long period of time in the pipeline, it may be necessary to treat the water chemically to prevent biological growth in the water. The introduction of oxidation/corrosion inhibitors may also be necessary in order to protect the internal pipe surface. The addition of the chemicals will be subject to close scrutiny and control. The water will be checked periodically to ensure that it remains within the specified compositional limits and will be tested prior to disposal.

All hydrotest abstractions and discharges will be identified in advance of testing (timing to be advised by EPCM) and will be licensed in accordance with the appropriate permitting requirements. Specific method statements must be generated for hydrotesting activities in detail and these details will be given in Hydrotest plan to be prepared by the Contractor.

Discharge of hydro test water will not impair the receiving body quality and will comply with relevant legislation and project requirements.

Hydrotest Control Measures:

Environmental impacts associated with the abstraction and discharge of test water will be minimized by adoption of the following mitigation measures.

- If required, corrosion inhibition chemicals, oxygen scavengers or biocides will only be used in the hydrotest water with the prior permission of Client/EPCM and the appropriate Turkish regulatory authorities,

- 100 % ultrasonic or radiographic inspection of all welds and hydrostatic testing the pipeline sections before commissioning will be undertaken,
- All pipes at major water crossings will be pretested,
- Test manifolds will be located outside of wetlands and riparian areas as far as reasonably practical,
- Abstraction and discharge of hydrotest water will comply with the appropriate national and international standards,
- Water samples (grab) of the discharged test water will be taken at the beginning and the end of the discharge period as a minimum. The following parameters will be monitored as in stated in Appendix-H, Hydrotest Water Discharge Register.
- Abstraction water intakes will be screened to avoid entrainment of fish,
- Any abstraction will be at a rate which ensures the maintenance of adequate downstream flow rates to protect aquatic life, provide for all water body uses, and downstream abstractions of water by existing users as advised by relevant Authority,
- The discharge pipe will be anchored for safety, in case of discharging via pipe,
- The discharge of test water will be to a suitable receiving body of water across a well-vegetated area or filtered through a filter bag or erosion control barriers such as soakaways or sediment bunds,
- The discharge of test water will occur against a splash plate or other energy dissipating device in order to aerate, slow, and disperse the flow,
- The rate of discharge will be controlled to a level that prevents flooding or erosion.
- Plan hydrostatic testing so that the opportunities for water re-use are maximized,

2.5 River Crossings

All the necessary measures will be taken in order to protect water passages against pollution, to minimize sedimentation, to mitigate the impact on vegetation along the water passages, and to restore the water passages to the condition before the construction in line with project requirements.

Specific method statement for river crossings will be generated in advance to crossings and subject to Client/EPCM approval. Project requirements and drawings will be used for river crossings.

Control Measures:

Following measures that will be implemented to reduce the risk of pollution to land, but not be limited to:

- Trenchless and isolation methods will be used during water way crossing as stipulated by the ESIA and engineering specifications and Appendix 4-7 of ESIA,
- CONTRACTOR will develop specific construction drawings and method statements for the crossings subject to TANAP approval
- Clean and native materials will be used during bed and bank restoration work
- Natural or mechanized filtering will be applied for preventing turbid waiter from re-entering the watercourse.
- Site-specific working methods and construction drawings will be developed for water passages;
- Water crossings will be planned and designed not to affect the stability and long-term functioning of the water courses;
- De-plantation along the river/stream will be at minimum and old trees will not be cut where necessary;
- Any construction material and structure will be removed from the waterway after the construction is completed;
- River canals, river beds and riversides will be restored and, if necessary, rehabilitation measures will be taken; and

The river crossings will be restored to the condition before the construction in line with the specific construction drawings.

2.6 Solid Wastes Pollution

There will be domestic solid waste from the camp sites and ROW. Domestic solid waste from the camp staff and RoW will be collected in closed containers located at various points of the camp areas and at RoW. These solid wastes at Camp Sites will be collected in containers and at certain intervals with no causing over load will be transported to the CWAA. Solid wastes at RoW will be collected at containers according to waste type and transferred to CWAA at the end of the day. Solid waste will be disposed at licensed facilities.

Project requirements and related legislations and CONTRACTOR Waste Management Plan (PLK-PLN-ENV-PL4-) will be complied in the management (handling, storing, transporting, disposing etc.) of the solid wastes.

2.7 House Keeping and Maintenance

Good housekeeping and waste management practices will be applied and implemented by Contractor at camp sites and pipe stockyards in line with the Waste Management Plan (PLK-PLN-ENV-PL4-006). Whole of the housekeeping personnel will be trained about Pollution Prevention Plan and Waste Management Plan in line with Environmental and Social Training Plan (PLK-PLN-ENV-PL4-011).

Project requirements and related legislations and Contractor Waste Management Plan (PLK-PLN-ENV-PL4-006) will be complied in the management of the maintenance works of the Project.

Control Measures:

- High standards of cleanliness and workplace tidiness will be maintained and tools and equipment will be kept in good order at all times.
- Work areas, all stairways, passageways, gangways and access ways will be kept free of materials, supplies and obstructions at all times.
- Cleaning up and disposal off debris will be performed on a daily basis.
- Special attention will be given to the proper disposal of hazardous and flammable materials.
- The foregoing materials including other debris resulting from construction activities will be disposed of in the designated disposal area(s) as per legal/contractual requirements.
- Inspection will be performed weekly and recorded to ensure that housekeeping requirements.
- Monitoring will be conducted according to Environmental and Social Monitoring Plan (PLK-PLN-ENV-PL4-010).
- Spread Environmental inspectors will be responsible for the monitoring and inspections of the pollution prevention activities on a daily basis.

3 SPILL PREVENTION AND CONTROL

Spill occurs in the event that the control measures discussed throughout this PPP fail and material such as oil, fuel and chemicals escape to the environment like air, water and soil, through spillage or leakage.

Spill reporting requirements (to be handled as per Incident Reporting Procedure) will be applied to releases to land and water of any contaminant (petroleum products, hazardous materials and chemicals etc.). Based on the type of spilled material and quantity, CONTRACTOR is responsible for notifying EPCM authorized personnel (environmental inspector) and government officials as required. Environmental Manager and/or environmental inspectors will document the spill in an incident report. The incident report will be forwarded to the CONTRACTOR Project Manager and Project Manager will send the incident report to EPCM (Environmental Department). Records of all hazardous materials releases will be stored.

Environmental Inspector will monitor progress of the spill and the associated clean-up effort and document these events in an Incident Report. Wherever possible, hazardous material spills/releases will be controlled by on-site personnel. The on-site EPCM Environmental Inspector will be immediately verbally informed of all spill incidents. In the event of a minor spill an incident report will be issued to EPCM within 24 hours of the discovery of the incident. For significant spills the incident will be reported immediately.

The following information will be provided when a release occurs;

- Location of the spill,

- The reporting staff's name and phone number,
- Date, and type of incident,
- Type and quantity of spilled material
- Affected environment body like water, soil, air,
- Duration of spills,
- Any injury,
- Possible hazards to human health and the environment,
- Clean-up and/or mitigation actions taken.

The spill prevention mitigations are intended to avoid, if not possible to minimize the release of contaminant to land or water and air.

CONTRACTOR will ensure that its personnel and subcontractors working in the camps, pipe yards and RoW are aware of the spill prevention and response responsibilities.

A list of emergency contact will be available to all employees for a prompt spill response.

A hazardous good register / MSDS will be developed and available on site for review to ensure an adequate spill response.

All employees handling fuels and hazardous material will receive proper training during their project inductions. The training will be conducted by the environmental team and recorded for audit purposes.

Spill drills will be implemented in conjunction with the HS team.

Spill equipment and spill kits will be readily available with every team, and in locations through the camp where any hazardous material is stored and Row. Spill equipment will be appropriate to quantity of spills, fuels, hazardous materials.

In maintenance areas, drip trays and spill kits will be available. All plant/vehicle fluids will be collected during maintenance. The fluids will be disposed of in the hazardous material section of the waste management area.

Mitigations include;

- There will containment bunds and spill trays for the storage of the hazardous material.
- The MSDS form requirements of all chemical will be implemented.
- Filling and re-fueling activities will be strictly controlled and centralized.
- All the fuel, grease and chemical storage will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir.
- All vehicles, equipment and installations will be checked for any fuel and grease leakage before use and will be regularly monitored for leaks.
- Adequate amount of appropriate absorbents be in place in "designated maintenance area" in order to handle with minor leakages.
- All containers of fuel, lubricant oil and chemicals will be sited on containment bund. The bund will be of sufficient capacity to contain at least the 110% of the volume of the largest tank. Containers of fuel and fuel storage tanks and secondary containment bund or pool must be protected from rain,

snow and any other water sources like by building roof covering secondary containment or etc.

- If there is any leakage occurred to bunded area, it will be collected, stored in hazardous "waste temporary storage area.
- Conducting training programs for spill prevention, spill kits, refueling procedure, etc.
- Material Safety Data Sheet (MSDS) for all substances stored and used on site will be maintained along with all other safety documents.
- The following mitigating measures will be followed in the camp areas;
  - There will containment bunds and spill trays for the storage of the hazardous material,
  - The MSDS form requirements of all chemical will be implemented,
  - Filling and re-fueling activities will be strictly controlled and centralized,
  - All the fuel, grease and chemical storage will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir,
  - All vehicles, equipment and installations will be checked for any fuel and grease leakage before use and will be regularly monitored for leaks,
  - Adequate amount of appropriate absorbents be in place in "designated maintenance area" in order to handle with minor leakages,
  - All containers of fuel, lubricant oil and chemicals will be sited on containment bund. The bund will be of sufficient capacity to contain at least the 110% of the volume of the largest tank,
  - If there is any leakage occurred to bunded area, it will be collected, stored in hazardous "waste temporary storage area,
  - Conducting training programs for spill prevention, spill kits, refueling procedure, etc.,
  - Material Safety Data Sheet (MSDS) for all substances stored and used on site will be maintained along with all other safety documents.

Refueling:

All refueling at pipe yards and camps site will be from designated, bounded fuel storage tanks. Refueling of vehicles will not be performed 50 meters to drains, watercourses and wetlands. Where refueling on the RoW is required, this will be undertaken by mobile fuel dispensing tankers. Refueling operations on the RoW will utilize drip trays and absorbent pads which will be placed prior to the commencement of refueling operations. Refueling will be carried out by a nominated refueling operator who will be specifically trained. There will be placed spill kit and fire extinguisher readily available on site. No plastic bottles or any other kind of unauthorized tools will be used for re-fueling and or storage purposes.

Automatic shut-off valve will be installed and clearly identified on all fuel dispensing units and care will be taken to ensure tanks are not overfilled. All connections will be bonded to prevent static discharge and there will be no smoking during re-fueling operations.

Filling and refueling activities will be strictly done and controlled by refueling operators which are trained on "Environmental Emergency Response and Spill Response". Refueling activities will be handled as per Contractor Waste Management Plan (PLK-PLN-ENV-PL4-006) and Environmental Emergency Response Plan (PLK-PLN-ENV-PL4-007).

Spill Response:

The use of spill kits, including absorbents, to contain a spillage, followed by clearing up and disposal of the spillage and spillage material will be explained to site staff involved with emergency response plan, refueling operators and drivers during the environmental training.

All oil/fuel/chemical storage, refueling areas and vehicle maintenance areas will include a sufficient supply of spill containment materials. A spill kit will also be carried on every vehicle. These kits will contain absorbent pads, booms, bags and ties. The CONTRACTOR's Construction Manager and Environmental Manager are responsible for identifying suitable spill response equipment for responding to spillages and ensuring an adequate supply in the store. The Construction Manager is responsible for ensuring that spill kits are allocated to the appropriate locations/vehicles. The Construction Manager is responsible for ensuring that these are replaced if used.

All spills will be treated with a matter of urgency and as such constitute an 'emergency/spillage response'. Consequently, within this PPP will be consulted to determine the correct response to the spillage, including communication routes and containment/cleanup respectively. Small spills (less than 10 lt including leaks from equipment will be cleaned-up immediately with absorbents and clean-up materials properly disposed, medium spills (> 11 lt and < 50 lt) the basic steps are as same as for minor spills, however response details may be modified to fit the circumstances. Small and medium spills will be cleaned with appropriate spill response equipment from the spill kits and in accordance with project requirements. The basic steps for clean-up are as follows:

- For small spills;
  - Stop the spill
  - Isolate the impact,
  - Clean up the impacted media using materials from the spill kit,
  - Dispose of any contaminated materials such as soil, PPE, absorbents etc.
  - Document the spill in the incident report form
- For medium spills;
  - Outside of contained areas will be diked with absorbent or soil to prevent liquids from reaching drainage, storm drains, or other bodies of water,
  - Deployment of Environmental Emergency Response Team for clean-up and remediation of the contaminated area,
- For large spills;
  - As soon as a spill is discovered the lead person at the scene will designate a restricted area and will notify the Environmental Inspector,
  - Al non-essential workers will evacuate the immediate area if the spill may pose a threat to the health and wellbeing of personnel,
  - Outside of contained areas will be diked with absorbent or soil to prevent liquids from reaching drainage, storm drains, or other bodies of water,
  - Clean-up decisions for large amounts of spillage will be made in conjunction with the Environmental Inspector

- The Environmental Inspector will deploy the EERT to contain the situation only, and will discuss with Construction Manager whether a third party agent is required to respond or clean up,
- The Environmental Manager would arrange Third Party response /clean up as required,
- According to Turkish Regulations as may be required a third party trained and licensed hazardous materials response firm may perform clean-up.

Training in spill containment/clearance techniques will be given to staff involved with emergency response plan. Refueling operators will be trained on appropriate and best practices of refueling. Drivers will be trained on appropriate refueling practices and response requirement in the event of a spill.

Upon the discovery of a major spill, all activities in the camp, pipe yard or RoW will be stopped in order to adequately address the spill and the area will be restricted.

The spill will be contained with appropriate spill response equipment from the spill kits on site.

The crew will immediately inform the camp manager/pipe yard manager and the environmental team with the following information: location of spill, estimated size of spill, affected environment body, duration of spill, and if any hazards are present. The team attending to the spill will wear proper PPE as per the health and safety requirements.

Once the spill is contained, the area will be cleaned up and all contaminated material will be disposed of adequately in the hazardous material section of the waste management area.

In case of a spill to land, the contaminated soil will be stripped to a sufficient depth and transported to first hazardous waste section of the CWAA and then to the licensed disposal facility

An incident report (Appendix-C: Incident register) will be completed and all corrective actions will be implemented.

A complete spill prevention and response procedure will be found in the Environmental Emergency Response Plan (PLK-PLN-ENV-PL1-007).

4 KEY PERFORMANCE INDICATORS

The performance indicators for the monitoring of the implementation of the pollution prevention plan will be as follows. Project HSSE procedures and plans should also be referred for the performance indicators:

- Records of noise and dust complaints
- Records of dust and noise monitoring (as per Appendix 4-7 of ESIA)
- Records of wastewater discharge quality analysis (as per Appendix 4-7)
- Records of groundwater withdrawal amounts
- Records of amount of surface water use
- Records of vehicle emission certificates
- Results of groundwater monitoring programs for groundwater quality decrease
- Records of groundwater withdrawal amounts, surface water use and water consumption records during hydrostatic testing

- Types and amounts of solid waste generated
- Types and solid waste disposed

5 TRAINING

CONTRACTOR will provide training regarding the requirements of this PPP to all personnel involved in on-site activities. These training programs will ensure that all personnel involved in on-site activities:

- Fully understand the pollution prevention and control requirements of the Project and how

  they will be implemented on site;
- Fully understand the procedures to be followed and mitigation measures to be implemented in the event of a spill or other pollution event; and
- Are aware of the respective roles of PLK JV's staff and the TANAP representatives with respect to pollution prevention and control.

In addition to the general training requirements described above, CONTRACTOR will ensure that all their respective personnel receive training and instruction specific to the tasks they will be undertaking on site in line with project requirements. This will include, but not be limited to, the following areas:

- Environmental investigation;
- Control of hazardous materials (collection, reuse, recovery, storage and disposal of hazardous materials);
- Pollution prevention management;
- Dissemination response (especially spill response management for soil and water);
- Usage of dissemination response equipment;
- Prohibited Materials;
- Vehicle maintenance requirements;
- Dust control;
- Noise control;

All CONTRACTOR employees and their subcontractors will be required to attend new-hire induction training that includes environmental and social compliance and awareness training. This training will include specific information on appropriate handling and storage of hazardous materials (e.g., petroleum products), best practices to prevent and cleanup spills, and the Project's spill notification procedure.

Training details are given in Environmental and Social Training Plan (PLK-PLN-ENV-PL4- 011) and all of the trainings will be given in accordance to project requirements and Environmental and Social Training Plan.

6 MONITORING

CONTRACTOR environmental staff will conduct daily, weekly and/or monthly (depending on the requirements and/or needs) monitoring of the RoW and all other sites (camps, pipe yards, etc.) to check for signs of pollution issues. The monitoring, to be conducted as per project requirements and Environmental and Social Monitoring Plan (PLK-PLN-PL4-010) will include, but not limited to, the following;

- Noise levels at sensitive receptors.
- Air emissions at sensitive receptors and control at camps, on access roads and ROW, Wastewater discharges to the receiving body,
- Fuel, oil and hazardous material transport, handling and storage,
- Hydrotest discharges as per Hydrotest plan for onshore and offshore pipeline sections

CONTRACTOR will conduct periodic (daily, weekly and monthly) visual inspections of all hazardous waste storage area and containers to look for signs of deterioration, leaks, unsecured container covers, or excess accumulation of materials in the containment areas.

All visible leaks and releases will be promptly corrected. Additionally, equipment operators will Conduct periodic inspections on equipment to check for leaks, perform periodic preventive maintenance on equipment to minimize the potential for spills or leaks, and ensure spill kits are complete and available.

In case of any contamination / pollution, Contractor will take the required actions to prevent and clean up the pollution and will make the required inspections of the key performance indicators for the prevention of pollutions/contaminations indicated above, either visually and by means of sampling and measurements, to prove there is no further contamination and/or pollution.

Monitoring activities will be conducted as per Environmental and Social Monitoring Plan (PLK-PLN-PL4-010).

7 REPORTING

CONTRACTOR will provide the following weekly information;

- NCR register,
- Incident register,
- Summary of environmental inspections, audits, and controls,
- Summary of environmental monitoring activities undertaken during the current week that highlights locations where monitoring occurred and key learning/findings and look ahead.

In relations to the Pollution Prevention Plan, CONTRACTOR will provide the following monthly information;

- NCR register,
- Incident register,
- Water quality for camp sites,
- Water quality for surface water,
- Waste water discharge register,
- Waste Disposal Register,
- Water abstraction,
- Watercourse crossing register,
- Hydrotest water discharge register,
- Noise register for Spread 7/8
- Air register for Spread 7/8

- GHG emission

Monitoring activities will be performed in compliance with TANAP Environmental Monitoring Plan (TNP-PLN-ENV-GEN-003).

Appendix A - Project Air Quality Standards Table (ESIA Table 2.6.1_Project Air Quality Standards)

APPENDIX A **PROJECT AIR QUALITY**

STANDARDS TABLE (ESIA TABLE 2.6-1: PROJECT

AIR QUALITY STANDARDS)

Project Air Quality Standards			
SO2 (μg/m3)	Hourly	350 (2019) (not to exceed more than 24 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	24 hr	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	Yearly and Winter Season (Oct 1 – March 31) (for Wildlife and ecosystem)	20 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
NO2 (μg/m3)	Hourly	200 (2024) (not to exceed more than 18 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	Yearly	30	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – Guidelines for Europe (for

			ecosystem)
NOx (μg/m3)	Yearly (for vegetation)	30 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
PM10 (μg/m3)	24 hr (For human health)	50 (2019) (not to exceed more than 35 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
	Yearly (for human health)	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
PM2.5 (μg/m3)	24 hr	25 (guideline) WHO	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	1 year	10 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
Lead (μg/m3)	Yearly (human health) (LTL)	0.5	Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008

APPENDIX A **PROJECT AIR QUALITY**

STANDARDS TABLE (ESIA TABLE 2.6-1: PROJECT

AIR QUALITY STANDARDS)

Project Air Quality Standards			
SO2 (μg/m3)	Hourly	350 (2019) (not to exceed more than 24 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	24 hr	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	Yearly and Winter Season (Oct 1 – March 31) (for Wildlife and ecosystem)	20 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
NO2 (μg/m3)	Hourly	200 (2024) (not to exceed more than 18 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	Yearly	30	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – Guidelines for Europe (for

			ecosystem)
NOx (μg/m3)	Yearly (for vegetation)	30 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
PM10 (μg/m3)	24 hr (For human health)	50 (2019) (not to exceed more than 35 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
	Yearly (for human health)	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
PM2.5 (μg/m3)	24 hr	25 (guideline) WHO	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	1 year	10 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
Lead (μg/m3)	Yearly (human health) (LTL)	0.5	Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008

Appendix B - Noise Standards for Construction Site

APPENDIX B NOISE STANDARDS FOR CONSTRUCTION SITE

Noise Standards for Industrial Facilities (ESIA Table 2.6-1: Turkish Ambient Noise Limits Generated by Industrial Facilities)			
Receptor	**Period**	**Noise Level**	**Reference regulatory requirement**
Noise sensitive areas - with training, culture and health areas, summer houses and camps	**LAeq (dBA) Day-time 06:00 – 19:00**	60	
	LAeq (dBA) Evening-time 19:00 – 22:00	55	
	LAeq (dBA) Night-time 22:00 – 06:00	50	
Combination of commercial and noise sensitive areas – with dense residential buildings	**One Hour LAeq (dBA) Daytime 07:00 - 22:00**	55	IFC General EHS Guidelines – Guidelines for Community Noise, WHO, 1999
	One Hour LAeq (dBA) Night time 22:00 - 07:00	45	
Industrial areas	**LAeq (dBA) Day-time 06:00 – 19:00**	70	Regulation on Assessment and Management of Environmental Noise
	LAeq (dBA) Evening-time 19:00 – 22:00	65	
	LAeq (dBA) Night-time 22:00 – 06:00	60	

Noise Standards for Construction Sites (ESIA Table 2.6-2: Turkish Ambient Noise Limits Generated by Construction Sites)		
Activity (Construction, Demolition and Renovation)	**Noise Level LAeq (dBA) Day-time (06:00 – 19:00)**	**Reference regulatory requirement**
Building	70	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Construction Sites
Road	75	
Other sources	70	

APPENDIX B NOISE STANDARDS FOR CONSTRUCTION SITE

Noise Standards for Industrial Facilities (ESIA Table 2.6-1: Turkish Ambient Noise Limits Generated by Industrial Facilities)			
Receptor	**Period**	**Noise Level**	**Reference regulatory requirement**
Noise sensitive areas - with training, culture and health areas, summer houses and camps	**LAeq (dBA) Day-time 06:00 – 19:00**	60	
	LAeq (dBA) Evening-time 19:00 – 22:00	55	
	LAeq (dBA) Night-time 22:00 – 06:00	50	
Combination of commercial and noise sensitive areas – with dense residential buildings	**One Hour LAeq (dBA) Daytime 07:00 - 22:00**	55	IFC General EHS Guidelines – Guidelines for Community Noise, WHO, 1999
	One Hour LAeq (dBA) Night time 22:00 - 07:00	45	
Industrial areas	**LAeq (dBA) Day-time 06:00 – 19:00**	70	Regulation on Assessment and Management of Environmental Noise
	LAeq (dBA) Evening-time 19:00 – 22:00	65	
	LAeq (dBA) Night-time 22:00 – 06:00	60	

Noise Standards for Construction Sites (ESIA Table 2.6-2: Turkish Ambient Noise Limits Generated by Construction Sites)		
Activity (Construction, Demolition and Renovation)	**Noise Level LAeq (dBA) Day-time (06:00 – 19:00)**	**Reference regulatory requirement**
Building	70	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Construction Sites
Road	75	
Other sources	70	

Appendix C - NCR Register

APPENDIX C NCR REGISTER

NCR REGISTER
Reporting Period

Total of NCR	
To date	This reporting Period

Total of NCR to date	
Open	Close

Date	Doc Control Registration Number	Summary	Date Part A completed and form submitted to assignee	Date Part B Completed	Date Part C completed	Date Part D completed	NCR closed out (green/red)	Comments

APPENDIX C NCR REGISTER

NCR REGISTER
Reporting Period

Total of NCR	
To date	This reporting Period

Total of NCR to date	
Open	Close

Date	Doc Control Registration Number	Summary	Date Part A completed and form submitted to assignee	Date Part B Completed	Date Part C completed	Date Part D completed	NCR closed out (green/red)	Comments

Appendix D - Incident Register

APPENDIX D INCIDENT REGISTER

INCIDENT REGISTER
Reporting Period

Total of incidents	
To date	This Reporting Period

Total of incidents to date	
Open	Closed

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close By	Actual Close out Date	

APPENDIX D INCIDENT REGISTER

INCIDENT REGISTER
Reporting Period

Total of incidents	
To date	This Reporting Period

Total of incidents to date	
Open	Closed

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close By	Actual Close out Date	

Appendix E - Water Quality for Camp Sites (Drinking Water Standards – ESIA Table 2.6-3_Drinking Water Standards)

APPENDIX E WATER QUALITY FOR CAMP SITES (Drinking water Standards- ESIA Table 2.6-3: Drinking Water Standards)

WATER QUALITY REGISTER – SPREAD 7/8
Reporting Period:

Drinking Water		
Sampling Date:		
Sampled by:		
Sample reference:		
Microbiologcial Parameters	**Concentration**	**Sample Results**
Escherichia coli (E.coli)	*0/100 ml*	
Enterococcus	*0/100 ml*	
Coliform bacteria	*0/100 ml*	
Chemical Parameters	**Concentration**	**Sample Results**
Acrylamide	0,1 µg/l	
Antimony	2 µg/l	
Arsenic	10 µg/l	
Benzene	1 µg/l	
Benzopyrene	0,01 µg/l	
Boron	1 mg/l	
Bromate	10 µg/l	
Cadmium	3 µg/l	
Chromium	50 µg/l	
Copper	2 mg/l	
Cyanide	50 µg/l	
1,2-Dichloracethane	3 µg/l	
Epichlorhydrin	0,1 µg/l	
Fluoride	1,5 mg/l	
Lead	10 µg/l	
Mercury	1 µg/l	
Nickel	20 µg/l	
Nitrate	50 mg/l	
Nitrite	0,5 mg/l	
Pesticides	0,1 µg/l	
Total Pesticides	0,5 µg/l	
Polycyclic aromatic hydrocarbons	0,1 µg/l	
Selenium	10 µg/l	
Tetrachloroethane and Trichloroethane	10 µg/l	
Trihalomethanes-total	100 µg/l	
Vinyl chloride	0,3 µg/l	

APPENDIX E WATER QUALITY FOR CAMP SITES (Drinking water Standards- ESIA Table 2.6-3: Drinking Water Standards)

WATER QUALITY REGISTER – SPREAD 7/8
Reporting Period:

Drinking Water		
Sampling Date:		
Sampled by:		
Sample reference:		
Microbiologcial Parameters	**Concentration**	**Sample Results**
Escherichia coli (E.coli)	*0/100 ml*	
Enterococcus	*0/100 ml*	
Coliform bacteria	*0/100 ml*	
Chemical Parameters	**Concentration**	**Sample Results**
Acrylamide	0,1 µg/l	
Antimony	2 µg/l	
Arsenic	10 µg/l	
Benzene	1 µg/l	
Benzopyrene	0,01 µg/l	
Boron	1 mg/l	
Bromate	10 µg/l	
Cadmium	3 µg/l	
Chromium	50 µg/l	
Copper	2 mg/l	
Cyanide	50 µg/l	
1,2-Dichloracethane	3 µg/l	
Epichlorhydrin	0,1 µg/l	
Fluoride	1,5 mg/l	
Lead	10 µg/l	
Mercury	1 µg/l	
Nickel	20 µg/l	
Nitrate	50 mg/l	
Nitrite	0,5 mg/l	
Pesticides	0,1 µg/l	
Total Pesticides	0,5 µg/l	
Polycyclic aromatic hydrocarbons	0,1 µg/l	
Selenium	10 µg/l	
Tetrachloroethane and Trichloroethane	10 µg/l	
Trihalomethanes-total	100 µg/l	
Vinyl chloride	0,3 µg/l	

Appendix F - Water Quality for Surface Water

APPENDIX F WATER QUALITY FOR SURFACE WATER

SURFACE WATER QUALITY REGISTER
SPREAD 7/8

Date	KP Location of Watercourse or Discharge Point	Name of Watercourse or Discharge Point	Sampled by	Sample taken: preconstruction during construction Post construction (choose one)	Flow Low/med/high	Upstream					Downstream					Comments
						Conductivity S/m	Turbidity no alteration greater than 25 NTU	Temperature °C	pH 6.5 - 9	Dissolved Oxygen Not less than 6.0mg/l	Conductivity S/m	Turbidity no alteration greater than 25 NTU	Temperature °C	pH 6.5 - 9	Dissolved Oxygen Not less than 6.0mg/l	
,																

APPENDIX F WATER QUALITY FOR SURFACE WATER

SURFACE WATER QUALITY REGISTER
SPREAD 7/8

Date	KP Location of Watercourse or Discharge Point	Name of Watercourse or Discharge Point	Sampled by	Sample taken: preconstruction during construction Post construction (choose one)	Flow Low/med/high	Upstream					Downstream					Comments
						Conductivity S/m	Turbidity no alteration greater than 25 NTU	Temperature °C	pH 6.5 - 9	Dissolved Oxygen Not less than 6.0mg/l	Conductivity S/m	Turbidity no alteration greater than 25 NTU	Temperature °C	pH 6.5 - 9	Dissolved Oxygen Not less than 6.0mg/l	
,																

Appendix G - Water Abstraction

APPENDIX G WATER ABSTRACTION

WATER ABSTRACTION REGISTER – Spread 7/8		
Date	**Source:** **Municipality, Ground water, Surface water, etc.**	**Volume (m3)**
	Total to date:	

APPENDIX G WATER ABSTRACTION

WATER ABSTRACTION REGISTER – Spread 7/8		
Date	**Source:** **Municipality, Ground water, Surface water, etc.**	**Volume (m3)**
	Total to date:	

Appendix H - Hysrotest Water Discharge Register

APPENDIX H HYDROTEST WATER DISCHARGE REGISTER

APPENDIX -8.1 Non Domestic Wastewater Discharge standards in Turkish Regulations (Turkish Regulation on Water Pollution Control (31.12.2004 dated and 25687 numbered- Table 19: Mixed Industrial Wastewater Discharge Standards (Industries for which sector identification cannot be done))

HYDROTEST WATER DISCHARGE REGISTER
LOT 4

PARAMETER	UNIT	Composite Sample (2 hr)	Composite Sample (24 hr)
Chemical Oxygen Demand (COD)	mg/l	400	300
Total Suspended Solids (TSS)	mg/l	200	100
Oil & Grease (O&G)	mg/l	20	10
Oil & Grease (O&G)	mg/l	2	1
Total Chromium	mg/l	2	1
Chromium (Cr+6)	mg/l	0.5	0.5
Lead (Pb)	mg/l	2	1
Total Cyanide (CN-)	mg/l	1	0.5
Cadmium	mg/l	0.1	-
Iron (Fe)	mg/l	10	-
Floride (F-)	mg/l	15	-
Copper (Cu)	mg/l	3	-
Zinc (Zn)	mg/l	5	-
Mercury (Hg)	mg/l	-	0.05
Total Kjeldahl Nitrogen	mg/l	20	15
Fish Biotest (ZSF)	-	10	10
Color	(Pt-Co)	280	260
pH	-	6-9	6-9

APPENDIX -8.2. Hydrotest Water Discharge Standards in IFCHYDROTEST WATER DISCHARGE REGISTER

Location	Date Sample Taken	Sampled by	Parameters								
			Total Hydrocarbon Content	pH	BOD	COD	Total Suspended Solids	Total Phenols	Sulfides	Heavy Metals (total)	Chlorides
			Limits								
			10 mg/l	6-9	25 mg/l	125 mg/l	35 mg/l	0,5 mg/l	1 mg/l	5 mg/l	600 mg/l (average) 1.200 mg/l(Max)

APPENDIX H HYDROTEST WATER DISCHARGE REGISTER

APPENDIX -8.1 Non Domestic Wastewater Discharge standards in Turkish Regulations (Turkish Regulation on Water Pollution Control (31.12.2004 dated and 25687 numbered- Table 19: Mixed Industrial Wastewater Discharge Standards (Industries for which sector identification cannot be done))

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Total Cyanide (CN-)	mg/l	1	0.5
Cadmium	mg/l	0.1	-
Iron (Fe)	mg/l	10	-
Floride (F-)	mg/l	15	-
Copper (Cu)	mg/l	3	-
Zinc (Zn)	mg/l	5	-
Mercury (Hg)	mg/l	-	0.05
Total Kjeldahl Nitrogen	mg/l	20	15
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			Limits								
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Appendix I - Project Wastewater Discharge Standards

APPENDIX I PROJECT WASTEWATER DISCHARGE STANDARDS

Parameter	Unit	Concentration (mg/L)	Minimum Treatment Efficiency (%)	Reference regulatory requirements
Biochemical Oxygen Demand (BOD5)	mg/L	25	70-90 40	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Chemical Oxygen Demand (COD)	mg/L	125	75	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Suspended Solids (SS)	mg/L	35 35 (More than 10,000 p.e) 60 (2,000-10,000 p.e)	90 90 (more than 10,000 p.e) 70 (2,000-10,000 p.e)	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
pH	-	6-9		IFC General EHS Guidelines
Total Nitrogen	mg/L	10		IFC General EHS Guidelines
Total Phosphorus	mg/L	2		IFC General EHS Guidelines
Oil and Grease	mg/L	10		IFC General EHS Guidelines
Total Coliform Bacteria	MPN**/100mL	400*		IFC General EHS Guidelines

*Not applicable to centralized, municipal wastewater treatment systems which are included in EHS Guidelines for Water and Sanitation.

** MPN =Most Probable Number

The provisions set in Turkish Urban Wastewater Treatment Regulation, of which the discharge quality standards will be valid by 31.12.2014, are exactly the same with the provisions set in EU Directive 91/271/EEC on Urban Wastewater Treatment. The EU Directive 91/271/EEC sets the general rule of; secondary treatment in all areas, and tertiary treatment with enhanced removal of nutrient is required for sensitive areas.

APPENDIX I PROJECT WASTEWATER DISCHARGE STANDARDS

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Chemical Oxygen Demand (COD)	mg/L	125	75	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Suspended Solids (SS)	mg/L	35 35 (More than 10,000 p.e) 60 (2,000-10,000 p.e)	90 90 (more than 10,000 p.e) 70 (2,000-10,000 p.e)	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
pH	-	6-9		IFC General EHS Guidelines
Total Nitrogen	mg/L	10		IFC General EHS Guidelines
Total Phosphorus	mg/L	2		IFC General EHS Guidelines
Oil and Grease	mg/L	10		IFC General EHS Guidelines
Total Coliform Bacteria	MPN**/100mL	400*		IFC General EHS Guidelines

*Not applicable to centralized, municipal wastewater treatment systems which are included in EHS Guidelines for Water and Sanitation.

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TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	**TKF-PLN-ENV-PL3-010**	**Rev**	**Status**
		P4-0	**IAAC**
Document Title :	**Pollution Prevention Plan**		
Tag Nos.			
Contractor:	**Tekfen Construction and Installation Co., Inc.**		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

TEKFEN CONSTRUCTION	**TEKFEN POLLUTION PREVENTION PLAN**	TANAP

TEKFEN POLLUTION PREVENTION PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP Approval
P3-A	DIC	13.03.2015	Discipline Internal Check	ZDEM	ASON	MKOP	
P3-B	IDC	20.02.2015	Inter-Discipline Check	ZDEM	ASON	MKOP	
P3-C	IFR	26.02.2015	Issued for Review	ZDEM	ASON	MKOP	
P3-D	Re-IFR	06.04.2015	Re-Issued for Review	ITAS	ASON	MKOP	
P4-D	IAAC	15.04.2015	Issued As Approved for Construction	ITAS	ASON	MKOP	

DOCUMENT REVISION HISTORY

REV.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P3-A	DIC	13.03.2015	First issue
P3-B	IDC	20.02.2015	Issued for IDC incorporating DIC comments
P3-C	IFR	26.02.2015	Issued for Review
P3-D	Re-IFR	06.04.2015	Re-Issued for Review
P4-0	IAAC	15.04.2015	Issued as Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1. INTRODUCTION

1.1. PURPOSE & SCOPE

This Pollution Prevention Plan (PPP) sets out the requirements for management of environmental impacts, particularly with regard to the prevention of pollution to land, air and water during implementation of the TANAP Pipeline Project- Lot3 Construction.

Pollution Prevention Plan addresses;

- Protection of surface and ground water
- Controlling dust and other emissions to air
- Controlling noise / vibration
- Spill prevention and control
- Notifications, reporting and record keeping

1.2. RELATIONSHIP TO OTHER PLANS AND DOCUMENTS

This PPP should be read in conjunction with the Environmental and Social Management Plan (ESMP) (TKF-PLN-ENV-PL3-001), which specifies requirements for environmental and social management including training, inspection, monitoring, reporting and review.

The requirements and mitigation measures related to the collection, re-use, recycling, storage, treatment and disposal of waste produced by the Project are outlined in the TEKFEN Waste Management Plan (WMP) (TKF-PLN-ENV-PL3-009).

Requirements for reinstatement and restoration of the temporary construction areas are described in the TEKFEN Reinstatement Plan (TKF-PLN-ENV-PL3-006).

The requirements for the reporting and investigating environmental incidents are described in TEKFEN Incident Investigation and Reporting Procedure (TKF-PCD-HSE-PL3-003).

1.3. ABBREVIATIONS

ESIA	Environmental Social Impact Assessment
ESMP	Environmental and Social Management Plan
MoEU	Ministry of Environment and Urbanization
MSDS	Material Safety Data Sheet
P/L	Pipeline
PPE	Personal Protective Equipment
PPP	Pollution Prevention Plan
ROW	Right Of Way
WAA	Waste Accumulation Area
WCP	Waste Collection Point
WMP	Waste Management Plan

1.4. REFERENCES

- Integrated ESIA Report Appendix 5.10 – Pollution Prevention Plan (CIN-REP-ENV-GEN-010-45)
- Integrated ESIA Report Appendix 5.10 – Employment and Training Plan (CIN-REP-ENV-GEN-010-45)
- Chapter 4 and Appendix 4.6 (Legislation Register) of ESIA

1.5. DEFINITIONS

Pollution: Pollution is the contamination of air, water, or earth by harmful substances.

Noise: Unwanted sound.

Emission: The release or discharge of a substance into the environment. Generally refers to the release of gases or particulates into the air.

Contaminant: Any physical, chemical, biological, or radiological substance or matter that has an adverse effect on air, water, or soil.

Contaminated Land: Ground that has been polluted with hazardous materials and requires cleanup or remediation.

Noise-Sensitive Location: Location where there is a particular sensitivity to noise, (e.g., residential areas, institutions, hospitals, historic sites, sensitive wildlife habitats, parks).

Sensitive Receptors: Receptors that are particularly sensitive to nuisance levels of noise and vibration including Residences, schools, and elderly care centers/homes, businesses, historic areas, and wildlife resources (e.g., nesting raptors).

Decibel (A): Sound level (in decibels referenced to 20 micro-Pascal) as measured using the A-weighting network on a sound level meter, in accordance with Noise Control Regulation.

Level (A) equivalent: Level (A) equivalent (also written decibel A Level equivalent) is the Equivalent Continuous Level. The formal definition is "when a noise varies over time, the Level (A) equivalent is the equivalent continuous sound which would contain the same sound energy as the time varying sound". Level (A) equivalent as a type of average, where noisy events have a significant influence.

2. METHOD

2.1. PROTECTION OF SURFACE AND GROUND WATERS

2.1.1. Introduction

All necessary precautions will be taken to prevent the pollution of surface waters and groundwater resources in the vicinity of all construction sites. In order to achieve this, TEKFEN will formulate specific method statements/procedures for the control of relevant construction activities.

The requirements regarding fuel storage and handling will contribute to the protection of surface and ground waters.

2.1.2. General Measures

The following general measures will be adopted throughout all aspects of construction to minimize potential adverse impacts on surface and ground waters:

- Direct access of vehicles and mechanical plant to watercourses will be kept to a minimum and any vehicle/plant will be inspected before it enters a watercourse to avoid contamination from oil/fuel leakage. Only first crew should be entering a watercourse when/where necessary to built a bridge. No other vehicles should enter the water once a bridge is built.
- Mobile plant will be regularly maintained in accordance with the manufacturer's guidance, and all crews will be instructed in the use of clean up equipment and will carry absorbent pads within their vehicles.
- Vehicle wash facilities will be securely constructed, using a re-circulatory system with no overflow and the effluent will be contained for proper treatment and disposal.
- Dewatering of the pipeline trench will be carried out in areas where there is a high water table. The discharge of this water will be in accordance with relevant Turkish water quality legislation, IFC standards and EU guidelines. Pipeline trenches commonly collect water during construction. Because it is turbid and often sediment laden, trench water requires filtering before it can be discharged to an unpolluted location. Trench water is commonly removed using a pump connected to a 7–10 cm diameter flexible hose. The pump will be in a secondary containment at all time and that the water will be filtered before being released.
- The placing of wet concrete and cement in or close to, any watercourse will be controlled by Environmental Inspector to minimize the risk of discharge into the watercourse. Environmental Inspector will make sure that the discharge is filtered and/or the discharge is prevented from reaching the watercourse by barricades like bumps.
- The appropriate approvals will be obtained as per Turkish Regulation on Water Pollution Control (31.12.2004 dated and 25687 numbered) to discharge water from the site, including discharge of test water from pipeline hydro testing, and adequate provision will be made, such as pre-discharge monitoring, settlement lagoons, grass plots or sediment filter systems to ensure that pollution does not occur. Wastewater will be treated and discharged to the closest receiving environment after satisfying the parameter given in Turkish Regulation on Water Pollution Control (31.12.2004 dated and 25687 numbered) and Table 8.1.9.4 of ESIA.
- All discharges to the closest receiving environment, including effluents from wastewater treatment plants, will meet ESIA requirements.

- Fuelling, washing or maintenance of plant or machinery will not occur at 30 meters within a drain or watercourse or in areas where high-level groundwater or unconfined aquifer conditions prevail.

2.1.3. Surface Water Abstraction

For surface water abstraction (e.g. for line testing, use in camps and other construction activities), TEKFEN will follow the steps set out in Figure 1. Any abstraction should be at a rate which ensures the maintenance of adequate downstream flow rates to protect aquatic life, provide for all water body uses, and downstream abstractions of water by existing users as advised by the State Authority when necessary permit is applied for. If the rate of abstraction is too high, exceeding the amount of water recharged, the water level will fall, which may in turn affect the flow of rivers and streams or neighboring wells. Through visual monitoring, TEKFEN will control that the abstraction rate will not exceed ambient flow rate at the time of abstraction.

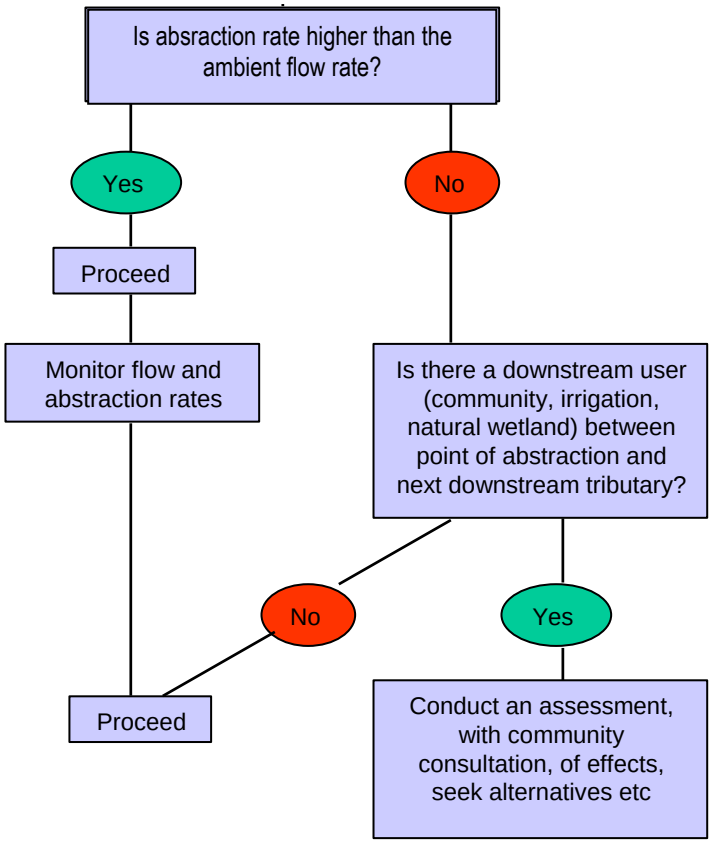

Figure 1- Guidelines for Surface Water Abstraction

2.1.4. Fuel Storage and Handling

In order to prevent pollution of soils, surface waters and ground waters in the vicinity of fuel storage or handling sites, measures will be implemented for the safe storage and handling of all fuels and lubricant oils on site. In particular, the following requirements will be implemented.

- All centralised stores of fuel, lubricant oil and chemicals will be sited on an impervious base within an impervious secure bund. The bund will be of sufficient capacity to contain 110% of the volume of the largest tank.

- Any fuels, lubricant oil and chemicals not stored within the centralized, bounded store, will be stored in drip trays and/or on impermeable surfaces that they do not pose a risk to the environment.
- All vehicles, plant and equipment will be inspected for fuel and lubricant oil leaks before being accepted for use and thereafter, regular maintenance inspections will be carried out to minimize the risk of contamination.
- Filling and re-fuelling activities will be strictly controlled by trained refuelling operators, and, together with any storage tanks, will be confined to a location remote from any environmentally sensitive receptors. In particular:
    - Re-fuelling of fixed and mobile plant and vehicles will occur in a designated area at least 30 m from drains, watercourses and wetlands and preferably on an impermeable surface;
    - Care will be exercised to avoid spilling petrol or overflowing the tank during refuelling.
    - A supply of suitable absorbent materials will be available at re-fuelling points for use in dealing with minor spillage;
    - Vehicles will not be left unattended during re-fuelling or jam open a delivery valve; all dispensing or transferring of fuel will be attended for the duration of the operation.
    - Filling point, tank gauges and shut off will be attended at all times.
    - Hoses and valves will be regularly checked for signs of wear and to ensure they are turned off and securely locked when not in use.
    - Drip trays will be installed to contain leakage from equipment such as generators and pumps.
    - When refuelling:
        - The trained operators will monitor tank levels, breathers and filler and check required tank transfer valves and fuel cocks open
        - The dispenser will not be started until the outlet nozzle is inserted in the tank. The nozzle will be hold open by hand only – the trigger of the dispenser will not be locked or jammed in the open position.
        - The filter hose will not be removed until the fuel flow has stopped.
        - The hose will be lifted to drain all remaining fuel into the tank
        - The trained operators will thoroughly clean up all surface spills with an absorbent cloth. The spills in the drip trays will be handled as per TEKFEN Waste Management Plan (TKF-PLN-ENV-PL3-009).
    - The transfer of fuel must be stopped prior to overflowing leaving room for expansion. Mobile refuelling tanks and fuel tanks on vehicles and equipment are not to be overfilled.
    - Welding and/or burning operations within 3 metres must be stopped while fuelling is in progress. Smoking will not be permitted during any fuelling operation.
    - Contaminated soil (if any) from filling and refuelling activities will be handled as per TEKFEN Waste Management Plan (TKF-PLN-ENV-PL3-009).

2.1.5. Preventing Siltation

2.1.5.1. Pumping

- No silt or turbid discharge water from construction site dewatering operations will be allowed to enter any drain, water body or wetland unless it is settled in the sediment ponds.
- All dewatering intake hoses will be elevated off the bottom of the trench to avoid drawing bottom silt through pumping operations.
- Mitigation measures will be taken and necessary monitoring activities will be conducted during and after the discharge to any watercourse of water from dewatering operations.
- Pumped discharges will be made using a pump of suitable size for the situation and at a rate that does not cause riverbed disturbance. In order to prevent pollution to land and water, the pump and its fuel will be kept in an adequate secondary containment at all times.

2.1.5.2. Excavations

- The use of cut off ditches and well point dewatering or cut off walls for groundwater will be used to prevent surface water entering excavations.
- To prevent siltation, a sump will be opened in a corner of an excavation for the water to accumulate, so that it may be used as a pump sump to send the water away from the excavation.
- All silt water will be disposed off in accordance with the requirements of local sewerage authorities.

2.1.5.3. Sediment Filters and Trapping Devices

Straw bales and filter fences will be installed to intercept run-off and remove sediment before it enters watercourses. Erosion and sediment control methods will be installed to prevent sediment to go off RoW. Further details regarding the use of sediment filters and trapping devices are contained in the project Erosion Control and Stabilization Plan (TKF-PLN-ENV-PL3-007).

2.1.6. Hydrostatic Testing

The pipeline will be hydrostatically pressure tested to ensure that there are no leaks. All hydrotest abstractions and discharges will be identified in advance of testing and will be licensed in accordance with the appropriate permitting requirements. In the very unlikely event that leaks occur, an appropriate clean up response will be put into place.

Hydrostatic testing will be planned so that the opportunities for water re-use are maximized: First priority is to use surface water for hydrotesting, if this is not possible groundwater resources can be used with permission and ensuring no impact on public use and environmental sensitivities

Water may need to be transferred from one test section to another along the pipeline due to conservation or supply difficulties. In such cases, necessary consideration will be given to complete the installation program taking full account of water supply and disposal requirements.

The transfer of test water from one section to another will be accomplished through metal pipework provided no water is lost or spilled. As the water is transferred from one section to the next, it will be filtered and its chemical composition will be checked and adjusted as necessary.

If there are doubts as to the water quality, and if the water is kept for a long period of time in the pipeline, it may be necessary to treat the water chemically to prevent biological growth in the water. The introduction of oxidation/corrosion inhibitors may also be necessary in order to protect the internal pipe surface. The addition of the chemicals will be subject to close scrutiny and control. The water will be checked periodically to ensure that it remains within the specified compositional limits and will be tested prior to disposal.

Environmental impacts associated with the abstraction and discharge of test water will be minimized by adoption of the following mitigation measures:

- Corrosion inhibition chemicals, oxygen scavengers or biocides will only be used in the hydrotest water with the prior permission of TANAP and the appropriate Turkish regulatory authorities.
- 100 % ultrasonic or radiographic inspection of all welds and hydrostatic testing the pipeline sections before commissioning will be undertaken.
- Test manifolds will be located outside of wetlands and riparian areas as far as reasonably practical.
- Abstraction and discharge of hydrotest water will comply with the appropriate Turkish regulatory requirements and IFC discharge standards.
- Water samples (grab) of the discharged test water will be taken at the beginning and the end of the discharge period as a minimum.
- Abstraction water intakes will be screened to avoid entrainment of fish.
- Any abstraction will be at a rate which ensures the maintenance of adequate downstream flow rates to protect aquatic life, provide for all water body uses, and downstream abstractions of water by existing users as advised by EPCM and/or legal authorities.
- The discharge pipe will be anchored for safety.
- The discharge of test water will be to a suitable receiving body of water, across a well-vegetated area or filtered through a filter bag or erosion control barriers.
- The discharge of test water will occur against a splash plate or other energy-dissipating device in order to aerate, slow, and disperse the flow.
- The rate of discharge will be controlled to a level that prevents flooding or erosion.

Wastewater produced after the hydrostatic test shall be treated with appropriate methods in order to satisfy the standards indicated in the ESIA" as provided in Annex 3. For the project non-domestic wastewater discharge standards, ESIA Table 4.4-10 will be adhered to.

2.1.7. Project Standards for Discharges to Water

Domestic waste water to be produced by the personnel working under the project can be characterized as moderately polluted domestic wastewater.

TEKFEN will make sure the wastewater treatment plant discharge standards are in compliance with these parameters through routine monitoring of the discharge water quality minimum monthly basis.

The domestic wastewater to be produced during land preparation and construction phase of the project shall be treated at the package waste water treatment facility and after complying with the "Average Discharge Standards to Receiving Environment for Domestic Waste Water" given in "Regulation on Water Pollution Control (RWPC, Official Gazette (31.12.2004 dated and 25687 numbered)", and ESIA Table 4.4 9, it will be discharged to the nearest receiving environment.

Additionally, Environmental Permission Certificate will be obtained from the relevant Provincial Directorate of Environment and Urbanization for the discharge of the treated wastewater according to the provisions of the "Regulation for The Permissions and Licenses to be Obtained According to the Environment Law" and provisions indicated in the amendments of this regulation.

During the pipeline construction works, water is usually collected in the trenches excavated for the pipeline. Since this water is blurry and full of sediment, before discharging this to an unpolluted location, a sedimentation process will be applied.

The ditch water will be discharged by pumps and after sedimentation of the sediments in sedimentation ponds to be established along the project route, the water will be discharged to the closest receiving environment.

The sediment material collected from the sedimentation ponds will be disposed of in nearest disposal facilities.

2.2. CONTAMINATED LAND AND BIOLOGICAL HAZARDS

All necessary precautions will be taken by TEKFEN to ensure that construction personnel are not exposed to hazardous substances including contaminated soils and ground waters.

On discovery of any contaminated land, the E Manager/Environmental Advisor will be informed immediately and all work shall cease at that particular worksite.

2.2.1. Existing Contamination

All known pre-existing contamination within the construction area will be cleaned up by the responsible party according to TANAP's requirement prior to the construction. If the new contaminated site is encountered prior to construction activities, then Tekfen will notify EPCM and "Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources" will apply.

The procedure to be followed in the field upon discovery of contaminated soil or water is presented in Box 1.

Box 1- Procedures upon Discovery of Pre-Existing Environmental Contamination

This form establishes the procedures to be followed in the field during the construction phase of the pipeline project upon the discovery of environmentally contaminated land. These procedures must be followed and are essential in our efforts to document and prove that the environmental condition in question actually existed prior to the construction phase.

1. Contact EPCM at the following phone number _____.
2. Photograph the construction site. Be sure to include photographs of both the environmental contamination in question as well as any equipment that was being used when the discovery was made.
3. Take down the names of the people who were present during the discovery of the environmental contamination.
4. Take a statement from each person present. Determine what they were doing when the environmental contamination was discovered. Have them describe how the environmental contamination was uncovered. What did they see? What did they hear?
5. Be sure to take statements from anyone who might be considered an independent witness. Ask them the questions in item number 4.
6. Preserve the site as best as possible. Do not do anything to cover-up or change the physical terrain immediately surrounding the site where the environmental contamination was discovered. When in doubt ask for specific guidance from Environmental Advisor.

7. Immediately contact the legal authorities [E Manager is responsible for this point.] Be sure to preserve the environmentally contaminated site until EPCM and the legal authorities have had the ability to investigate the discovery.

2.3. CONTROLLING DUST AND OTHER EMISSIONS TO AIR

2.3.1. Introduction

TEKFEN will implement a comprehensive program to control dust. The elements of the program are described in this Plan, which provides direction and recommendations for protecting construction personnel and minimizing the spread of dust to local residents and other sensitive receptors.

Personal protective equipment requirements are discussed in the TEKFEN's Health and Safety Plan**.**

TEKFEN will obtain all required permits, landowner, and community agreements (including access) prior to obtaining water for dust suppression. Water will not be obtained from fish over wintering areas and access roads will be improved and/or constructed to minimise impacts and prevent erosion.

2.3.2. Sources

Construction-phase fugitive dust emissions are generated during RoW construction, site clearing, grubbing, grading, trenching, material screening, loading/transport of bulk materials, and other general construction operations (e.g., construction traffic, equipment operation). In addition, construction material storage piles may result in fugitive dust through wind erosion. Specific active operations that have the potential to generate fugitive dust during the course of construction will include, but not be limited to, the following:

- Performance of earthwork as necessary for constructing RoW, excavating/trenching.
- Use rock trenching machines and blasting.
- Construction of temporary (construction phase) erosion/sediment control structures to include drainage swells and sediment ponds.
- Construction of temporary lay-down and construction parking areas.
- Loading and transport of padding material and uncovered storage of bulk materials.
- Vehicular/equipment traffic on unpaved roads and/or nearby public roads.
- Emissions from the exhausts of vehicles used for the transport of the workers, the transport of construction materials, wastes and of basic equipment.

2.3.3. Control Measures

A number of fugitive dust control measures will be employed to minimise dust generation and avoid off-site impacts.

The Table 1 below summarizes, but not be limited to, the potential sources of fugitive dust and the accompanying mitigation measures required.

Table 1- Measures for the control of dust generation

SOURCE OF DUST	MITIGATION MEASURES
Wind Erosion	Construction activities in or adjacent to residential or sensitive areas that generate significant amounts of fugitive dust will be postponed if sustained windy conditions occur. Environmental Inspectors will have the authority to stop work. Multiple handling of material that has the potential to generate dust will be avoided, where possible. Water will be applied at regular intervals to control dust. During dry and windy weather conditions, the application of water will occur more frequently. Any additives used for dust-control will be approved by the EPCM prior to use. When dumping material that has the potential to generate dust (e.g., into haul trucks or onto ground surface) drop heights will be minimized. Daily monitoring, through environmental inspections, will be conducted to ensure dust control measures are implemented and effective. All vehicles delivering dusty construction materials to the site or removing spoil will be enclosed and covered to prevent escape of dust.
Parking/Lay-Down Areas	Water will be routinely applied on the area if not covered with gravel or paved to control dust. Speed limits will be strictly enforced. If practical, site parking/lay-down areas will be placed in locations with protection from wind erosion and away from residential and sensitive resource areas.
Unpaved Roads and Disturbed Areas	Water will be routinely applied to RoW during active operation and all vehicles will adhere to a maximum **30-km/h** speed limit to minimize dust generation and ensure safety on unpaved roads. High volume traffic areas will be covered with gravel to mitigate the ongoing generation of fugitive dust. Where activities have ceased any graded area adjacent to sensitive resources or residential areas will be treated with a dust suppressant (e.g., magnesium chloride) or routinely watered, to prevent the generation of fugitive dust. Disturbed areas with light traffic will be watered down (e.g., via water truck) as necessary to control fugitive dust. The frequency of water application will include: immediately prior to start of work activities in the morning; immediately prior to quitting time in the afternoon; and as needed during the day when there is evidence of wind-driven fugitive dust.
Haul Routes (Paved)	Roadways will be cleaned as necessary with spray trucks with brushes and/or personnel with hand equipment (e.g., shovels, bristle brooms) to remove any accumulated material from roadway and prevent the generation of dust. Posted speed limits will be observed and enforced. For the speed

SOURCE OF DUST	MITIGATION MEASURES
	limits, please refer to "Driver Vehicle and Journey Management Plan (TKF-PLN-HSM-PL3-002)".
Site Access Points	Rock or riprap will be placed to knock loose dirt/debris from vehicle tires and undercarriage at points where access intersects public roads. If this method is insufficient to knock off material, the front, back, sides, and undercarriage of vehicles will be washed prior to the vehicle leaving. If any dirt or mud is found on public roads, spray trucks with brushes and/or personnel with hand equipment (e.g., shovels, bristle brooms) will be used to clean the road to avoid mud tracking and ensure safety. Hard standing areas will be regularly inspected and kept clean of all mud and dusty materials.
Haul Trucks	All trucks transporting soil, loose aggregate, and/or other dust generating materials will have their loads covered (e.g. by use of a suitable sheet material) and/or wetted to minimise dust generation. Gravel cover placed on regularly travelled, unpaved areas on-site will be regularly maintained through re-grading and re-application of gravel as needed to control dust. All drivers will receive training on dust control requirements and mitigation measures.
Spoil Handling and Material Storage Piles	Whenever possible, stockpiling operations will reduce material drop height when loading-out to stockpiles and/or trucks. The frequency of material/spoil handling will be reduced to minimise the frequency of stockpile disturbance and/or size of disturbed areas. If practical material will be wetted prior to disturbing to minimise the generation of dust. The height of spoil piles will be kept as low as possible to reduce wind effects.
Drilling & blasting	During drilling and rock cutting, water will be used to minimize dust generation or dust recaptured with a dust recovery system. Where blasting is required adjacent to sensitive resources or residential areas, blasting mats shall be used to prevent excessive dispersal of blast material and to reduce dust releases. Water trucks will be readily available before blasting and the area wetted after the post-blast safety inspection is completed. Blasting works will be subject to EPCM approval.
Disturbed areas where activities have ceased for a period greater than one month	When activities have ceased or are not expected for a period greater than one month (or earlier if windy conditions result in visible dust impacts offsite), efforts will be made to control dust through the use of mulch, crimped straw, tarps, wood chips, or temporary seeding.
Emissions from the exhausts of vehicles and vessels	Best control technology will be adopted to reduce emissions from fuel storage, combustion emissions from engines and any other temporary equipment.

SOURCE OF DUST	MITIGATION MEASURES
	Engines will not be left running unnecessarily. All vehicle and equipment engines and exhaust systems will be maintained so that exhaust emissions do not breach Turkish statutory limits set for that vehicle/equipment type and mode of operation, and that all vehicles and equipment are maintained in accordance with manufacturers' guidance. The vehicles will have exhaust gas emission certificate from MoEU. Exhausts of engines on the construction site will be positioned at a sufficient height to ensure dispersal of exhaust emissions. All vehicles will be maintained so that their noise and exhaust emissions do not cause nuisance to workers or local people. Regular maintenance of vehicles will be undertaken to ensure that vehicles are safe and that emissions and noise are minimized (e.g. by cleaning fuel injectors in diesel engines).

2.3.4. Air Emissions Monitoring

To minimize the emissions caused by the vehicles, only vehicles inspected for gas emissions will be used, vehicles will be controlled periodically, the vehicles requiring maintenance will be repaired and other vehicles will be used until their maintenance is over, in cases vehicles are not needed, they won't be used according to the articles of the Regulation on Exhaust Gas Emission Control and Diesel Quality (dated 30.11.2013 and numbered 28837).

In general, air emissions related to the construction of the TANAP Pipeline Project Lot 3 will be minor in quantity and amenable to control through adoption of standard mitigation techniques (Ref. ESIA Report).

The primary air quality issue during the construction phase is dust. Dust monitoring will primarily be addressed through site inspection to ensure that good site practice with respect to dust control, as specified in the ESIA, is being effectively implemented on site. Dust sampling is not considered to be an effective means of monitoring dust during construction due to the delay between sampling and the receipt of sampling results. More immediate means of identifying unacceptable levels of dust, such as visual observation, is required so that remedial measures can be implemented immediately. Environmental Advisor will daily assess the level of dust generation during construction activities at the RoW, access roads, camp site, general facilities and all temporary facilities. Mitigation measures will be implemented as required immediately.

Dust monitoring samples will be taken at sensitive receptors' locations according to the ESIA requirements. TEKFEN will adhere to the standards set out in the ESIA Table 4.4 1 and Annex 4.

2.4. CONTROLLING NOISE & VIBRATION

2.4.1. Introduction

TEKFEN will implement mitigation measures to limit noise/vibration levels and control nuisance noise/vibration that could affect sensitive receptors (e.g. residential dwellings, schools and sensitive ecological areas) during construction of the TANAP Pipeline Project. The tolerance of construction noise is expected to vary by location and community as a function of construction activity, proximity to sensitive receptors, land use, and line-of-sight between construction and receptors. Mitigation measures will be tailored during planning for each new phase of construction to match site-specific conditions.

Note: Health and safety related noise monitoring and mitigation measures for project employees will be conducted in accordance with the project Health and Safety Plan (TKF-PLN-HSM-PLN-001).

Main activity caused noise impacts on fauna and humans is plant and equipment movement, RoW activities, clearing and trenching activities.

2.4.2. Hours of Work

- Construction working hours will be agreed with the relevant authorities and TANAP prior to commencing work.
- The work permits for Night Works will be submitted to COMPANY a minimum six (6) hours prior and will not be started without COMPANY's written approval.

2.4.3. Construction Plant

- TEKFEN will identify the noise levels expected from the agreed method of working and chosen plant and equipment, and indicate the steps that will be taken to minimise the impact of noise.
- All plants will be adequately maintained to minimise noise emissions and wherever practicable inherently quiet plants will be selected for use on site. Each item of powered machinery used on site will be properly maintained and serviced so as to prevent unnecessary noise emissions.
- Where plants have been designed to operate with engine covers to reduce noise, these will be used and remain closed at all times whilst the plant is in operation.
- Routine checks will be undertaken to identify equipment that is emitting unacceptably high noise levels or particular tonal characteristics, which through appropriate repair or general servicing, could be reduced.
- TEKFEN will be responsible for ensuring that noise emissions from the site do not result in Turkish or IFC standards being exceeded at noise sensitive receptors.
- Any item of plant or equipment found to be emitting excessive noise levels due to a faulty silencer, broken or ill-fitting engine cover or other reason, will immediately be taken out of service and be adequately serviced, repaired or replaced.
- Plants will be sited in locations as far from inhabited buildings as practicable and all reasonable screening will be utilised where necessary to reduce noise levels at sensitive receptors. Noise barriers will be used where significant noise impacts are anticipated.
- Plants known to emit noise strongly in one direction will, whenever possible, be orientated so that the noise is directed away from noise sensitive areas.
- Where practical, the stockpiling of site materials, soil or spoil should be located where it can provide some additional screening provided that any plant associated with this does not in

itself generate nuisance. The transport of materials on or off site by road should take place during the normal daytime working period and should also be routed away from particularly sensitive receptors. In the event that the transport of materials will take place during night time working hours, these working hours will be discussed and agreed in advance with EPCM and the relevant authorities.

- Site personnel will be trained in the proper use and maintenance of tools and equipment, and the positioning of machinery on site to reduce noise emissions to neighbouring communities.

2.4.4. Blasting

- Blasting activities, if required, will be subject to rigid safety and noise and vibration control procedures including procedures to ensure adequate warning is given to anyone who may potentially be affected. TEKFEN will agree these procedures with the EPCM prior to the commencement of blasting activities.
- Specific locations at which blasting will be required have not yet been determined. The exact locations at which blasting activities will be agreed with EPCM prior to the commencement of the blasting or piling activities.
- It is considered that the above measures will adequately protect the majority of residential properties from noise and vibration, as routine construction activities will take place during the daytime. At a number of locations associated with the Project, the potential impacts will be greater due to factors such as their proximity to the works or the presence of night-time construction works, and specific noise controls may be necessary at these locations. TEKFEN will be advised of these locations and will be required to identify and implement specific mitigation measures, such as the use of noise barriers.

2.4.5. Noise Limits

Noise limits for the project are presented in Annex-2.

2.4.6. Noise Monitoring

Heightened attention to noise control measures will be needed and implemented at numerous locations because of nearby noise sensitive receptors (i.e., residences, schools, businesses, historic areas, wildlife resources). Noise sensitive receptors will be noted on the alignment sheets to increase awareness of the receptors and aid in the implementation of the monitoring program. Environmental Advisor will record baseline noise conditions at property lines of representative sensitive receptors at least 24 hours prior to construction in order to identify and evaluate baseline noise issues. The Environmental Advisor will perform noise monitoring as needed at the property lines during construction. Data will be recorded for future reference if complaints occur.

2.4.7. Vibration Monitoring

TEKFEN and subcontractors will use best management practices (e.g., selection of equipment and work methods) to limit vibration impacts, particularly nuisance vibration. Heightened attention to vibration control will occur when working within 50 meters of residences and other sensitive receptors.

Prior to conducting any vibration monitoring, the resident(s) will be contacted and the monitoring program will be explained. Structural damage to buildings in the vicinity of construction activities will be documented. Vibration monitoring will be conducted, as needed using standardized

monitoring methods. In general, vibration measurements will be taken outside of buildings (at the building line). Data will be compared with established vibration monitoring criteria in site specific Pollution Prevention Plan and interpreted in the context of potential structural damage as well as nuisance conditions.

2.4.8. Noise and Vibration Mitigation

- TEKFEN will co-ordinate necessary noise mitigation at the community level through effective communication with the affected parties.
- TEKFEN will promptly respond to all citizen and community complaints about any nuisance noise/vibration conditions. Specific mitigation measures and construction methods to be mentioned in the site-specific risk assessments will be adjusted to address local concerns. Any need to work near sensitive noise receptors at night will be preceded by acquiring the appropriate local approvals.
- As part of the overall noise mitigation strategy, TEKFEN will keep residents and businesses near the work sites properly informed of the period of impact and the mitigation methods to be used. Local officials will also be kept informed, so they can effectively comment to the public and respond when complaints about noise/vibration are received.
- Monitoring and mitigation emphasis will be given to circumstances involving direct line-of-sight between noise source and receptor(s). Where feasible, construction equipment may be oriented or the line-of-sight blocked to help limit direct noise impacts on receptors.
- TEKFEN will be responsible for ensuring that noise emissions from the site do not result in Turkish or WHO standards being exceeded at noise sensitive receptors.
- The types of noise/vibration mitigation measures to be implemented by TEKFEN will be based on identification of noise/vibration sensitive receptors, site-specific assessment of appropriate methods/equipment, and monitoring as warranted. The following mitigation measures will be implemented on a site-specific basis:
    - Selecting equipment and methods that limit the generation of unnecessary noise/vibration.
    - Conducting toolbox talks and site-specific personnel training emphasizing potential impacts to adjacent sensitive receptors as well as proper equipment maintenance to minimize excessive noise and vibration.
    - Conducting meetings with local communities/residents to explain construction practices and potential noise/vibration that may be generated.
    - Use of temporary noise barriers and enclosures to limit impacts to noise sensitive receptors.
    - Restricted use of vibratory equipment in some locations adjacent to communities, sensitive areas etc.
    - Installing proper mufflers on equipment and maintenance of equipment to limit nuisance noise.
    - Any item of plant or equipment found to be emitting excessive noise levels due to a faulty silencer, broken or ill-fitting engine cover or other reason, will immediately be taken out of service and be adequately serviced, repaired or replaced.
    - Minimising blasting next to surface water bodies.
    - Using blasting mats where appropriate.
    - Reducing and staggering blast charges in and around sensitive areas to prevent excessive vibration.

- Routing of truck traffic and heavy equipment to avoid impacts to sensitive receptors.
- Obeying speed limits that will be clearly posted and strictly enforced in all locations that have project traffic.
- Limiting time windows for blasting operations and high-pressure releases and providing a minimum 24-hour notice to potentially affected communities and sensitive receptors.
- Conducting noise/vibration monitoring during highly disruptive construction activities particularly if situated within 50 meters of a sensitive noise/vibration receptor.
- Scheduling of work to limit night-time and early morning impacts in residential areas.
- Heightened attention and controls when working in or near local communities.
- Minimising the duration of noise/vibration impacts.
- Prompt response and assessment of mitigation measures when complaints are received.
- Plants known to emit noise strongly in one direction will, whenever possible, be orientated so that the noise is directed away from noise sensitive areas.

2.5. SPILL PREVENTION AND CONTROL

2.5.1. Introduction

The spill prevention and control will ensure that immediate action is taken to minimise the effect of any spill on the receiving environment and to prevent any reoccurrence of the event.

The purposes of spill prevention and control are to:

- Control and minimise the safety, health and environmental hazards due to spills of hazardous materials that are used or stored at the project site locations
- Provide guidance for managing hazardous substances and petroleum products (e.g., gasoline, diesel, oil, and grease) to prevent releases to the environment;
- Describe measures for responding to incidents involving such releases; and
- Demonstrate compliance with applicable regulations governing spill prevention, response, and notification.

TEKFEN will have Environmental Inspector who is responsible for overseeing the implementation of spill preventive measures, spill response, spill reporting, and documentation described herein. The common hazardous materials (including petroleum products) and wastes (including used oil), which may be used or generated on-site during the course of construction, are as follows:

- Gasoline/diesel fuel and other fuels,
- Solvents and chemicals (thinners etc.),
- Caustics (e.g., battery acid),
- Paint wastes (toxic or flammable),
- Welding rods,
- Contaminated water,

- Lubricants and hydraulic fluids.

2.5.2. Prevention

In order to ensure that the adequate quantity and type of spill response materials/equipment are readily available to address potential spills when the petroleum products and hazardous chemical materials (referred to collectively as "hazardous materials" hereafter) arrive onsite, TEKFEN will evaluate the type of hazardous materials that will be used on the Project and evaluate the nature and frequency of activities that pose the potential for spills/leaks.

Based on these evaluations, TEKFEN will obtain the adequate spill response material and equipment prior to the hazardous material arriving on the project site. The following spill response equipment will be held and maintained such that it can be deployed to the incident scene:

- absorbent booms;
- absorbent pads;
- appropriate personal protective equipment (PPE);
- a hand operated fuel pump;
- chemical resistant storage drum of no less than 100 litres capacity;
- sandbags;
- dry granular absorbent;
- shovels made or coated with polyethylene (non-sparking material);
- corrosion resistant pump;
- hoses;
- warning tape or traffic cones;
- skimmer equipment; and
- fast tanks.

All temporary hazardous materials and petroleum storage tanks and containers onsite will be designed and constructed for compatibility with the materials to be stored within them and clearly labeled and will be in adequate secondary containment. Under no circumstances, will storage tanks and containers onsite be reused or refilled with hazardous materials different from those originally held in the tank or container.

Incompatible hazardous materials will be segregated in storage areas to prevent mixing during handling or accidental spills (e.g., by using curbing or dikes). Hazardous materials, together with their MSDSs, will be stored separately from hazardous and non-hazardous wastes.

Spill kits for equipment maintenance, fuel storage areas, WAA will also contain sufficient absorbent material to contain the quantity of the material stored in the stationary containers (e.g., tanks, drums, cylinders) and equipment to cleanup (e.g., shovel, broom) and store used absorbent material.

Bags containing used cleanup material will be transported to the designated WAA for proper drumming, labeling, and classification prior to off-site disposal and handled according to the requirements of WMP (TKF-PLN-ENV-PL3-009).

2.5.3. Assessment

All hazardous materials will be properly assessed before they are taken to site in order to implement effective spill prevention and control procedures. This process will include a materials characterization that includes the following information:

- names/types of materials transported;
- amount of materials transported;
- transport location;
- hazardous characteristics of the released substance(s);
- consequences due to spill (i.e. fire, injury, illnesses, and damage to the environment).

2.5.4. Hazardous Materials Storage and Loading / Unloading Areas

Hazardous materials including petroleum products will only be stored in areas designed to ensure non-compatible materials/wastes are segregated and located in designated areas to optimize control.

Storage areas will:

- Be securely fenced and locked to keep unauthorised personnel or animals out of the area;
- Have barriers or other means to keep equipment and vehicles from entering;
- Be covered to keep out rainwater/snow;
- Be sized appropriately to store anticipated waste with sufficient space between drums to permit the required visual inspection;
- Be signed to identify the hazard (e.g., Flammable - No Smoking or Open Flame within 15 meters, Hazardous Material). Signs will be written in Turkish and English;
- Be provided with secondary containment designed to contain 110% of volume and equipped with a manual valve (or equivalent means as necessary) to allow for the release of clean, uncontaminated, storm water. Oil or petroleum residue in rainfall contained in the storage area must be separated from the water prior to disposal of the water;
- Be equipped with fire extinguisher(s);
- Be located away from existing drainage paths to offsite areas to prevent accidental spills from reaching sensitive areas;
- Be located a minimum of 30 m from drains, watercourses and wetlands.

Areas will be managed to ensure sufficient space will be maintained between drums/containers to permit the appropriate level of inspection and allow access during emergency response situations. Liquids will be stored in leak-proof containers (e.g., steel drums with removable lids secured with a steel band and gasket) that are in good condition and clearly labeled to identify the contents and hazard(s). Containers will be kept upright and closed at all times unless adding or removing contents. MSDS will be maintained near the storage areas as well as inspection records and transportation documents. TEKFEN will conduct routine inspections of all hazardous material storage areas. All visible leaks and releases will be cleaned up immediately and appropriately corrective actions taken to prevent reoccurrence.

2.5.5. Refuelling

Refuelling of vehicles will not be performed within 30 meters of drains, watercourses and wetlands. A trained refuelling operator will perform and remain in contact with the nozzle at all times during refuelling operations. A drip pan or absorbent material will be placed under the vehicle/equipment prior to refuelling, and a spill kit and fire extinguisher will be kept readily available on site. Automatic shut-off nozzles will be installed, and clearly identified on all fuel dispensing units and care will be taken to ensure tanks are not overfilled (i.e., sufficient volume is left to allow for expansion). All connections will be bonded to prevent static discharge and there will be no smoking during re-fuelling operations. Upon completion of fuelling, the refuelling operator will keep the nozzle elevated until it is drained into an approved container to remove any free material. Nozzles will be stored in a receptacle designed to contain any fuel that may leak.

2.5.6. Equipment / Vehicle Maintenance Areas

TEKFEN will minimise the number of equipment maintenance areas by consolidating maintenance activities into designated central areas except for large stationary equipment. Stationary equipment will be placed in secondary containment or will have a drip pan placed under vehicle/equipment prior to commencing any maintenance. All areas will have spill kits readily available as previously mentioned. When possible, maintenance activities should be performed over impermeable surfaces (e.g. concrete, pavement) and all maintenance personnel should follow spill prevention measures. For example, when hydraulic/fuel hoses are disconnected, they should be drained into an appropriate container and the end(s) capped or bagged to contain any residual fluid.

Filters or materials saturated with petroleum products will be drained into an appropriate container to remove any free product prior to disposal. Hazardous materials, petroleum products, and used drained filters will be properly stored in containers that are clearly marked with the lids securely attached. Containers will be stored only in designated storage areas. Disposal of contaminated wastes will be carried out in accordance with Waste Management Plan (TKF-PLN-ENV-PLN-009).

Equipment wash facilities will be securely constructed, using a re-circulatory system with no overflow and the effluent will be contained for proper treatment and disposal.

2.6. SPILL RESPONSE AND CLEANUP PROCEDURES

Spills of fuel and lubricant oils will be prevented by ensuring that all fuel storage areas are located in secure bunded areas. Wherever possible, fuel handling will also take place in secure bunded areas. Adequate supplies of skimmers, dispersants and absorbent material will be available at all fuel storage and handling areas to cope with terrestrial spills as part of the Pollution Prevention Plan. Similar conditions will apply to lubricant oils, chemicals and liquid wastes. When a spillage occur, contaminated soils would either be cleaned up or removed for appropriate disposal in accordance with Turkish legislation and ESIA requirements.

For the crossings and working adjacent to live oil pipelines, necessary work permits will be received from the authority and their requirements will be followed including, but not limited to, incident management and relevant oil spill response. Tekfen will cross NATO oil pipeline in Kırıkkale and will be working closely with the oil pipeline operator to be prepared for a worst case scenario.

When a spill occurs, the following response actions should be taken.

2.6.1. Response Actions

SAFETY FIRST

If spilled materials are flammable, eliminate potential sources of ignition from within and near the spill area.

IF YOU ARE TRAINED AND IF YOU CAN DO SO SAFELY,

Stop the source of the spill and contain the spill within as small area as possible.

If the crew experiencing the spill requires emergency assistance, the following should be contacted:

- Clean-up response team
- Fire (emergency)
- Ambulance (emergency)
- Environmental Inspector

Secure the area and establish perimeter control at a safe distance from the spill, and immediately notify an Environmental Inspector.

Scene management is the responsibility of the TEKFEN's Construction Manager until emergency management personnel assume control (if necessary).

Based on the spilled material and quantity, TEKFEN is responsible for notifying EPCM and other appropriate personnel such as government officials as required.

TEKFEN's designated person will supervise the cleanup of spilled material and equipment. All spill cleanup material will be transferred to a controlled hazardous waste storage area.

TEKFEN's E Manager will complete an Incident Report, send to Project HS&ES Manager who will report it to EPCM.

2.6.2. Cleanup Actions for Spills of Petroleum Products

SAFETY FIRST

- Avoid inhalation of vapours by staying upwind or use proper respiratory protection.
- Use chemical-resistant personal protective equipment (PPE) during clean-up activities.
- Gasoline and gasoline vapours are HIGHLY FLAMMABLE and may create an explosive atmosphere - remove sources of heat, sparks, flame, friction, and electricity; restrict fires or open flames from the spill area.
- Small spills, including leaks from equipment, should be cleaned-up immediately with absorbents and clean-up materials properly disposed.
- Large spills outside of contained areas should be dike with absorbent or soil to prevent liquids from reaching drainage, storm drains, or other bodies of water. Clean-up decisions for large amounts of free liquids will be made in conjunction with the Environmental Inspector**.** A third party trained and licensed hazardous materials response contractor may perform clean-up.
- Spill clean-up wastes must be placed in appropriate waste containers, properly labelled, and stored in a designated hazardous waste storage area prior to disposal.
- Diesel fuel, gasoline, and hydraulic/lube oil clean-up wastes that contain free-flowing liquid should be drained to remove as much of the free-flowing product as possible.
- The free product removed from the waste and all gasoline spill waste must either be recycled or, if not recyclable, disposed of as a hazardous waste.

2.6.3. Cleanup Actions for Chemical Spills

SAFETY FIRST

- Avoid inhalation of vapours by staying upwind or use proper respiratory protection.
- Use chemical-resistant PPE during clean-up activities.
- Restrict fires or open flames from the spill area.
- Refer to the MSDS for special hazards associated with any spilled chemicals, especially for reactivity with other materials in the spilled area.
- Small spills within contained areas should be neutralized (if appropriate). Free product that cannot be used must be classified as to whether it is a hazardous waste.
- Large spills of caustics or other highly volatile or dangerous chemicals outside contained areas should be dike with absorbent or soil to prevent liquids from reaching drainage, storm sewers, or other bodies of water. Clean-up decisions for large amounts of free liquids will be made in conjunction with the Environmental Inspector. A third party trained and licensed hazardous materials response contractor may perform clean-up.
- Spill clean-up wastes must be placed in suitable containers and transferred to a designated hazardous waste storage area.

2.6.4. Notifications, Reporting and Record Keeping

Spill reporting requirements apply to releases to land and waters of petroleum products, hazardous materials and chemicals. If TEKFEN cannot source the appropriate equipment from their own resources, protocols shall be established with TANAP or other nearby sources of spill response and containment equipment to ensure the immediate access to such equipment.

E Manager and/or Environmental Advisor will document the spill in an incident report. The incident report will be forwarded to the Project HS&ES Manager and EPCM. Records of all hazardous materials releases will be maintained with the Project files.

For more details, please refer to “Incident Investigation and Reporting Procedure (TKF-PCD-HSE-PL3-003)”.

2.6.5. Releases of Hazardous Substances and Petroleum Products

TEKFEN will report all releases of hazardous substances that pose or could pose the following threats:

- Fire with potential offsite impacts
- Explosion
- Violation of air quality standards
- Release of vapours, dust, and/or gases causing illness/injury to people offsite
- Runoff from fire control or dilution waters that could result in violations of local water quality standards.

2.6.6. Telephone/Radio Notification Report

The following information will be provided when making a report of a release to Environmental Advisor / Inspector via a telephone or radio:

- The reporting person's name and telephone number/call sign
- Location of the spill
- Date, time, and type of incident
- Type and quantity of material spilled (if known)
- Extent of any injuries
- Possible hazards to human health and the environment, both on and off the site
- The quantity and disposition of any recovered materials
- Clean-up and/or mitigation actions taken

3. TRAINING

TEKFEN will provide training regarding the requirements of this PPP to all personnel involved in on-site activities. These training programs will ensure that all personnel involved in on-site activities:

- Fully understand the pollution prevention and control requirements of the Project and how they will be implemented on site;
- Fully understand the procedures to be followed and mitigation measures to be implemented in the event of a spill or other pollution event; and
- Are aware of the respective roles of TEKFEN staff and the TANAP representatives with respect to pollution prevention and control.

In addition to the general training requirements described above, TEKFEN will ensure that all their respective personnel receive training and instruction specific to the tasks they will be undertaking on site in line with project requirements. This will include, but not be limited to, the following areas:

- Environmental investigation;
- Control of hazardous materials (collection, reuse, recovery, storage and disposal of hazardous materials);
- Pollution prevention management ;
- Dissemination response (especially spill response management for soil and water);
- Usage of dissemination response equipment;
- Prohibited Materials;
- Vehicle maintenance requirements;
- Dust control;
- Noise control;

All TEKFEN employees and their subcontractors will be required to attend new-hire induction training that includes environmental and social compliance and awareness training. This training will include specific information on appropriate handling and storage of hazardous materials (e.g., petroleum products), best practices to prevent and cleanup spills, and the Project's spill notification procedure.

In addition to the general training that all employees receive, foremen and employees that routinely handle hazardous materials/wastes (e.g., re-fuelling personnel, pump operators, mechanics) will receive additional training emphasizing the hazards and mitigation measures associated with reporting, cleanup, and documentation of hazardous materials/wastes and petroleum product spills.

Emergency response crews, made up of personnel working at each area designated re-fuelling location and with each crew will be trained to use spill kits to address spills or leaks that may occur at their respective locations/crews. Personnel involved with stream crossings will be trained on how to install oil absorbent boom.

Training will be given in accordance to E&S Training Plan (TKF-PLN-ENV-PL3-003).

Course Title	Water and Soil Management (General)
Duration	TBD
Key Objective(s)	To make attendees aware of the measures / work practices required to minimize disruption / damage to water resources and soil quality
Issues to be covered	Requirements for wastewater discharge Measures / work practices required to minimize damage to soil productivity Hydro test management
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

Course Title	Water and Soil Management (Spill Response)
Duration	TBD
Key Objective(s)	To make attendees aware of the measures required to reduce the potential for hazardous material spills and the action(s) to be taken in the event that a spill does occur
Issues to be covered	Measures / actions required for the storage of hazardous materials i.e., chemicals, fuels, oils Refueling practices Requirement for vehicle wash facilities Spill response measures Procedures upon discovery of pre-existing environmental contamination Reporting spill incidents
Tools / Method of Delivery	Presentation Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

Course Title	Air Quality Management
Duration	TBD
Key Objective(s)	To make attendees aware of the measures / work practices required to minimize the impacts upon air quality from construction activities as well as the potential negative impacts on flora/fauna and human health of uncontrolled air emissions
Issues to be covered	Vehicle maintenance Monitoring emissions from plant equipment

	Measures for the control of vehicle movements on site Air emission standards to be attained Measures required to minimize dust emissions
Tools / Method of Delivery	Presentation Group discussions
Target Audience	All staff directly involved in managing or engaging in construction activities

4. MONITORING AND REPORTING

Topics for environmental monitoring that TEKFEN will conduct during and where appropriate, following construction will include but not limited to, the followings;

- Sewage and waste water discharges,
- Noise and vibration levels at sensitive receptors such as residential areas;
- Air emissions;
- Hydro testing; (hydro testing will be included prior to relevant activities)
- Condition of soil storage areas and dust generation and control;
- Traffic movements and the condition of public highways and roads;
- Fuel storage and handling;
- Radioactive sources;
- Storage and handling of hazardous chemical substances and additives;
- Trench dewatering.

TEKFEN will conduct routine (preferably daily) visual inspections of all hazardous material/waste storage areas and containers to look for signs of deterioration, leaks, unsecured container lids, or excess accumulation of materials in the containment areas. All visible leaks and releases will be promptly corrected. Additionally, equipment operators will conduct routine inspections on equipment to check for leaks, perform periodic preventive maintenance on equipment to minimize the potential for spills or leaks, and ensure spill kits are complete and available.

TEKFEN will keep a log of all spills. The log will include the date, time, location, type of material spilled, quantity, corrective actions taken, and any notifications made. Additionally, the Environmental Advisor will log all spills and the actions taken in their daily report. The following information will be recorded in the spill log:

- All response actions taken or decisions made;
- Observations regarding the movement/spread of the spilled material or effectiveness of spill response;
- Date and time of the action, decision or observation;
- Person(s)/parties undertaking action, decision or observation;
- Any other relevant information e.g. cost, equipment used, weather conditions.

TEKFEN will submit Weekly and Monthly reports to the EPCM.

Weekly and Monthly reports will include;

- NCR Register
- Incident Register
- Waste register/Waste disposal register
- Water Quality Register
- Water Abstraction Register
- Surface Water Quality Register
- Hydrotest Water Discharge Register
- Noise Register
- Air Register

given in the annexes as per the formats provided by EPCM.

5. RESPONSIBILTIES

Project Manager

- To commit the prevention of pollution
- To ensure the implementation of this procedure
- To provide necessary resources to minimize the environmental risks.

Project HS&ES Manager - Ankara

- To prepare, implement, and monitor the E&S Plans,
- To ensure the preparation of the environmental and social risk assessment of the project,
- To follow the changes in the environmental laws, regulations and inform E Manager,
- To investigate the causes of the environmental accidents,
- To audit and inspect the subcontractors in the environmental point of view,
- To attend the environmental meetings, to inform the participants about the environmental performance and problems of the workplace's environmental management system,
- Reports on environmental incidents are provided to EPCM immediately,

E Manager- Ankara

To implement, and monitor the Environmental Plans,

- To prepare the environmental and social risk assessment of the project,
- To arrange the environmental and social reports,
- To investigate the causes of the environmental accidents,
- To audit and inspect the subcontractors in the environmental point of view,
- To keep the environmental records,
- To take the required environmental permissions from private and official associations,
- To attend the environmental meetings, to inform the participants about the environmental performance and problems of the workplace's environmental management system,

- To ensure the elimination of the environmental risks,
- To monitor noise and vibration, take necessary records.
- To update the incident register on a weekly basis and provide it to EPCM,
- To issue non compliances when environmental commitments are not applied.

Site Environmental Advisor/ Inspector

- To do daily environmental inspections,
- To warn people who do not comply with the environmental instructions,
- To ensure to take the environmental precautions at the construction site.
- Daily activity reports are provided promptly.

Machinery / Equipment Manager

- To maintain all mobile plant regularly in accordance with the manufacturer's guidance,
- To instruct all crews in the use of clean up equipment

Warehouse Chief

- To store all hazardous substances in a bunded area.

Operators

- To carry absorbent pads within their vehicles,
- To inspect the vehicles in case of oil leakage and inform Machinery/Equipment Department.

All Employees

- To attend the environmental trainings,
- To warn their colleagues who causes the pollution,
- To notify his supervisor in case of spills.

6. RECORDS

- Records of noise and dust complaints
- Records of dust and noise monitoring (as per Appendix 4-7 of ESIA)
- Records of wastewater discharge quality analysis (as per Appendix 4-7 of ESIA)
- Records of groundwater withdrawal amounts
- Records of amount of surface water use
- Records of vehicle emission certificates
- Environmental incident register
- Noncompliance register

ANNEX-1: NOISE AND VIBRATION GUIDELINES

ESIA Table 2.6-1: Turkish Ambient Noise Limits Generated by Industrial Facilities

Turkish Ambient Noise Limits Generated by Industrial Facilities (Regulation on Assessment and Management of Ambient Noise Annex-VII Table 4) (04.06.2010 dated and 27601 numbered)			
Receptor	**LAeq (dBA) Day-time 06:00 – 19:00**	**LAeq (dBA) Evening-time 19:00 – 22:00**	**LAeq (dBA) Night-time 22:00 – 06:00**
Noise sensitive areas - with training, culture and health areas, summer houses and camps	60	55	50
Combination of commercial and noise sensitive areas - with dense residential buildings	65	60	55
Combination of commercial and noise sensitive areas with dense commercial buildings	68	63	58
Industrial areas	70	65	60

ESIA Table 2.6-2: Turkish Ambient Noise Limits Generated by Construction Sites

Turkish Ambient Noise Limits Generated by Construction Sites (Regulation on Assessment and Management of Ambient Noise Annex-VII Table 5) (04.06.2010 dated and 27601 numbered)	
Activity (construction, demolition and renovation)	**LAeq (dBA)**
	Day-time (06:00 – 19:00)
Building	70
Road	75
Other sources	70

ESIA Table 2.6-3: Maximum Allowable Vibration Values for Nearest Sensitive and Highly Sensitive Areas because of Blasting in Mining Areas and Quarries

Maximum Allowable Vibration Values for Nearest Sensitive and Highly Sensitive Areas because of Blasting in Mining Areas and Quarries (Regulation on Assessment and Management of Ambient Noise Annex-VII Table 6) (04.06.2010 dated and 27601 numbered)	
Vibration Frequency (Hz)	**Maximum Allowable Vibration Speed (Peak Value – mm/sec)**
1	5
4-10	19
30-100	50

ESIA Table 2.6-4: Maximum Allowable Vibration Values for Nearest Sensitive and Highly Sensitive Areas because of Piling Activities in Construction Areas (Between 1 Hz and 80 Hz Frequency Band)

Maximum Allowable Vibration Values for Nearest Sensitive and Highly Sensitive Areas because of Piling Activities in Construction Areas (Between 1 Hz and 80 Hz Frequency Band) (Regulation on Assessment and Management of Ambient Noise Annex-VII Table 7) (04.06.2010 dated and 27601 numbered)		
	Maximum Allowable Vibration Speed (Peak Value-mm/sec)	
	Continuous Vibration	Discontinuous Vibration
Residential Areas	5	10
Industrial and Commercial Areas	15	30

ESIA Table 2.6-5: IFC Guidelines for Noise

IFC General EHS Guidelines - Noise Standards based on WHO Guidelines (Section 1.7 Table 1.7.1)		
Receptor	**One Hour LAeq (dBA)**	
	Daytime 07:00 - 22:00	**Night time 22:00 - 07:00**
Residential; institutional; educational	55	45
Industrial; commercial	70	70

ANNEX 2- AMBIENT AIR QUALITY STANDARDS

ESIA Table 2.6-1: Project Air Quality Standards

Project Air Quality Standards			
SO2 (µg/m3)	Hourly	350 (2019) (not to exceed more than 24 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	24 hr	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	Yearly and Winter Season (Oct 1 – March 31) (for wildlife and ecosystem)	20 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
NO2 (µg/m3)	Hourly	200 (2024) (not to exceed more than 18 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	Yearly	30	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – Guidelines for Europe (for ecosystem)
NOx (µg/m3)	Yearly (for vegetation)	30 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
PM10 (µg/m3)	24 hr (For human health)	50 (2019) (not to exceed more than 35 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
	Yearly (for human health)	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
PM2.5 (µg/m3)	24 hr	25 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	1 year	10 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
Lead (µg/m3)	Yearly (human health) (LTL)	0.5	Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
Benzene (µg/m3)	Yearly	5 (2021)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management

Project Air Quality Standards			
			(Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
CO (mg/m3)	Max daily 8 hr average	10 (2017)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
Ozone (µg/m3)	Maximum daily 8 hr average	100 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health

LTL: Long Term Limit
STL: Short Term Limit

ANNEX 3- WATER QUALITY AND WASTEWATER DISCHARGE GUIDELINES

ESIA Table 2.6-1: Water Quality Classification for Inland Water in Turkish Regulation on Management of Surface Water Quality

Turkish Regulation on Management of Surface Water Quality (30.11.2012 dated and 28483 numbered)					
Water Quality Classification					
PARAMETERS	Unit	Water Quality Classes			
		Class I	Class II	Class III	Class IV
General Conditions					
Temperature	ºC	≤ 25	≤ 25	≤ 30	> 30
pH		6,5-8,5	6,5-8,5	6,0-9,0	<6.0 or >9.0
Conductivity	µS/cm	< 400	400-1000	1001-3000	> 3000
Colour		Number of Chromaticity 436 nm: 1.5 Number of Chromaticity 525 nm: 1.2 Number of Chromaticity 620 nm: 0.8	Number of Chromaticity 436 nm: 3 Number of Chromaticity 525 nm: 2.4 Number of Chromaticity 620 nm: 1.7	Number of Chromaticity 436 nm: 4.3 Number of Chromaticity 525 nm: 3.7 Number of Chromaticity 620 nm: 2.5	Number of Chromaticity 436 nm: 5 Number of Chromaticity 525 nm: 4.2 Number of Chromaticity 620 nm: 2.8
(A) Oxygenating Parameters					
Dissolved Oxygen (O_2)[a]	mg O_2/l	> 8	6-8	3-6	<3
Oxygen Saturation (%)[a]	%	90	70-90	40-70	<40
Chemical Oxygen Demand (COD)	mg/l	<25	25-80	50-70	>70
Biological Oxygen Demand (BOD)	mg/l	<4	4-8	8-20	>20
(B) Nutrient Parameters					
Ammonia as N (NH_4^+-N)	mg/l	<0.2[b]	0.2-1[b]	1-2[b]	>2
Nitrite as N (NO_2^--N)	mg/l	<0.002	0.002-0.01	0.01-0.05	>0.05
Nitrate as N (NO_3^--N)	mg/l	<5	5-10	10-20	>20
Total Kjeldahl Nitrogen as N	mg/l	0.5	1.5	5	>5
Total Phosphorus (P)	mg/l	<0.03	0.03-0.16	0.16-0.65	>0.65

(C) Trace Elements (Metals)					
Mercury (Hg)	µg/l	<0.1	0.1-0.5	0.5-2	>2
Cadmium (Cd)	µg/l	≤ 2	2-5	5-7	>7
Lead (Pb)	µg/l	≤ 10	10-20	20-50	>50
Copper (Cu)	µg/l	≤ 20	20-50	50-200	>200
Nickel (Ni)	µg/l	≤ 20	20-50	50-200	>200
Zinc (Zn)	µg/l	≤ 200	200-500	500-2000	>2000
(D) Bacteriological Parameters					
Fecal Coliform	EMS/100 mL	≤ 10	10-200	200-2000	>2000
Total Coliform	EMS/100 mL	≤ 100	100-20000	20000-100000	>100000
Hazardous Materials	Hazardous materials and pollutants that are not given in this table will be evaluated as of January 1, 2015 after the country inventory is formed.				
(a) It is sufficient to satisfy one of the parameters that are Dissolve Oxygen Concentration and Oxygen Saturation Percent					
(b) Depending on the pH value the free ammonia nitrogen concentration should not exceed 0.02 mg NH_3-N/L					

Class I	**High Quality Water**	**1. Surface waters with a high potential for drinking water** **2. Recreations purposes(including swimming)** **3. Trout production (fish farming)** **4. Livestock raising and farming**
Class II	**Slightly Contaminated Water**	**1. Surface waters with a potential for drinking water** **2. Recreations purposes** **3. Fish farming except trout farming** **4. Can be used for irrigation purposes provided the irrigation water quality criteria is met**
Class III	**Contaminated Water**	**Can be used for industrial water supply with a proper treatment except for food, textile, etc. industries that require high quality water**
Class IV	**Heavily Contaminated Water**	**Of lower quality than the quality parameters given for Class III and can be used with improving quality to the other classes**

ESIA Table 2.6-2: Project Domestic Wastewater Discharge Standards

Project Domestic Wastewater Discharge Standards				
Parameter	**Unit**	**Concentration (mg/L)**	**Minimum Treatment Efficiency (%)**	**Reference regulatory requirements**
Biochemical Oxygen Demand (BOD5)	mg/L	25	70-90 40	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Chemical Oxygen Demand (COD)	mg/L	125	75	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Suspended Solids (SS)	mg/L	35 35 (more than 10,000 p.e.) 60 (2,000-10,000 p.e.)	90 90 (more than 10,000 p.e.) 70 (2,000-10,000 p.e.)	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
pH	-	6-9		IFC General EHS Guidelines
Total Nitrogen	mg/L	10		IFC General EHS Guidelines
Total Phosphorus	mg/L	2		IFC General EHS Guidelines
Oil and Grease	mg/L	10		IFC General EHS Guidelines
Total Coliform Bacteria	MPN**/100mL	400*		IFC General EHS Guidelines

* Not applicable to centralized, municipal wastewater treatment systems which are included in EHS Guidelines for Water and Sanitation.

** MPN = Most Probable Number

The provisions set in Turkish Urban Wastewater Treatment Regulation, of which the discharge quality standards will be valid by 31.12.2014, are exactly the same with the provisions set in EU Directive 91/271/EEC on Urban Wastewater Treatment. The EU Directive 91/271/EEC sets the general rule of; secondary treatment in all areas, and tertiary treatment with enhanced removal of nutrient is required for sensitive areas.

ESIA Table 2.6-3: Drinking Water Standards

Project Drinking Water Standards			
Microbiological Parameters			
Parameter	**Unit**	**Parameter Value /100 mL**	**Reference regulatory requirements**
Escherichia coli (E.coli)	-	*0/100 ml*	*Regulation on Water for Human Consumption* *Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption*
Enterococcus	-	*0/100 ml*	
Coliform bacteria	-	*0/100 ml*	
Chemical Parameters			
Parameter	**Unit**	**Parameter Value**	**Reference Regulatory Requirements**
Acrylamide	µg/l	0,1	Regulation on Water for Human Consumption Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption, except Antimony, Cadmium and Vinyl Chloride. WHO parameters are used as project standards for these parameters.
Antimony	µg/l	2	
Arsenic	µg/l	10	
Benzene	µg/l	1	
Benzopyrene	µg/l	0,01	
Boron	mg/l	1	
Bromate	µg/l	10	
Cadmium	µg/l	3	
Chromium	µg/l	50	
Copper	mg/l	2	
Cyanide	µg/l	50	
1,2-Dichloracethane	µg/l	3	
Epichlorhydrin	µg/l	0,1	
Fluoride	mg/l	1,5	
Lead	µg/l	10	
Mercury	µg/l	1	
Nickel	µg/l	20	
Nitrate	mg/l	50	
Nitrite	mg/l	0,5	
Pesticides	µg/l	0,1	
Total pesticides	µg/l	0,5	
Polycyclic aromatic hydrocarbons	µg/l	0,1	
Selenium	µg/l	10	
Tetrachloroethane and Trichloroethane	µg/l	10	
Trihalomethanes-total	µg/l	100	
Vinyl chloride	µg/l	0,3	

ANNEX 4 – REGISTER TEMPLATES

NCR REGISTER - LOT 3
Reporting Period:

Total of NCR	
To date	**This reporting Period**

Total of NCR to date	
Open	**Closed**

Date	Doc Control Registration Number	Summary	Date Part A completed and form submitted to assignee	Date Part B Completed	Date Part C completed	Date Part D completed	NCR closed out (green/red)	Comments

INCIDENT REGISTER - LOT 3

Reporting Period:

Total of incidents	
To date	This reporting Period

Total of incidents to date	
Open	Closed

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close By	Actual Close-out Date	

WASTE REGISTER
WASTE DISPOSAL REGISTER

Reporting Period:

HAZARDOUS WASTE DISPOSAL - (in Kg)	Waste Reused by Contractor		Waste Recycled at Licenced facility		Waste Disposed of at Licenced Landfill		Waste Temporarly stored in Camp		Total Waste Generated (kg)	
Type of waste:	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date
Aerosol Cans										
Air Filters										
Batteries (Dry)										
Batteries (Wet)										
Chemical Waste										
Coating Waste										
Contaminated soil										
Fluorescent tubes										
Fuel filters										
Glue cans										
Glycols										

Grease (tubes/cans)										
medical waste										
Oil contaminated waste										
Oil filters										
Paint wastes										
Pesticides										
Solvents										
Used catridges & toners										
X-ray papers										
Other: _____										
Total (kg)										

NON-HAZARDOUS WASTE DISPOSAL - (in Kg)	**Waste Reused by Contractor**		**Waste Recycled at Licenced facility**		**Waste Disposed of at Licenced Landfill**		**Waste Temporarly stored in Camp**		**Total Waste Generated (kg)**	
Type of waste:	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**
Aluminium cans										
Bricks and building material										
Cardboard and paper										

Cement bags										
Cement dust/waste										
Cooking oil										
Electrical cables										
End caps										
Foam										
Food waste										
Glass										
Grinding disks										
Grit from blasting										
Lifting straps/belts										
Metal shavings										
Domestic waste										
Plastic bottles										
Plastic packaging										
Styrofoam										
PPE & clothing										
PVC										

Rubber waste										
Scrap metal										
Tyres										
Used geotextile										
Water filters										
Wood										
Other: _____										
Total (kg)										

Waste Disposal							
Date of waste removal	**Haz material: Y/N**	**Non-haz material: Y/N**	**Type of waste**	**Amount of waste**	**Disposal company**	**Location of disposal**	**Document on file: Y/N**

WATER ABSTRACTION REGISTER

Date	**Source: Municipality, Ground water, Surface water, etc.**	**Volume (m3)**
	Total to date :	

OFF ROW AGGREGATE CONSUMPTION REGISTER

Date	**Source:**	**Volume (m3)**
	Total to date :	

SURFACE WATER QUALITY REGISTER

Date	KP Location of Watercourse or Discharge Point	Name of Watercourse or Discharge Point	Sampled by	Sample taken: pre-construction during construction Post construction (choose one)	Flow *Low/med/high*	Upstream					Downstream					Comments
						Conductivity *S/m*	**Turbidity** *no alteration greater than 25 NTU*	**T** *°C*	**pH** *6.5 - 9*	**Dissolved Oxygen** *Not less than 6.0mg/l*	**Conductivity** *S/m*	**Turbidity** *no alteration greater than 25 NTU*	**T** *°C*	**pH** *6.5 - 9*	**Dissolved Oxygen** *Not less than 6.0mg/l*	

HYDROTEST WATER DISCHARGE REGISTER

Location	Date Sample Taken	Sampled by	Parameters								
			Total Hydrocarbon Content	pH	BOD	COD	Total Supspended Solids	Total Phenols	Sulfides	Heavy Metals (total)	Chlorides
			Limits								
			10 mg/l	6-9	25 mg/l	125mg/l	35 mg/l	0,5 mg/l	1 mg/l	5 mg/l	600 mg/l (average) 1.200 mg/l(Max)

NOISE REGISTER

Location	Date Sample Taken	Sampled by	Parameters						
			Meteorological Conditions				LAeq (dBA)	LAeq (dBA)	LAeq (dBA)
							Limits		
			Wind direction	Wind speed	Temperature	Humidity	Building 70 (Day-time: 06:00 – 19:00)	Road 75 (Day-time: 06:00 – 19:00)	Other sources 70 (Day-time: 06:00 – 19:00)

AIR REGISTER

Location	Date Sample Taken	Sample No	Sampled by	Parameters						
				Dust (visual assessment)	PM10	PM2.5	SO2	NO2 / NOx	CO	O3
				Limits						
					20 µg/m3 (year)	10 µg/m3 (year)	20 µg/m3 (year)	30 µg/m3 (year)	10 mg/m3 (daily 8 hr average)	100 µg/m3 (daily)

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TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc.No.	FRN-PLN-ENV-PL1-009	**Rev**	**Status**
		P4-0	IAA
Document Title :	POLLUTION PREVENTION PLAN		
Tag Nos.			
Contractor:			
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAA. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAA. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

FERNAS®	**TANAP** TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT (LOT-1)	TANAP WorleyParsons

POLLUTION PREVENTION PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP APPROVED
P3-A	DIC	02.01.2015	Discipline Internal Check	ALAA	GULA	OZKE	
P3-B	IDC	14.01.2015	Inter-Discipline Check	ALAA	GULA	OZKE	
P4-C	IFR	04.05.2015	Issued for Review	ALAA	GULA	OZKE	
P4-0	IAA	28.05.2015	Issued As Approved for Construction	ALAA	GULA	OZKE	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P3-A	DIC	02.01.2015	Discipline Internal Check
P3-B	IDC	14.01.2015	Inter-Discipline Check
P4-C	IFR	04.05.2015	Issued for Review
P4-0	IAA	28.05.2015	Issued As Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date
1				

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1. INTRODUCTION

1.1 Definitions

CLIENT: TANAP Doğalgaz İletim A.Ş.

PROJECT: Trans Anatolian Natural Gas Pipeline Project (TANAP)

EPCM: Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi

CONTRACTOR: FERNAS Insaat A.S.

Pollution: Refers to the contamination of air, water, or land by the any adverse effects of human activities.

Wastewater: Refers to all liquid wastes that have the potential to cause ground and surface water pollution.

Noise: Refers to excessive noise that may harm the activity or balance of human or animal life.

Noise Management: Refer to manage and monitor the noise generation point and handle it in accordance with the pollution definitions and procedures defined in Noise Pollution Control Regulation.

Contamination: Refers to any environmental damage or hazard due to solid, liquid, gaseous and hazardous substances which could cause any detrimental effects on the environment.

Waste: Refer to any solid, liquid, gaseous or hazardous materials cause environmental damage or hazard.

Dust: Refer fine (small) particles of dry matter resulted from traffic on road.

Dust Management: Refer to manage and monitor the dust generation point and handle it in accordance with the regulation.

Environmental Indicators: Refers to simple measures that tell us what is happening in the environment such as soil, water and air quality, turbidity

Impact: The consequence of an action or activity on the human or natural environment. Impacts may be positive, negative or neutral.

Risk: The likelihood of occurrence of an adverse project effect.

1.2 Abbreviations and Acronyms

Abbreviations/ Acronyms / Terms	Meaning
PPP	Pollution Prevention Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
IFC	International Finance Corporation
KPI	Key Performance Indicators
ROW	Right of Way

1.3 References

Reference	Reference Title
ESIA Report Chapter 4	"Legal, Political and Institutional Framework" of ESIA Report
ESIA Report Appendix 5.1	"Construction Impacts Managements Plan " of ESIA Report
ESIA Report Appendix 5.4	"Employment and Training Plan" of ESIA Report
ESIA Report Appendix 5.10	"Pollution Prevention Plan" of ESIA Report
ESIA Report Appendix 5.11	"Waste Management Plan" of ESIA Report

1.4 Objective of the Plan

The Pollution Prevention Plan covers the management and mitigation of potential impacts related to emissions and pollution to air, land and water bodies arising from Contractor activities of TANAP project Lot-1.

This plan will cover;

- Land Pollution
- Air Pollution
- Noise Pollution
- Water Pollution
- Spill Prevention and Response
- Monitoring and Reporting

1.5 Relationship to other plans

This PPP should be read in conjunction with the following plans;

- FRN-PLN-ENV-PL1-001 Environmental and Social Management Plan (ESMP)
- FRN-PLN-ENV-PL1-003 Construction Impact Management Plan (CIMP)
- FRN-PLN-ENV-PL1-004 Employment and Training Plan (ETP)
- FRN-PLN-ENV-PL1-005 Procurement and Supply Management Plan (PSMP)
- FRN-PLN-ENV-PL1-006 Traffic Management Plan (TMP)
- FRN-PLN-ENV-PL1-008 Soil Erosion and Sediment Control Plan (ESCP)
- FRN-PLN-ENV-PL1-010 Emergency Response Plan (ERP)

- FRN-PLN-ENV-PL1-012 Waste Management Plan (WMP)
- FRN-PLN-ENV-PL1-002 Camp Management Plan (CMP)
- FRN-PLN-ENV-PL1-011 Environmental and Social Monitoring Plan (ESMOP)
- FRN-PCD-HSE-PL1-003 Incident/Accident & Dangerous Occurrence Reporting Procedure
- FRN-PCD-QAC-PL1-004 Procedure for Control of Non Conformance Preventive and Corrective Action

1.6 Responsibilities

All of CONTRACTOR staff members assigned to this project will be responsible for ensuring that pollution to air, water or land does not occur.

1.6.1 Project Manager

- Will ensure that the Pollution Prevention Plan reflects any changes during the construction process that may have a significant environmental impact and manage them accordingly,
- Will ensure that there are sufficient resources (such as people, time, and equipment) to treat, manage, and monitor pollution prevention in the site,
- Will ensure Input is received from all specialist environmental sources,

1.6.2 Construction Manager

- Will be responsible for ensuring that all site personnel are aware of the requirements of the Pollution Prevention Plan,
- Will be responsible for implementing and supervising environmental issues on site,
- Will review the site-specific procedures written by the Environmental Manager,

1.6.3 Project HS Manager

- Will, in conjunction with the Environmental Manager, write procedures for site-specific issues,
- Will ensure that all environmental incidents are reported and dealt with effectively,
- Will implement the requirements of the Pollution Prevention Plan relevant to his activity.

1.6.4 Environmental Manager

- Will be site based during the project and will have responsibility for the identification and management of site environmental issues,

- Will identify the licenses/permits required and ensure timely application to the appropriate authority,
- Will ensure that all consents/licenses are in place prior to carrying out the associated works,
- Will ensure that the Project Manager and Construction Manager are fully informed on any environmental issues,
- Will carry out or supervise all environmental monitoring on the project ensuring that all records are fully completed and stored correctly,
- Will ensure that environmental staff are implementing or overseeing the implementation of site specific PPP requirements.
- Will keep the EPCM fully informed about pollution issues,
- Will have ultimate responsibility for the pollution prevention topics,

1.6.5 Environmental Inspectors

- Will monitor construction activities and their compliance with environmental plans, procedures and instructions,
- Will ensure that all remedial action identified by inspections are closed out,
- Will conduct all environmental monitoring on the project ensuring that all records are fully completed correctly,
- Will ensure that the Environmental Manager is fully informed on any environmental issues,
- Will implement the environmental management system on site and provide as necessary toolbox talks on pollution prevention and emissions control.

1.6.6 All employees

- Fully trained regarding environmental requirements,
- Fully trained in dealing with environmental incidents and appropriate response methods,
- Notify others, including Environmental Manager and Project Manager, of all incidents, NCR, deficiencies, etc.
- Will implement the requirements of the Pollution Prevention Plan relevant to their activities.

1.6 Training

FERNAS will provide training to all site staff to implement the requirements of this PPP. These training will ensure that all site staff is aware of their responsibilities in respect to PPP. All staff working on the pipeline will receive the training highlighted below. This will be conducted by the Environmental Manager or a specialist trainer. An attendance sheet will be distributed and signed by all trainees for the record keeping after the training programme. The information of the time, place, attendance and issues discussed will be recorded also.

During the training, the staff will receive the following training topics as a minimum:

- An overview of emergency procedures and responsibilities;
- Pollution Prevention aspects;
- Hazardous and non-hazardous waste handling, transport and storage requirements;
- Air quality / Dust control;
- Noise control;
- Vehicle maintenance;
- Hazardous material handling, transport and storage requirements;
- Spill prevention;
- Usage of spill equipment;
- Refueling procedures.

2. IMPLEMENTATION of MITIGATIONS

2.1 Land Pollution

2.1.1 Introduction

Land pollution is the deterioration of the earth's land surfaces often directly or indirectly as a result of human activities and their misuse of land resources. It also refers to soil pollution caused by spillages or leakages and similar point sources due to incidents which may occur during project activities.

2.1.2 Sources

Pollution to land from construction projects may occur through a variety of sources. These include:

- Inadequate waste and waste water management,
- Spillages resulting from the storage and handling of fuels, oils and other hazardous materials, in particular during refueling,
- Pollution resulting from contaminated water,
- Inadequate vehicle and plant maintenance.

2.1.3 Mitigations

The complete list of mitigation measures are found in the ESIA (Appendix-4.7) and will be complied with by FERNAS throughout the project duration. Following measures that will be implemented to reduce the risk of pollution to land, but not be limited to:

- Contractor will comply with relevant Government regulations and the Project's technical specifications and requirements;
- Chemicals and other hazardous/dangerous/toxic substances (e.g., fuels, lubricants, solvents, etc.) will be stored in sealed and clearly labeled containers or vessels;

- Sufficient fire protection systems will exist at storage facilities in order to control fires and/or the release of hazardous materials to the environment in case of an accident or emergency;
- Sufficient trained personnel, with proper equipment, will be on hand to deal with the possible release of toxic or ignitable gases to the environment;
- All flammable liquids will be stored in storage areas that are a suitable distance from living quarters;
- All hazardous and non-hazardous wastes generated during construction activities will be stored and transported as per the requirements outlined in the Contractor's approved Waste Management Plan;
- The hazardous wastes would be stored temporarily in sealed and clearly labeled containers within the camp site separate from other wastes in a closed environment preventing any chemical reaction. They will be labeled in English and Turkish. After that, these wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the Ministry of Environment and Urbanization.
- All the measures will be taken for the health and safety of the employees responsible for the collection, transportation and temporary storage of the waste within the facility.
- Discharge of wastewater to surface water resources after treatment will be in compliance with the applicable regulatory requirements,
- Will avoid vehicle crossings to the extent practicable across the watercourse
- Limit construction activities to periods of low flow where practicable, when sediments are minimal
- Constructor will not disturb any other soils except ROW, working strip and additional work areas, and new access roads,
- Prevent vehicle travel on the pipeline ROW as much as practical during reclamation and operation to allow vegetation to establish.
- There will be containment bunds or spill trays for the storage of the hazardous material;

  - All the fuel, grease and chemical storages will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir.
  - All vehicles, equipment and installations will be checked for any fuel and grease leakage before use and will be regularly monitored for leaks.
  - Maintenance procedures in line with available manufacturing requirements will be in place for all machinery and equipment.
  - Adequate amount of appropriate absorbents/spill kits will be in place in "designated maintenance area" in order to handle with minor leakages.
  - Taps and valves will be checked regularly for signs of wearing; and be securely closed and locked when they are not in use.
  - All the equipment and storage areas will be secured properly with safety fences; and gateways will be locked in order to prevent pollution.
  - All containers of fuel, lubricant oil and chemicals will be sited on containment bund. The bund will be of sufficient capacity to contain at least the 110% of the volume of the largest tank
  - If the containment bund is not practical than dip trays will be used stored

chemicals and fuels.

- Any soil contamination during the construction activities will be addressed in strict compliance of Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources.
- Contaminated soil will be stored temporarily in sealed and clearly labelled containers within a bounded area at the site. It will be labelled in English and Turkish.

2.2 Air Pollution

2.2.1 Introduction

Air pollution is contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. Household combustion devices, motor vehicles, industrial facilities are common sources of air pollution. Pollutants of major public health concern include particulate matter, carbon monoxide, ozone, nitrogen dioxide and sulfur dioxide. See Appendix-A (Project air quality standards table).

2.2.2 Sources

The principal sources of air emissions are likely to be exhaust fumes from vehicles and plant (power generators, water heaters, etc.), dust from earthworks and vehicle movements, and fumes from solvents in paints and coatings and/or from storage and use of fuels.

2.2.3 Mitigations

The complete list of mitigation measures are found in the ESIA (Appendix-4.7) and will be complied with by FERNAS throughout the project duration. Following measures that will be implemented to reduce the risk of pollution to air but not limited to:

- Control of air emissions from heating equipment will be accomplished through observance of manufacturer's recommendations during use, and through following the waste screening and operational procedures detailed in the Waste Management Plan;
- Contractor will only use project approved travel routes. At roads used, Contractor will employ appropriate measures, such as speed limit, water dust suppression, etc. to control the generation of dust clouds along project roads and at the work sites. These measures will be implemented as often as required to provide safe driving conditions, protect the health of all nearby persons, sustain the integrity of adjacent flora and fauna, and control community complaints. In addition to dust control measures implemented on the Contractor's own initiative;
- Air emissions from vehicles and construction equipment will be kept to a minimum;
- Contractor will use low emission vehicles wherever possible;
- Contractor will use vehicles that were checked legally for their exhaust emissions;
- Contractor will restrict third party vehicle access to project related activities;

- Contractor will implement regular maintenance programs for vehicles and equipment;
- Contractor will restrict excessive idling of vehicles or equipment;
- Contractor will enforce speed limits along access roads at camp site and ROW;
- Types of prohibited cooling refrigerants by law will not be used in the air conditioning system of the camp (compliance with national legislation);
- FERNAS will monitor the dust impact at Putka Gölbaşı Ardahan, Erzurum Marshland before and during construction in order to ensure effectiveness of defined standard mitigation measures.

2.3 Noise Pollution and Vibration

2.3.1 Introduction

Construction activities are likely to produce a variety of noise and vibration sources of different types ranging from those of a short duration and low intensity to those of high intensity or longer duration. See Appendix-B (Noise standards for construction site).

2.3.2 Sources

Construction activities are likely to produce a variety of noise and vibration sources of different types ranging from those of a short duration and low intensity to those of high intensity or longer duration.

Noise from construction projects may occur through a variety of sources. List of the sources are given in the below.

- Vehicle maintenance;
- Power generation systems;
- Movement of equipment, large machinery;
- ROW activities;
- Trenching activities.

Vibration may resulted from blasting and piling acitivities.

2.3.3 Mitigations

The complete list of mitigation measures are found in the ESIA (Appendix 4-7) and will be complied with by FERNAS throughout the project duration. Following measures that will be implemented to reduce the risk of noise pollution but not limited to:

- CONTRACTOR will adopt a “Best Practicable Means” policy for the minimization of the effects of noise and vibration during construction.
- Scheduling of inherently noisy operations to minimize/avoid disturbance to residents or users of facilities, unless where unavoidable if a construction activity cannot be stopped once started;

- CONTRACTOR construction activities will be undertaken during daylight hours, where practicable;
- Screening or enclosing fixed equipment, such as compressors ("silent" running type);
- Providing and maintaining effective silencing to all motorized equipment;
- Installing mufflers and dampers wherever possible;
- Using inherently quieter techniques (as far as is practicable) for example using hydraulics instead of hammering actions;
- Avoiding idling or revving of vehicle and equipment engines (i.e., all engines will be switched off when not in use);
- Choosing transport routes that have the least impact to the sensitive receptors;
- Performing induction training and toolbox talks on noise prevention;
- Maintaining equipment on a regular basis;
- Local communities that may be affected by dust or noise will be informed of the construction activities;
- Speed limits will be controlled via posted signs on ROW and access roads;
- Replacing or repairing parts generating excessive noise.
- Night works will be avoided. if it is needed, it will be subject to EPCMs approval.
- Night-time activities will be kept to a minimum to reduce disturbance to local communities due to noise and vibration emissions; if night-time construction activities are necessary, local authorities and local communities will be informed with 48 hours' notice.
- FERNAS will reduce noise associated with vibration and vehicle noise
- Blasting works will be subject to EPCMs approval.
- Temporary noise barriers will be deployed near sensitive areas or receivers.
- The exact locations at which piling and blasting activities will be done will agreed with EPCM prior to the commencement of the blasting or piling activities.
- Prior to the commencement of any underground works, a dilapidation survey of properties that may be affected by the works will be carried out. The survey will be carried out prior to the works commencing. Properties or services that are deemed to be at risk will be assessed for structural stability, photographed and the legal owner identified. This will include:
    - Impacts at properties that are considered to be potentially under the risk from either blast induced vibration damage or fly rock;
    - Impacts at properties that are liable to settling;
    - Effects on surface and subsurface water supplies; and
    - Effects on public utilities
- Inhabitants will be trained about blasting and piling activities according to a programme
- Blasting will be performed at the suitable times concerning the local characteristics

2.4 Water Pollution

2.4.1 Introduction

Water pollution is the contamination of water bodies (e.g.: rivers, lakes, seas, aquifers etc.) very often by human activities. Pollution occurs when pollutants (particles, chemicals or substances that make water contaminated) are discharged directly or indirectly into water bodies without enough treatment to get rid of harmful compounds.

2.4.2 Sources

Water pollution from construction projects may occur through a variety of sources. List of the sources are given below.

- Spillages of fuel, oil or other hazardous substance, especially during refueling;
- Uncontrolled discharge of wastewater from camps site and ROW;
- Washing of vehicles or equipment.
- spills of fuel, oil or hazardous materials;
- runoffs from the ROW;
- pumping of silt water from trenches to receiving water bodies;
- Deterioration of watercourse banks and bed during crossing of vehicles;
- Discharge of hydrostatic testing water.

2.4.3 Mitigations

The complete list of mitigation measures are found in the ESIA (Appendix 4-7) and will be complied with by FERNAS throughout the project duration. Following measures that will be implemented to reduce the risk of pollution to water but not limited to:

- Discharge of wastewater to surface water resources after treatment in compliance with the applicable regulatory requirements; See Appendix-C (Project wastewater discharge standards table)
- Camp domestic wastewaters will be collected and treated in WWTP in camp site. It will then be disposed of at the discharge point authorized by the authorities. All the incompliant wastewater will be transferred to another compliant facility to treat. Also a balance tank will be used for this purpose.
- Avoiding vehicle crossings to the extent practicable across the watercourse;
- Ensuring the requirements of each water protection zone;
- Ensuring all equipment working in or near watercourses is clean and free of fluid leaks;
- Obtaining applicable water abstraction permits;
- Restricting fuelling/refilling, chemical handling activities in close vicinity of the watercourses;
- Strictly prohibiting fishing by project personnel at watercourses;
- Groundwater quality and sustainability will be monitored periodically to confirm that the supply meets the needs of the project and does not impact adversely on

other known users;

- Water conservation initiatives will be undertaken with the aim to limit the potable water consumption;
- Use appropriate sediment and erosion control techniques (e.g., silt fences) during construction of the Project;
- Monitor watercourse turbidity during construction and take corrective actions where required;
- Prevent turbid water from re-entering the watercourse to the extent practicable using natural or mechanized filtration processes;
- Plan hydrostatic testing so that the opportunities for water re-use are maximized
- Record all volumes of water withdrawal from natural resources for project related activities for demonstration of no exceed of the allowance;
- Install temporary vehicle crossings/bridges;
- Measures to minimize scour and reduce sediment load will be implemented at locations where hydrotest water is discharged to watercourses and discharge velocities have the potential to create erosion (e.g. controlled rate of discharge and use of energy dissipaters, displacement of geotextile mats or other physical erosion prevention measures);
- Wastewater of hydrotesting will be treated and discharged to the closest receiving environment after satisfying the parameter given in Water Pollution Control Regulation and hydrotest water discharge standards in IFC.
- The following mitigating measures will be followed in the camp areas;
    - Water used for washing vehicles will be subject to an oil and water separator before discharge,
    - No refueling or fuel storage will be allowed within 30 meters of a watercourse,
    - Where required, bunds, grips and other measures will be implemented adjacent to watercourses to prevent silt ingress from the construction site,
    - Discharge of wastewater to surface water resources after treatment will be in compliance with the applicable regulatory requirements given in ESIA (Chapter-4),
    - The domestic wastewater will be separated from oily water discharges,
    - The treated effluents will be discharged to the authority approved receiving water body after meeting the standards in the ESIA (Chapter-4),
    - Monthly samples will be taken to test the treated wastewater,
    - After takıng baselıne measurements the treated water will be dıscharge and not pollute the surface water. The treated water quality will be analyzed properly before and after the wastewater dıscharge to ensure compliance,
    - Wastewater treatment plant will be regularly maintained,
    - Upstream and downstream water quality will be checked regularly.

Hydrostatic Testing

Hydrostatic testing will be planned so that the opportunities for water re-use are maximized: First priority is to use surface water for hydro testing, If this is not possible groundwater resources can be used with permission and ensuring no impact on public use and environmental sensitivities

The pipeline and storage tanks will be hydrostatically pressure tested to ensure that there are no leaks.

All hydrotest abstractions and discharges will be identified in advance of testing (timing to be advised by EPCM) and will be licensed in accordance with the appropriate permitting requirements.

Environmental impacts associated with the abstraction and discharge of test water will be minimised by adoption of the following mitigation measures.

- If required, corrosion inhibition chemicals, oxygen scavengers or biocides will only be used in the hydrotest water with the prior permission of EPCM and the appropriate Turkish regulatory authorities,
- 100 % ultrasonic or radiographic inspection of all welds and hydrostatic testing the pipeline sections before commissioning will be undertaken.
- All pipes at major water crossings will be pretested.
- Test manifolds will be located outside of wetlands and riparian areas as far as reasonably practical.
- Abstraction and discharge of hydrotest water will comply with the appropriate national and international standards.
- Water samples (grab) of the discharged test water will be taken at the beginning and the end of the discharge period as a minimum. The following parameters will be monitored as in stated in Appendix-I, Hydrotest water discharge register for Lot 1
- Abstraction water intakes will be screened to avoid entrainment of fish.
- Any abstraction will be at a rate which ensures the maintenance of adequate downstream flow rates to protect aquatic life, provide for all water body uses, and downstream abstractions of water by existing users as advised by relevant Authority.
- The discharge pipe will be anchored for safety, in case of discharging via pipe.
- The discharge of test water will be to a suitable receiving body of water across a well-vegetated area or filtered through a filter bag or erosion control barriers such as soakaways or sediment bunds.

- The discharge of test water will occur against a splash plate or other energy dissipating device in order to aerate, slow, and disperse the flow.

- The rate of discharge will be controlled to a level that prevents flooding or erosion.

3. SPILL RESPONSE

3.1 Introduction

Spill occurs in the event that the control measures discussed throughout this PPP fail and material such as oil, fuel and chemicals escape to the environment, through spillage or leakage.

Spill reporting requirements will be applied to releases to land and water of any contaminant (petroleum products, hazardous materials and chemicals etc.). Based on the type of spilled material and quantity, FERNAS is responsible for notifying EPCM authorized personnel (environmental inspector) and government officials as required. Environmental Manager and/or environmental inspectors will document the spill in an incident report. The incident report will be forwarded to the FERNAS Project Manager and Project Manager will send the incident report to EPCM (Environmental Department). Records of all hazardous materials releases will be stored.

Environmental Inspector will monitor progress of the spill and the associated clean-up effort and document these events in an Incident Report. Wherever possible, hazardous material spills/releases will be controlled by on-site personnel. The on-site EPCM Environmental Inspector will be immediately verbally informed of all spill incidents. In the event of a minor spill an incident report will be issued to EPCM within 12 hours of the discovery of the incident. For significant spills the incident will be reported immediately.

The following information will be provided when a release occurs;

- Location of the spill,
- The reporting staff's name and phone number,
- Date, and type of incident,
- Type and quantity of spilled material
- Any injury,
- Possible hazards to human health and the environment,
- Clean-up and/or mitigation actions taken.

3.2 Spill Prevention

The spill prevention mitigations are intended to minimize the release of contaminant to land or water.

FERNAS will ensure that its personnel and subcontractors working in the camps, pipe yards and ROW are aware of the spill prevention and response responsibilities.

A list of emergency contact will be available to all employees for a prompt spill response.

All MSDS will be available on site for review to ensure an adequate spill response.

All employees handling fuels and hazardous material will receive proper training during their project inductions. The training will be conducted by the environmental team and recorded for audit purposes.

Spill drills will be implemented in conjunction with the HS team.

Spill equipment and spill kits will be readily available with every team, and in locations through the camp where any hazardous material is stored and ROW.

In maintenance areas, drip trays and spill kits will be available. All plant/vehicle fluids will be collected during maintenance. The fluids will be disposed of in the hazardous material section of the waste management area.

Mitigations include:

- There will containment bunds or spill trays for the storage of the hazardous material.
- The MSDS form requirements of all chemical will be implemented.
- Filling and re-fueling activities will be strictly controlled and centralized.
- All the fuel, grease and chemical storage will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir.
- All vehicles, equipment and installations will be checked for any fuel and grease leakage before use and will be regularly monitored for leaks.
- Adequate amount of appropriate absorbents be in place in “designated maintenance area” in order to handle with minor leakages.
- All containers of fuel, lubricant oil and chemicals will be sited on containment bund. The bund will be of sufficient capacity to contain at least the 110% of the volume of the largest tank.
- If there is any leakage occurred to bunded area, it will be collected, stored in hazardous “waste temporary storage area.
- Conducting training programs for spill prevention, spill kits, refueling procedure, etc.
- Material Safety Data Sheet (MSDS) for all substances stored and used on site will be maintained along with all other safety documents.
- The following mitigating measures will be followed in the camp areas;
    - There will containment bunds or spill trays for the storage of the hazardous material.
    - The MSDS form requirements of all chemical will be implemented.
    - Filling and re-fueling activities will be strictly controlled and centralized
    - All the fuel, grease and chemical storage will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir.
    - All vehicles, equipment and installations will be checked for any fuel and

grease leakage before use and will be regularly monitored for leaks.

- Adequate amount of appropriate absorbents be in place in “designated maintenance area” in order to handle with minor leakages.
- All containers of fuel, lubricant oil and chemicals will be sited on containment bund. The bund will be of sufficient capacity to contain at least the 110% of the volume of the largest tank.
- If there is any leakage occurred to bunded area, it will be collected, stored in hazardous “waste temporary storage area.
- Conducting training programs for spill prevention, spill kits, refueling procedure, etc.
- Material Safety Data Sheet (MSDS) for all substances stored and used on site will be maintained along with all other safety documents.

3.2.1 Refueling

All refueling at pipe yards and camps site will be from designated, bounded fuel storage tanks. Refueling of vehicles will not be performed very close to drains, watercourses and wetlands. Where refueling on the ROW is required, this will be undertaken by mobile fuel dispensing tankers. Refueling operations on the ROW will utilize drip trays and/or absorbent pads which will be placed prior to the commencement of refueling operations. Refueling will be carried out by a nominated refueling operator who will be specifically trained. There will be placed spill kit and fire extinguisher readily available on site.

Automatic shut-off valve will be installed and clearly identified on all fuel dispensing units and care will be taken to ensure tanks are not overfilled. All connections will be bonded to prevent static discharge and there will be no smoking during re-fuelling operations.

3.3 Spill Response

The use of spill kits, including absorbents, to contain a spillage, followed by clearing up and disposal of the spillage and spillage material will be explained to all project personnel during the environmental training.

All oil/fuel/chemical storage, refueling areas and vehicle maintenance areas will include a sufficient supply of spill containment materials. A spill kit will also be carried on every vehicle. These kits will contain absorbent pads, booms, bags and ties. The Contractor’s Construction Manager along with Environmental Manager is responsible for identifying suitable spill response equipment for responding to spillages and ensuring an adequate supply in the store. The Construction Manager is responsible for ensuring that spill kits are allocated to the appropriate locations/vehicles. The Construction Manager is responsible for ensuring that these are replaced if used.

All spills will be treated with a matter of urgency and as such constitute an ‘emergency/spillage response’. Consequently within this PPP will be consulted to determine the correct response to the spillage, including communication routes and containment/clean-up respectively.

Training in spill containment/clearance techniques will be given to staff involved with emergency response plan. Refueling operators will be trained on appropriate and best practices of refueling. Drivers will be trained on appropriate refueling practices and response requirement in the event of a spill.
Upon the discovery of a spill, all activities in the camp, pipe yard or ROW will be stopped in order to adequately address the spill and the area will be restricted.

The spill will be contained with appropriate spill response equipment from the spill kits on site.

The crew will immediately inform the camp manager/pipe yard manager and the environmental team with the following information: location of spill, estimated size of spill, and if any hazards are present.

The team attending to the spill will wear proper PPE as per the health and safety requirements.

Once the spill is contained, the area will be cleaned up and all contaminated material will be disposed of adequately in the hazardous material section of the waste management area.

In case of a spill to land, the contaminated soil will be stripped to a sufficient depth and transported to disposal.

An incident report (Appendix-E: Incident register for Lot 1) will be completed and all corrective actions will be implemented.

A complete spill prevention and response procedure will be found in the Emergency Response Plan - (FRN-ENV-PL1-010).

4. MONITORING

FERNAS environmental staff will conduct daily, weekly and/or monthly (depending on the requirements and/or needs) monitoring of the ROW and all other sites (camps, pipe yards, etc.) to check for signs of pollution issues. The daily monitoring will include, but not limited to, the following:

- Noise levels at sensitive receptors when required;
- Air emissions at sensitive receptors when required;
- Dust generation and control at camps, on access roads and ROW;
- Wastewater discharges to the receiving body,
- Fuel, oil and hazardous material transport, handling and storage.
- Hydrotest discharges

FERNAS will conduct periodic (daily, weekly and monthly) visual inspections of all hazardous waste storage area and containers to look for signs of deterioration, leaks, unsecured container covers, or excess accumulation of materials in the containment areas.

All visible leaks and releases will be promptly corrected. Additionally, equipment operators will conduct periodic inspections on equipment to check for leaks, perform periodic preventive

maintenance on equipment to minimize the potential for spills or leaks, and ensure spill kits are complete and available.

5. REPORTING

FERNAS will provide weekly and monthly monitoring report to EPCM. In relations to the Pollution Prevention Plan, FERNAS will provide the following weekly information:

- NCR register for Lot 1
- Incident register for Lot 1
- Summary of environmental inspections, audits, and controls;
- Summary of environmental monitoring activities undertaken during the current week that highlights locations where monitoring occurred and key learning/findings and look ahead.

In relations to the Pollution Prevention Plan, FERNAS will provide the following monthly information:

- NCR register for Lot 1
- Incident register for Lot 1
- Water quality for Camp 1 and Camp 2
- Water quality for surface water for Lot 1
- Waste Disposal Register for Lot 1
- Water abstraction for Lot 1
- Watercourse crossing register for Lot 1
- Hydrotest water discharge register for Lot 1
- Noise register for Spread 1/2 – complaint based
- Air register for Spread 1/2 – complaint based

6. APPENDICES

A- Project air quality standards table
B- Noise standards for construction site
C- Project wastewater discharge standards table
D- NCR register for Lot 1
E- Incident register for Lot 1
F- Water quality for Camp 1 and Camp 2
G- Water quality for surface water for Lot 1
H- Water abstraction for Lot 1
I- Hydrotest water discharge register for Lot 1

A- Project air quality standards table

Project Air Quality Standards			
SO2 (µg/m3)	Hourly	350 (2019) (not to exceed more than 24 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	24 hr	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	Yearly and Winter Season (Oct 1 – March 31) (for wildlife and ecosystem)	20 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
NO2 (µg/m3)	Hourly	200 (2024) (not to exceed more than 18 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	Yearly	30	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – Guidelines for Europe (for ecosystem)
NOx (µg/m3)	Yearly (for vegetation)	30 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
PM10 (µg/m3)	24 hr (For human health)	50 (2019) (not to exceed more than 35 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
	Yearly (for human health)	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
PM2.5 (µg/m3)	24 hr	25 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	1 year	10 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
Lead (µg/m3)	Yearly (human health) (LTL)	0.5	Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on

B- Noise standards for construction site

Noise Standards for Industrial Facilities

Noise Standards for Industrial Facilities			
Receptor	**Period**	**Noise Level**	**Reference regulatory requirement**
Noise sensitive areas - with training, culture and health areas, summer houses and camps	**LAeq (dBA) Day-time 06:00 – 19:00**	60	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Industrial Facilities
	LAeq (dBA) Evening-time 19:00 – 22:00	55	
	LAeq (dBA) Night-time 22:00 – 06:00	50	
Combination of commercial and noise sensitive areas - with dense residential buildings	**One Hour LAeq (dBA) Daytime 07:00 - 22:00**	55	IFC General EHS Guidelines - Noise Standards based on WHO Guidelines
	One Hour LAeq (dBA) Night time 22:00 - 07:00	45	
Industrial areas	**LAeq (dBA) Day-time 06:00 – 19:00**	70	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Industrial Facilities
	LAeq (dBA) Evening-time 19:00 – 22:00	65	
	LAeq (dBA) Night-time 22:00 – 06:00	60	

Noise Standards for Construction Sites

Noise Standards for Construction Sites		
Activity (Construction, Demolition and Renovation)	**Noise Level** **LAeq (dBA) Day-time (06:00 – 19:00)**	**Reference regulatory requirement**
Building	70	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Construction Sites
Road	75	
Other sources	70	

C- Project wastewater discharge standards table

Wastewater Discharge		
Sampling Date:		
Sampled by:		
Sample reference:		
Parameters	**Concentration**	**Sample Results**
Biochemical Oxygen Demand (BOD_5)	25 mg/l	
Chemical Oxygen Demand (COD)	125 mg/l	
Suspended Solids (SS)	35 mg/l	
	35 (more than 10,000 p.e)	
	60 (2,000-10,000 p.e)	
pH	6-9	
Total Nitrogen	15 mg/l	
Total Phosphorus	2 mg/l	
Oil and Grease	10 mg/l	
Total Coliform Bacteria	400/100ml	

D- NCR register for Lot 1

NCR REGISTER - LOT 1
Reporting Period:

Total of NCR	
To date	**This reporting Period**

Total of NCR to date	
Open	**Closed**

Date	**Doc Control Registration Number**	**Summary**	**Date Part A completed and form submitted to assignee**	**Date Part B Completed**	**Date Part C completed**	**Date Part D completed**	**NCR closed out (green/red)**	**Comments**

E- Incident register for Lot 1

INCIDENT REGISTER - LOT 1
Reporting Period:

Total of incidents	
To date	**This reporting Period**

Total of incidents to date	
Open	**Closed**

Date Raised	**Contractor Registration Number**	**Location**	**Incident Summary**	**Actions**		**Close Out**		**Comments**
				Corrective Actions	**actioner**	**To Close By**	**Actual Close-out Date**	

F- Water quality for Camp 1 and Camp 2

WATER QUALITY REGISTER - CAMP 1/2
Reporting Period:

Drinking Water		
Sampling Date:		
Sampled by:		
Sample reference:		
Microbiologcial Parameters	**Concentration**	**Sample Results**
Escherichia coli (E.coli)	*0/100 ml*	
Enterococcus	*0/100 ml*	
Coliform bacteria	*0/100 ml*	
Chemical Parameters	**Concentration**	**Sample Results**
Acrylamide	0,1 µg/l	
Antimony	2 µg/l	
Arsenic	10 µg/l	
Benzene	1 µg/l	
Benzopyrene	0,01 µg/l	
Boron	1 mg/l	
Bromate	10 µg/l	
Cadmium	3 µg/l	
Chromium	50 µg/l	
Copper	2 mg/l	
Cyanide	50 µg/l	
1,2-Dichloracethane	3 µg/l	
Epichlorhydrin	0,1 µg/l	
Fluoride	1,5 mg/l	
Lead	10 µg/l	
Mercury	1 µg/l	
Nickel	20 µg/l	
Nitrate	50 mg/l	
Nitrite	0,5 mg/l	
Pesticides	0,1 µg/l	
Total Pesticides	0,5 µg/l	
Polycyclic aromatic hydrocarbons	0,1 µg/l	
Selenium	10 µg/l	
Tetrachloroethane and Trichloroethane	10 µg/l	
Trihalomethanes-total	100 µg/l	
Vinyl chloride	0,3 µg/l	

G- Water quality for surface water for Lot 1

SURFACE WATER QUALITY REGISTER

SPREAD 1/2

Date	**KP Location of Watercourse or Discharge Point**	**Name of Watercourse or Discharge Point**	Sampled by	**Sample taken: pre-construction during construction Post construction (choose one)**	**Flow** *Low/med/high*	**Upstream**					**Downstream**					**Comments**
						Conductivity *S/m*	**Turbidity** *no alteration greater than 25 NTU*	Temperature *°C*	pH *6.5 - 9*	**Dissovled Oxygen** *Not less than 6.0mg/l*	Conductivity *S/m*	**Turbidity** *no alteration greater than 25 NTU*	Temperature *°C*	pH *6.5 - 9*	**Dissovled Oxygen** *Not less than 6.0mg/l*	

H- Water Abstraction Register

WATER ABSTRACTION REGISTER - Spread 1/2

Date	**Source: Municipality, Ground water, Surface water, etc.**	**Volume (m^3)**
	Total to date :	

I- Hydrotest water discharge register for Lot 1

HYDROTEST WATER DISCHARGE REGISTER

LOT 1

Location	Date Sample Taken	Sampled by	Parameters								
			Total Hydrocarbon Content	pH	BOD	COD	Total Supspended Solids	Total Phenols	Sulfides	Heavy Metals (total)	Chlorides
			Limits								
			10 mg/l	6-9	25 mg/l	125mg/l	35 mg/l	0,5 mg/l	1 mg/l	5 mg/l	600 mg/l (average) 1.200 mg/l(Max)

TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	SYA-PLN-ENV-GEN-005	REV	P4-0
Document Title :	POLLUTION PREVENTION PLAN		
Tag Nos :			
Contractor :	SYA - Sicim-Yuksel-Akkord JV	REV	

		Signature	Date
	C1- Reviewed & accepted as final & certified. Manufacture may proceed.		
	C2- Reviewed & accepted as marked. Revise & resubmit. Manufacture may proceed.		
	C3- Reviewed & returned. Correct & resubmit. Manufacture shall NOT proceed.		
	C4- Review not required. For information only. Manufacture may proceed		

Remarks:

SICIM-YUKSEL-AKKORD JV	TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT - LOT 2 -	TANAP / WorleyParsons

POLLUTION PREVENTION PLAN
SYA-PLN-ENV-GEN-005

Rev.	Status	Date (dd/mm/aa)	Document Status Description	Issued by	Checked by	Approved by	TANAP Approval
P3-A	DIC	31/03/15	Discipline Internal Check	ARAO	KURV	TENP	
P3-B	IDC	31/03/15	Inter Discipline Check	ARAO	KURV	TENP	
P3-C	IFR	31/03/15	Issued for Review	ARAO	KURV	TENP	
P4-0	IAAC	16/04/15	Issued As Approved for Construction	ARAO	KURV	TENP	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P3-A	DIC	31/03/2015	Discipline Internal Check
P3-B	IDC	31/03/2015	Inter Discipline Check
P3-C	IFR	31/03/2015	Issued for Review
P4-0	IAAC	16/04/2015	Issued As Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

Table of Contents

1 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Trans Anatolian Natural Gas Pipeline Project (TANAP) will be built to transport natural gas emanating from the South Caucasus Pipeline Company (SCPC) pipeline in Georgia and terminating into the Trans-Adriatic Pipeline (TAP) in Greece. In addition to the mainline termination, dedicated off takes will be provided to BOTAŞ at strategic points in the Republic of Turkey.

The pipeline traverses diverse geographical terrain, other constraints include:

- Over 1000 crossings of Roads, Rivers, Rail, Third Party Pipeline Crossings,
- Steep vertical and Side Slopes,
- Narrow ROW with “Pinch-Points”,
- Varying extreme weather and climatic conditions,
- A large number of geo-hazards of various types and intensity levels,
- Areas of active passive human socio-economic activity.

1.2 CONTRACTOR SCOPE OF WORKS

CONTRACTOR SOW includes procurement of materials, construction, installation, testing, training of CLIENT personnel, pre-commissioning and assistance to commissioning of 2nd Lots of the Pipeline System (KP 375, X: 380983 Y: 4422693) to.KP825 (X: 513417 Y: 4409784).

CONTRACTOR is responsible for the achievement of the required standard of work in accordance with the requirements of the Contract, project requirements and International Standards. Client will monitor and audit CONTRACTOR’s actions and activities, as necessary, to verify that proper controls are implemented and to assure compliance with the specified requirements.

1.3 ABBREVIATIONS

The following abbreviations are used in this document:

ROW	Right of Way
IFC	International Finance Corporation
EHS	Environment, Health and Safety
ESIA	Environmental and Social Impact Assessment

1.4 PURPOSE

The purpose of this Pollution Plan is to describe requirements to be fulfilled by the CONTRACTOR in order to avoid or reduce air pollution, water pollution and land pollution resulting from land preparation and construction activities for the TANAP Project 56'' Onshore Pipeline Construction Lot 2.

The standards described herein and in any relevant procedures/instructions, site-specific sub-plans and/ or method statements and so on shall be mandatory for all the employees of the CONTRACTOR, all its subcontractors, suppliers and visitors in order to effectively prevent/reduce pollution impacts which may result from project activities.

1.5 APPLICATION

This Pollution Prevention Plan outlined herewith shall be applicable to the whole of the works within the scope of the TANAP Project 56'' Onshore Pipeline Construction Lot 2.

1.6 PEOPLE IN CHARGE

All site employees, line management, project management, suppliers, subcontractors and visitors shall comply with the commitments of this Pollution Prevention Plan.

2 REFERENCE DOCUMENTS

- ISO 14001 Environmental Management System - Requirements
- Turkish Environmental Law and Regulations
- European Legislations and International Standards
- Contractual Documents:
  - 56'' Onshore Pipeline Construction Contract Relating To Trans-Anatolian Natural Gas Pipeline Lot 2.
  - Appendix A: Technical Specification / Scope of Work for 56" Onshore Pipeline Construction Lots 1, 2 and 3 (BCH-AGR-CNT-GEN-040)
  - Appendix K: Health and Safety for 56" Onshore Pipeline Construction Lots 1, 2 and 3 (BCHAGR-CNT-GEN-013)
  - Appendix M: Environmental and Social Management for 56" Onshore Pipeline Construction Lots 1, 2 and 3 (BCH-AGR-CNT-GEN-015)
  - Pipeline Construction Specification (BCH-SPC-PPL-PLG-010)
  - Environmental & Social Monitoring Procedure (ILF-PCD-ENV-GEN-001)
  - Environmental & Social Requirements for Contractors (ILF-SPC-ENV-GEN-001)
  - Environmental & Social Management Plan (ILF-PLN-ENV-GEN-001)
  - Grievance Management Procedure (TNP-PCD-SOC-GEN-001)
  - Compliance with Legislative Requirements Procedure (ILF-PCD-PAL-GEN-001)
  - Trans-Anatolian Natural Gas Pipeline (TANAP) Project ESIA Report
  - ESIA Report Appendix 5.10 - "Pollution Prevention Plan" (CIN-REP-ENV-GEN-010-45)

3 REVIEW, APPROVAL, DISTRIBUTION AND REVISION OF THE POLLUTION PREVENTION PLAN

This Pollution Prevention Plan shall be reviewed by the CONTRACTOR's Environment & Social Department and submitted to the EPCM for approval within 90 days from the Effective Date.

Upon EPCM's approval, one copy of this Pollution Prevention Plan shall be electronically distributed by the Environment & Social Department.

One copy of this Pollution Prevention Plan shall be made available to each subcontractor and supplier for compliance.

Each hard-copy distribution of this Pollution Prevention Plan shall be documented against signature and relevant records (Document Distribution Forms/Document Transmittal Forms) shall be maintained.

For updated versions, the same procedure shall apply for review, approval and distribution of this Pollution Prevention Plan. Obsolete hard-copies shall be either destroyed or marked as "OBSOLETE COPY"; similar marking shall be implemented for soft-copies in order to prevent any unintended use.

4 POLLUTION PREVENTION SYSTEM

Pollution Prevention System to be implemented for the TANAP Project 56" Onshore Pipeline Construction Lot 2 shall be established as described in the following sections of this Pollution Prevention Plan. This plan shall be strictly adhered as part of the Environmental & Social Management System Project Manual in order to avoid/reduce all pollution impacts to an "As Low as Reasonably Practicable" level and achieve environmental and social objectives of the project.

4.1 POLLUTION PREVENTION OBJECTIVES

With the aim of protecting TANAP's/EPCM's/CONTRACTOR's environmental and social reputation, the main objective is to avoid/reduce air, water and land pollution impacts resulting from project activities to an "As Low as Reasonably Practicable" level. In order to meet this main objective, relevant supporting objectives are:

- ZERO harm to environment, people and assets
- ZERO pollutant release
- ZERO environmental violation
- ZERO reportable environmental incident
- No willful or reckless damage to environment, people and assets
- No regulatory penalties or prosecution for pollution incidents
- Pro-active management of pollution prevention requirements
- Prevention/reduction of waste generation to the extent possible
- Promoted reuse and recycling
- Proper waste identification, segregation, collection, storage, treatment and disposal

- Controlled/reduced gas emissions
- Controlled noise and vibration
- %100 compliance with training/skill development programs' requirements
- %100 compliance with project requirements
- %100 compliance with applicable laws and regulations
- %100 compliance with relevant national and international standards
- % 100 investigation of major spills and/or dissemination incidents
- % 100 implementation of corrections and corrective actions
- % 100 implementation of preventive actions
- % 100 investigation and timely feedback of the complaints
- Implementation of industry best practice

4.2 RESPONSIBILITIES

Project Manager, Deputy Project Managers, Environmental Manager, Social Manager, Environmental & Social Coordinators, Spread/Site Coordinators, Site Engineers, Supervisors, All the Employees, Subcontractors and Suppliers shall be responsible to ensure the implementation of the pollution prevention principles.

All management and supervisory personnel shall work at all times to develop and support environmental & social consciousness and maintain a cooperative attitude among employees regarding pollution prevention issues.

All management and supervisory personnel shall set an example by complying with the pollution prevention requirements, policies, procedures, rules, regulations and orders.

4.2.1 Project Manager

- Ensure that Pollution Prevention Plan, any relevant procedures/instructions, sub-plans and/or method statements of the project are effectively implemented
- Ensure that the personnel are well aware of their pollution prevention responsibilities

- Ensure that all pollution prevention, housekeeping and waste management non-conformities are investigated and appropriate corrections and corrective actions are implemented

- Actively contribute to the extent possible to the investigation of all the pollution, housekeeping, waste management non-conformities together with the Environmental & Social Manager/Coordinator to determine root causes and establish remedial measures to prevent re-occurrence

- Ensure that all the project personnel receive pollution prevention, housekeeping and waste management training

- Oversee and promote the overall pollution prevention, housekeeping and waste management performance and enforce necessary actions

- Conduct frequent site visits and monitor pollution impacts of the project

- Provide necessary resources for pollution prevention issues

- Ensure arrangements for pollution prevention, housekeeping and waste management training programs

4.2.2 Deputy Project Managers, Spread/Site Coordinators, Engineers, Supervisors, Foremen

- Ensure effective supervision of the work areas and implement all the required standards as per the Pollution Prevention Plan, any relevant procedures/instructions, sub-plans and/or method statements

- Implement good housekeeping and waste management practices in their areas of activity

- Arrange pre-task meetings before starting any work

- Ensure that all subordinates are trained on basic pollution prevention, housekeeping and waste management requirements

- Report all the pollution, housekeeping and waste management incidents to the Environmental & Social Manager/ Coordinator without any delay.

- Ensure that the relevant pollution prevention, housekeeping and waste management instructions, signs and symbols are displayed in the prominent areas

- Perform daily/regular inspections of the pollution prevention, housekeeping and waste management practices

- Ensure correction of all the pollution, housekeeping and waste management non-conformities

4.2.3 Environmental Manager

- Organize and coordinate all the pollution prevention, housekeeping activities
- Ensure effective implementation of the Pollution Prevention Plan, any relevant procedures/instructions, sub-plans and/or method statements and enforce housekeeping and waste management requirements
- Ensure that pollution prevention, housekeeping and waste management requirements, policies, plans, procedures, etc. are communicated to all the personnel within the organization as well as subcontractors and suppliers
- Conduct frequent site visits and monitor the activities
- Conduct periodical inspections to evaluate the pollution prevention, housekeeping and waste management performance
- Oversee and coordinate pre-determined relevant monitoring and measurement activities
- Prepare/update respective documents as per the requirements
- Give instructions and guidance to all the personnel on pollution prevention, housekeeping and waste management matters
- Actively participate in the relevant meetings
- Conduct/oversee pollution prevention, housekeeping, waste management training sessions for the personnel before and after the commencement of the site activities
- Prepare relevant periodic and/or on-demand reports
- Investigate relevant near-misses and incidents and initiate/enforce necessary corrections and corrective actions
- Oversee all the pollution prevention, housekeeping and waste management non-conformities and ensure the implementation of the required corrections and corrective actions
- Ensure that all documentation is collected, reviewed, completed, recorded and reported as required

4.2.4 Workforce

- Receive environmental training prior to the start of construction activities
- Strictly comply with pollution prevention, housekeeping and waste management rules, procedures and instructions

- Fulfill their specific duties for pollution prevention, housekeeping and waste management requirements
- Report all the relevant near misses/incidents and non-conformities to the superior immediately
- Use machineries, vehicles, tools, equipment and materials as instructed
- Clean up the work area immediately after finishing the work
- Be alert in case of spills and act as per the spill response procedures and training

4.3 TRAINING & AWARENESS

The CONTRACTOR shall ensure that all the employees (including subcontractors and suppliers) are competent on the basis of appropriate education, training and/or experience.

In order to develop and maintain skills and competencies of the employees and to raise awareness on requirements and measures in order to avoid relevant adverse impacts on the environment and the community, training programs shall be implemented as per the Recruitment & Worker Management Plan (SYA-PLN-SOC-GEN-004) and HSES Training Matrix which shall be separately submitted.

In-house training programs shall be developed and introduced by the Project's Training Center Staff, namely by the Environmental Instructor and/or Social Instructor. Environmental & Social Manager and/or Environmental & Social Coordinator(s) shall also provide training programs as required.

Outsourced training programs shall be organized as per national legal requirements and/or international best practice.

Training programs shall include, but might not be limited to, the following:

- Environmental & Social Site Induction
- Periodical Environmental & Social Trainings
- Training for New Tasks
- Toolbox Talks
- Refreshment Trainings

As part of the Recruitment & Worker Management Plan (SYA-PLN-SOC-GEN-004) which shall be separately submitted, customized training programs regarding this Pollution Prevention Plan shall be introduced to all the employees including subcontractors and suppliers in order to ensure them to understand and internalize the requirements of this Pollution Prevention Plan and any relevant procedures/instructions, site-specific sub-plans and/or method statements.

These training programs shall be customized so that all the employees including subcontractors and suppliers can understand the following topics:

- Requirements of this Pollution Prevention Plan and how to implement them on site
- Procedures to follow and mitigation measures to implement in case of any spill or other pollution incident
- In addition to the above mentioned general training topics, specific training programs shall be introduced to all the employees including subcontractors and suppliers depending on their project specific tasks. These training programs shall include but not be limited to the following topics:

  - Waste management (identification, segregation, collection, re-use, transportation, storage, treatment and disposal)
  - Pollution prevention management
    - Dust control
    - Noise control
    - Vibration control
  - Spill response management, usage of spill response equipment

4.4 COMMUNICATION

The CONTRACTOR shall establish, implement and maintain a Communication Procedure with regard to its Environmental & Social Management System (Requirements for communication with the stakeholders shall be fulfilled as described in the Community Relations Plan (SYA-PLN-SOC-GEN-003) which shall be separately submitted).

HSES (Health & Safety, Environment & Social) communication within the Project shall be ensured through Project HSES Meetings, HSES Notice Boards, HSES Booklet and any other available means like letters, reports, etc.

Furthermore, with a view to improvement, all the management and supervisory personnel shall adopt an “Open Door Policy” to encourage employees to comment on the existing system at any time.

4.5 DOCUMENTATION

Documentation structure of the CONTRACTOR is as follows:

Main Documents: Environmental & Social Policy, Environmental & Social Management System Manual, Plans, Sub-Plans, Method Statements, Procedures, Instructions

Support Documents: Objectives, Programs, Charts, Lists (including Current External Documents List covering all the legal and contractual documents, standards, codes, etc.)

Records: Forms, Reports, Minutes

4.6 CONTROL OF DOCUMENTS

The CONTRACTOR shall ensure control of documents required for its Environmental & Social Management System and Pollution Prevention Plan in accordance with the requirements specified under the “Document Control Procedure”.

4.7 POLLUTION PREVENTION PLAN

The following general requirements shall be fulfilled regarding pollution prevention practices:

- The CONTRACTOR shall identify and assess pollution aspects and impacts of its activities, products and services in accordance with the “Environmental & Social Aspect & Impact Assessment Report” (the activities of the subcontractors and suppliers shall be also taken into consideration).

- The CONTRACTOR shall comply all the applicable legal and contractual requirements that it shall fulfill related to its environmental and social aspects.

- Actions to response in a planned manner to minimize potential damages due to spills shall be implemented as per the Spill Response Plan (SYA-PLN-ENV-GEN-004) which shall be separately submitted.

- Identification of waste streams and waste management actions including minimization, re-use/recycling, collection, storage, treatment, transportation and disposal of hazardous and non-hazardous waste shall be performed as described in the Waste Management Plan (SYA-PLN-ENV-GEN-003) which shall be separately submitted. Waste codes shall be applied as per the Regulation on Waste Management General Principles, licensed contractors shall be used for waste disposal, and any waste analyses shall be performed for waste types specified in the same regulation through licensed contractors.

- Measures to avoid/reduce water pollution are specified in the Pollution Prevention Plan (SYA-PLN-ENV-GEN-005) to some degree; however the impacts of project activities on surface water and groundwater shall be mainly managed as detailed in and as per the Water Courses Impact Management Plan (SYA-PLN-ENV-GEN-013) which shall be separately submitted.

- The requirements to be fulfilled and rules to be applied for camp management activities shall be implemented as per the Camp Management Plan (SYA- PLN-ENV-GEN-015) which shall be separately submitted.

Key Aspects and Monitoring/Measurement & Reporting for Pollution Prevention Plan:

- Hazardous and non-hazardous chemicals shall be handled, stored, used and disposed as per manufacturers' instructions as described in the Material Safety Data Sheets (MSDSs). For disposal details, please see the Waste Management Plan (SYA-PLN-ENV-GEN-003).
- Copies of the MSDSs for each chemical shall be available in the same location as to where the chemicals are stored.
- Any legal/contractual requirements/limitations/prohibitions shall be strictly implemented to avoid/reduce pollution impacts.
- The Area where fuel or chemicals will be used, stored or handled shall be away from 30 m of a watercourse for preventing pollution. Special attention shall be paid for restrictions related to chemical use and/or re-fueling at/near watercourse crossings*.*
- Work procedures, re-fueling procedures and maintenance & repair procedures shall be strictly implemented to avoid accidental spills and/or any other hazards.
- Chemicals shall be properly stored in designated locations as per the layout plans to be established. Chemicals should be stored in secondary containments. They should be properly labelled. Dangerous and reactive chemicals should not be stored together, incompatible chemicals shall not be stored in areas where there exists the possibility of reaction.
- The storage of chemicals that pose potential environmental hazards shall be kept to minimum quantities.
- Storage areas shall be established in a manner so that any spills shall be easily contained or flooding shall be avoided.
- A shelter shall be established around the chemical storage area with cover and wind protection.
- A hazardous material register shall be kept and regularly updated (identification and amount, characteristics such as ignitable, corrosive, toxic, reactive, etc., main dangers for users, etc.) by Spread Environmental Supervisor.
- Containers of chemicals or chemical waste shall be properly labeled in Turkish and in English (name, solid/liquid, etc., main dangers for users, characteristics, storage start date, etc.).
- Required measures that is explained to Waste Management Plan (SYA-PLN-ENV-GEN-003) shall be implemented in order to avoid/reduce the impacts due to dust, particulate and gaseous emissions.
- Required noise and vibration control measures shall be implemented (including the ones for transportation, and blasting if applicable) (regular maintenance of access roads, prevention of machinery idling, limitations of activities within close proximity of villages, high sensitivity/protected areas, etc.).
- Particular measures shall be considered and applied for high sensitivity/protected areas as listed in the TANAP Project ESIA Report and Biodiversity Action Plan (CIN-REP-ENV-GEN-017).
- No blasting shall be performed in high sensitivity/protected areas.
- Particular fire prevention procedures shall be applied to reduce/control negative impacts in case of a fire.
- Regular maintenance and repair activities shall be conducted for machinery, vehicles and plants including mitigations to control exhaust emissions.

- Dust suppression and control measures shall be implemented as required. The watering will be performed periodically with water browser to dust emission.
- Pollution/erosion/siltation control measures for water courses shall be further detailed and implemented as per the Water Courses Impacts Management Plan (SYA-PLN-ENV-GEN-013) which shall be separately submitted. Specific mitigation measures shall be implemented for river and channel crossings as per the Water Courses Impacts Management Plan (SYA-PLN-ENV-GEN-013). Natural drainage channels shall be maintained to the extent possible.
- Interaction with third party water supplies shall be managed under controlled conditions as per the Water Courses Impacts Management Plan (SYA-PLN-ENV-GEN-013).
- Regular monitoring/measurement and reporting activities shall be performed as per the Environmental Monitoring Plan (SYA-PLN-ENV-GEN-002) which shall be separately submitted

4.7.1 Management of Noise, Vibration & Pollution Impacts on Air Quality

Mitigation measures presented in the following paragraphs shall be applied in order to avoid/reduce the impacts due to the dust, particulate and gaseous emissions, as well to noise and vibration.

Taking into account the major impacts acting on the component in the protected areas, particular attention shall be paid for the implementation of mitigation measures to minimize dust and gaseous emissions.

In order to prevent and minimize the dust emission to be observed from the excavation, backfilling and works of loading, transportation, unloading and storage of excavation materials, and due to the explosion works to be conducted on route in case of necessity during land preparation and construction phases of the Project, pre-cautions such as irrigation at emission source, loading and unloading without blowing, covering vehicles by cloth on top during transportation.

Dust management shall be maintained by spraying the areas with water where explosion is going to be performed before the activity.

During the dry season without precipitation, starting from the activities of vegetable soil stripping, the project construction area shall be humified periodically and dust generation shall be minimized.

During the construction stage, relevant Turkish, EU Legislation and IFI standards shall be followed in order to minimize noise.

During all phases of the Project, the limit values indicated in the Regulation on Air Quality Assessment and Management Appendix-I that came into force by the Official Gazette dated 06.06.2008 and numbered 26898 shall not be exceeded, the articles of Regulation on Industrial

Air Pollution Control that came into force by the Official Gazette dated 03.07.2009 and numbered 27277 shall be complied with.

Additionally, in order to minimize the emissions, machineries and vehicles shall be used after examination and exhaust gas emission measurements conducted. All vehicles shall have the exhaust gas emission certificate from the Ministry of Environment & Urbanization.

Relevant Turkish legislation on speed limits depending on the type of machineries and vehicles and roads shall be obeyed.

Machineries and vehicles shall be controlled periodically, the ones requiring maintenance or repair shall be removed from service and other machineries and vehicles shall be used until their maintenance or repair is over.

Project Air Quality Standards

SO2 (µg/m3)	Hourly	350 (2019) (not to exceed more than 24 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	24 hr	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	Yearly and Winter Season (Oct 1 – March 31) (for wildlife and ecosystem)	20 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
NO2 (µg/m3)	Hourly	200 (2024) (not to exceed more than 18 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
	Yearly	30	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality

			– Guidelines for Europe (for ecosystem)
NOx (µg/m3)	Yearly (for vegetation)	30 (2014)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
PM10 (µg/m3)	24 hr (For human health)	50 (2019) (not to exceed more than 35 times in a year)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values)
	Yearly (for human health)	20 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
PM2.5 (µg/m3)	24 hr	25 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
	1 year	10 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health
Lead (µg/m3)	Yearly (human health) (LTL)	0.5	Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
Benzene (µg/m3)	Yearly	5 (2021)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
CO (mg/m3)	Max daily 8 hr average	10 (2017)	Ambient Air Quality Limits of Turkish Regulation on Air Quality Assessment and Management (Annex I: Future Target Values) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air For Europe
Ozone (µg/m3)	Maximum daily 8 hr average	100 (guideline)	WHO Ambient Air Quality Guidelines- IFC General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality – General Guidelines for Human Health

LTL: Long Term Limit

STL: Short Term Limit

Construction activities will affect noise and vibration mainly through emissions from the activity of machinery/vehicles, blasting if applicable, excavation in rocks, induced traffic for the transportation of construction material, and stationary sources like power generators.

For all the protected areas the high impacts related to the increase in the vibration level are related to the construction of most impacting project elements within 200 m from the protected areas.

Mitigation measures presented in the following paragraphs shall be applied during the construction phase in order to reduce the impacts due to the emission of vibration.

Any blasting operation shall be subject to the EPCM's/TANAPs prior approval.

Before blasting operation, the time period of the blasting shall be announced to the local people that are close enough to be affected, by using appropriate vehicles or tools. Blastings shall only be made during daytime periods and distance between the holes, direction of the holes and explosive quantity to be used shall be designed according to the nature of the area. Holes shall be compressed firmly and thus, the risk of tossing of pieces into the air would be greatly prevented. Also, since the blastings shall be made with delayed capsules, vibration created would be minimized.

During the project activities the "Bylaw on Methods and Principles for the Production, Import, Transportation, Hiding, Storage, Sale, Utilization, Destruction, Inspection of Explosive Materials outside the Monopoly and Hunting Materials and Similar" published in the Official Gazette 29.09.1987 dated and 19589 numbered shall be complied with.

There shall not be any explosions in the Protected and Sensitive areas.

Turkish Ambient Noise Limits for Construction Sites

Turkish Ambient Noise Limits Generated by Construction Sites (Regulation on Assessment and Management of Ambient Noise Annex-VII Table 5) (04.06.2010 dated and 27601 numbered)	
Activity (construction, demolition and renovation)	**LAeq (dBA)**
	Day-time (06:00 – 19:00)
Building	70
Road	75
Other sources	70

Maximum Allowable Vibration Values for Nearest Sensitive and Highly Sensitive Areas due to Blasting

Maximum Allowable Vibration Values for Nearest Sensitive and Highly Sensitive Areas because of Blasting in Mining Areas and Quarries (Regulation on Assessment and Management of Ambient Noise Annex-VII Table 6) (04.06.2010 dated and 27601 numbered)	
Vibration Frequency (Hz)	**Maximum Allowable Vibration Speed (Peak Value – mm/sec)**
1	5
4-10	19
30-100	50

Noise Standards for Construction Sites

Noise Standards for Construction Sites		
Activity (Construction, Demolition and Renovation)	**Noise Level**	**Reference regulatory requirement**
	LAeq (dBA) Day-time (06:00 – 19:00)	
Building	70	Regulation on Assessment and Management of Ambient Noise - Turkish Ambient Noise Limits Generated by Construction Sites
Road	75	
Other sources	70	

All the relevant measures shall be implemented as further detailed below:

- Dust control and dust suppression techniques shall be implemented especially on unpaved roads such as, but not limited to by watering with water browser.
- Premises and stationary equipment shall be located as far possible from the residential/social buildings, and noise barriers shall be used to mitigate the noise level on sensitive receivers on whom significant noise impacts are expected
- Project activities shall be limited to the extent possible within close proximity of villages, hospitals, schools, etc. and high sensitivity/protected areas
- While working close or in the vicinity of any settlement (villages, detached housing etc.) special attention shall be paid to prevent dust movement
- Roads shall be maintained on a regular basis to prevent excessive dust generation
- Low emission machineries and vehicles shall be used wherever possible
- Third party vehicle access shall be restricted to project areas
- Regular maintenance programs shall be implemented for machineries and vehicles to prevent excessive dust generation
- Tools and equipment shall be maintained on a regular basis
- Idling of machineries and vehicles shall be restricted

- Quieter methods and machineries, vehicles and equipment shall be used if possible

- Project access roads shall be maintained to reduce impacts associated with vibration and noise due to machineries and vehicles

- Speed limits shall be enforced along access roads and ROW

- Project traffic routing through community areas shall be reduced wherever possible

- Construction activities shall be conducted during daylight hours and night works shall be avoided to the extent possible to reduce disturbance to local communities due to noise and vibration emissions, when it cannot be avoided any night works shall be subject to the EPCM's/TANAP's prior approval and local authorities and local communities shall be informed with 48 hours' notice

- High efficiency mufflers shall be used on all construction machineries and equipment

- Engines shall not be left in operating mode when they are not used

- Engine covers shall be kept closed when the machinery or equipment is in operation in order to minimize noise

- Parts generating excessive noise shall be replaced or repaired

- Temporary noise barriers shall be deployed near sensitive areas

- Noise and vibration risk assessments shall be performed for residential/social areas close to construction activities

- All the necessary measures shall be taken in order avoid noise impacts in the vicinity of noise-sensitive receivers such as settlements, schools, hospitals and vulnerable ecologies. Dust emitting material stocks and the trucks transporting such material shall be covered with appropriate material to prevent flown caused by wind
- Monitoring air, noise and vibration will be conducted according to Monitoring Plan. Monitoring by third party will be conducted with placing monitoring and measuring equipment/stations on effected areas.

4.7.2 Management of Water Pollution

4.7.2.1 Management of Pollution Impacts on Surface Water Courses

Requirements to avoid/reduce surface water pollution are specified in this Pollution Prevention Plan (SYA-PLN-ENV-GEN-005) to some degree, however the impacts of project activities on surface water shall be mainly managed as detailed in and as per the Water Courses Impact Management Plan (SYA-PLN-ENV-GEN-013) which shall be separately submitted.

These requirements are summarized as follows:

- For wastewater discharge please see Section 4.7.2.3 Wastewater Management Highlights of this Pollution Prevention Plan

- Spill response equipment shall be in place at river crossing areas and with every crew working on the ROW

- Vehicle crossings across the watercourses shall be avoided. Temporary vehicle crossings/bridges shall be installed and used.

- Direct access of the machineries and mechanical equipment to waterway shall be kept at minimum and only for the construction of crossing/bridges. When they require to the waterway, all the machineries and mechanical equipment shall be checked for any fuel and grease leakage before they enter the waterway

- All the machineries and equipment working near watercourses shall be kept clean and free of fluid leaks at all times

- Fishing by project personnel at watercourses shall be strictly prohibited.

- Construction activities shall be limited to periods of low flow to the extent practicable, when sediments are minimal.

- Appropriate sediment and erosion control techniques shall be implemented and maintained (e.g., silt fences around all riparian disturbance areas and watercourse crossings).

- Channel banks shall be restored and stabilized immediately after backfilling to prevent bank erosion

- Clean, native materials shall be used during bed and bank restoration works

- Gravels and other type of materials shall be prevented/minimized from entering into the streams

- Watercourse turbidity, watercourse beds and banks shall be regularly inspected and monitored and any required corrective actions and/or restoration efforts shall be immediately implemented where required

- Natural or mechanized filtration processes shall be implemented to prevent turbid water from re-entering the watercourse

- Construction shall be performed in a manner that avoids natural channel features

- Refueling and chemical handling activities shall be restricted in close vicinity of the watercourses. Per the Pipeline Construction Specification; Water Protection Zone (WPZ) will be established. Within these zones no refueling shall take place and shall ideally extend 30m from the watercourse

- Aquatic flora and fauna issues shall be managed as per the Flora & Fauna Management Plan (SYA-PLN-ENV-GEN-008) which shall be separately submitted. Construction shall be planned considering seasonal sensitivities and special measures shall be implemented to protect sensitive species

Water Quality Classification for Inland Water in Turkish Regulation on Management of Surface Water Quality

Turkish Regulation on Management of Surface Water Quality (30.11.2012 dated and 28483 numbered)					
Water Quality Classification					
PARAMETERS	Unit	Water Quality Classes			
		Class I	Class II	Class III	Class IV
General Conditions					
Temperature	°C	≤ 25	≤ 25	≤ 30	> 30
pH		6,5-8,5	6,5-8,5	6,0-9,0	<6.0 or >9.0
Conductivity	µS/cm	< 400	400-1000	1001-3000	> 3000
Colour		# of Chromaticity 436 nm: 1.5 # of Chromaticity 525 nm: 1.2 # of Chromaticity 620 nm: 0.8	# of Chromaticity 436 nm: 3 # of Chromaticity 525 nm: 2.4 # of Chromaticity 620 nm: 1.7	# of Chromaticity 436 nm: 4.3 # of Chromaticity 525 nm: 3.7 # of Chromaticity 620 nm: 2.5	# of Chromaticity 436 nm: 5 # of Chromaticity 525 nm: 4.2 # of Chromaticity 620 nm: 2.8
(A) Oxygenating Parameters					
Dissolved Oxygen (O_2)[a]	mg O_2/l	> 8	6-8	3-6	<3
Oxygen Saturation (%)[a]	%	90	70-90	40-70	<40
Chemical Oxygen Demand (COD)	mg/l	<25	25-80	50-70	>70
Biological Oxygen Demand (BOD)	mg/l	<4	4-8	8-20	>20
(B) Nutrient Parameters					
Ammonia as N (NH_4^+-N)	mg/l	<0.2[b]	0.2-1[b]	1-2[b]	>2
Nitrite as N (NO_2^--N)	mg/l	<0.002	0.002-0.01	0.01-0.05	>0.05
Nitrate as N (NO_3^--N)	mg/l	<5	5-10	10-20	>20
Total Kjeldahl Nitrogen as N	mg/l	0.5	1.5	5	>5
Total Phosphorus (P)	mg/l	<0.03	0.03-0.16	0.16-0.65	>0.65
(C) Trace Elements (Metals)					
Mercury (Hg)	µg/l	<0.1	0.1-0.5	0.5-2	>2
Cadmium (Cd)	µg/l	≤ 2	2-5	5-7	>7
Lead (Pb)	µg/l	≤ 10	10-20	20-50	>50
Copper (Cu)	µg/l	≤ 20	20-50	50-200	>200
Nickel (Ni)	µg/l	≤ 20	20-50	50-200	>200
Zinc (Zn)	µg/l	≤ 200	200-500	500-2000	>2000
(D) Bacteriological Parameters					
Fecal Coliform	EMS/100 mL	≤ 10	10-200	200-2000	>2000
Total Coliform	EMS/100 mL	≤ 100	100-20000	20000-100000	>100000
Hazardous Materials	Hazardous materials and pollutants that are not given in this table will be evaluated as of January 1, 2015 after the country inventory is formed.				
(a) It is sufficient to satisfy one of the parameters that are Dissolve Oxygen Concentration and Oxygen Saturation Percent					

(b) Depending on the pH value the free ammonia nitrogen concentration should not exceed 0.02 mg NH_3-N/L

Class I	**High Quality Water**	**1. Surface waters with a high potential for drinking water** **2. Recreations purposes(including swimming)** **3. Trout production (fish farming)** **4. Livestock raising and farming**
Class II	**Slightly Contaminated Water**	**5 Surface waters with a potential for drinking water** **6 Recreations purposes** **7 Fish farming except trout farming** **8 Can be used for irrigation purposes provided the irrigation water quality criteria is met**
Class III	**Contaminated Water**	**Can be used for industrial water supply with a proper treatment except for food, textile, etc. industries that require high quality water**
Class IV	**Heavily Contaminated Water**	**Of lower quality than the quality parameters given for Class III and can be used with improving quality to the other classes**

Water pollution monitoring will be conducted by Spread Environmental Supervisor according to Environmental Monitoring Plan, measurements will be conducted by a third party monitoring company.

4.7.2.1.1 River Crossing Highlights

Necessary measures shall be taken in order to protect water passages against pollution, to minimize sedimentation, to mitigate the impacts on vegetation along the water passages, and to restore the water passages to the condition before construction. Such as, but not limited to installation of ripraps, gabions, reinforcing river banks with soil bags etc. according to approved reinstatement Method Statement.

Site-specific construction measures shall be implemented as per the construction drawings. These measures shall cover but not be limited to the following:

- Water crossings shall be planned and designed not to affect the stability and long-term functioning of the water courses
- De-plantation along the river/stream shall be kept at minimum and old trees shall not be cut
- The typical drawings produced for the water course crossings shall be strictly adhered to, and site-specific construction drawings and method statements shall be developed subject to the EPCM's/TANAP's approval.

- The selected crossing method for the individual water crossing shall be verified to be functional to reduce the temporary detrimental effects on the watercourses like reduction of the water quality (e.g. due to the sediment suspension) and negative ecological consequences (e.g. due to removal of riparian vegetation, decrease/changes of stream flow, alteration of natural morphology).

- The activities into the streambed and on the river banks shall be reduced, e.g. by means a trenchless river crossing method, where technically feasible (Trenchless and isolation methods shall be used as stipulated by the engineering specifications, ESIA Report and Appendix 4-7 of the ESIA Report).

- Any construction material and structure shall be removed from the waterway after the construction is completed

- River canals, river beds and riversides shall be restored, and rehabilitation measures shall be taken if necessary

- River crossings shall be restored to the pre-construction condition in line with specific construction drawings

4.7.2.2 Wastewater Management Highlights

The following specific considerations shall be applied for wastewater management:

- All required permits shall be obtained by site spread environmental & social coordinator in coordination with the permit department to discharge wastewater to the receiving environment

- Wastewater shall be discharged to surface water resources after treatment and adequate testing in compliance with the applicable regulatory requirements

- Discharge of water from the pipeline trenches, conducted in areas where water table is high shall comply with the relevant Turkish and EU Legislation and IFC standards

- Water resulting from the dewatering of the canal or the construction site shall not be discharged directly into a water body or a wetland

- During pumping operations, water shall be pumped at a speed and flow not causing any destruction in the river bed (stationary pumps shall be installed in in secondary containment at all times, silty water shall be filtered adequately prior to discharge)

- Measures shall be in place to avoid silt or turbid discharge water from trench or construction site dewatering operations to be discharged to any watercourse

- Wastewater shall be separated from hazardous/oily water prior to discharge

- Measures to minimize scour and reduce sediment load shall be implemented at locations where hydrotest water will be discharged to watercourses and discharge velocities have the potential to create erosion (e.g. controlled rate of discharge and use of energy dissipaters, displacement of geotextile mats or other physical erosion prevention measures). However, at locations where hydrotest water discharge causes erosion, eroded areas shall be reinstated (for further details please see the Hydrotesting Plan which shall be separately submitted).

  Monitoring will be conducted according to Environmental Monitoring Plan during the construction activities. Samples will be taken and send to third party laboratories for testing to check the compliance with project discharge criteria's.

4.2.2.3.1 Hydrotest Water Discharge

Wastewater resulting from the hydrostatic test shall be treated with appropriate methods in order to satisfy the standards specified in the "Regulation on Water Pollution Control (RWPC)" dated 31.12.2004 and numbered 25687 (Please see relevant below table). In addition to the limits defined in the RWPC, limit values determined by IFC (Environmental, Health, and Safety Guidelines for Onshore Oil and Gas Development) shall also be respected (Please see relevant below table).

Wastewater discharge shall be performed ensuring the legally allowable discharge limits in accordance with the Waste Management Plan (SYA-PLN-ENV-GEN-003) which shall be separately submitted (for further details for hydrotest water discharge, please also see the Hydrotesting Plan which shall be separately submitted).

Hydrotest Water Discharge Limits in IFC Standards

Parameter	Limits
Total Hydrocarbon Content	10 mg/L
pH	6-9
BOD	25 mg/L
COD	125 mg/L
Total Suspended Solids	35 mg/L
Total Phenols	0,5 mg/L
Sulfides	1 mg/L
Heavy Metals (total)	5 mg/L
Chlorides	600 mg/L (Average) 1.200/L (Maximum)

Monitoring of hydrotest water discharge will be conducted according to Environmental monitoring plan. Samples will be taken and send to third party laboratories for testing to check the compliance with project discharge criteria's.

4.7.2.3.2 Domestic Wastewater Discharge

Domestic wastewater resulting from camps, offices and other premises shall be treated in the compact wastewater treatment plants and discharged to the receiving environment mentioned in discharge permit provided that discharge water characteristics are in accordance with the standards specified in the "Average Discharge Standards to Receiving Environment for Domestic Wastewater" given in the “Regulation on Water Pollution Control (RWPC)" dated 31.12.2004 and numbered 25687; in addition to the limit values given in the RWPC, the limits specified in the IFC General Environmental, Health and Safety Guidelines and EU Guidelines shall be respected (Please see relevant below table).

Domestic wastewater discharge quality shall be monitored by a third party monitoring Company on monthly basis as a minimum and more often when the test results are not in compliance with project discharge limits.

Project Domestic Wastewater Discharge Standards

Parameter	Unit	Concentration (mg/L)	Minimum Treatment Efficiency (%)	Reference Regulatory Requirements
Biochemical Oxygen Demand (BOD5)	mg/L	25	70-90 40	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Chemical Oxygen Demand (COD)	mg/L	125	75	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Suspended Solids (SS)	mg/L	35 60 (2,000-10,000 population equivalent)	90 70 (2,000-10,000 population equivalent)	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
pH	-	6-9		IFC General EHS Guidelines
Total Nitrogen	mg/L	10		IFC General EHS Guidelines
Total Phosphorus	mg/L	2		IFC General EHS Guidelines
Oil and Grease	mg/L	10		IFC General EHS Guidelines
Total Coliform Bacteria	MPN**/100mL	400*		IFC General EHS Guidelines

* Not applicable to centralized, municipal wastewater treatment systems that are included in EHS Guidelines for Water and Sanitation

** MPN = Most Probable Number

The provisions set in Turkish Urban Wastewater Treatment Regulation of which the discharge quality standards will be valid by 31.12.2014 are exactly the same with the provisions set in EU Directive 91/271/EEC on Urban Wastewater Treatment. The EU Directive 91/271/EEC sets the general rule of secondary treatment in all areas, and tertiary treatment with enhanced removal of nutrient is required for sensitive areas.

For the compact wastewater treatment plants, an approval shall be obtained as per the Wastewater Treatment/Deep Sea Discharge Plant Project Approval Circular dated 15.03.2012 and numbered 2012/9. As well as the Discharge permit, typical project approval for wastewater treatment plants shall be taken regarding the public mandate.

Environmental Permission Certificate shall be obtained from the relevant Provincial Directorate of Environment and Urbanization for the discharge of treated wastewater according to the provisions of the "Regulation for The Permissions and Licenses to be Obtained According to the Environment Law" numbered 27214 and dated 29.04.2009 and provisions specified in the amendments of this regulation.

4.7.2.3.3 Dewatering

During the pipeline construction works, for water collected in the excavated trenches, which is full of sediment, a sedimentation process shall be applied before discharging this to the receiving environment.

The ditch water shall be discharged by submerged pumps after being treated in sedimentation ponds to be established along the project route. Pumps and fuel will be in secondary containments at all time.

The sediment material collected from the sedimentation ponds shall be disposed in nearest approved disposal facilities.

Monitoring of the dewatering activities will be conducted according to Environmental Monitoring Plan. Samples will be taken and send to third party laboratories for testing to check the compliance with project discharge criteria's.

4.7.3 Management of Pollution Impacts on Land

During construction works, provisions of Regulation on Control of Excavation Soil and Construction Debris and also provisions of the Regulation on Control of Soil Pollution and Contaminated Lands by Point Sources shall be complied with.

The following measures shall be implemented to avoid/reduce pollution impacts on land:

- The top soil shall be stored along the RoW or in an appropriate area
- The area where the top soil would be stored shall not have more than 5% inclination
- Natural drainage patterns shall be maintained to the extent possible
- Double handling of top soil shall be minimized

- Soil handling activities shall be minimized during high wind conditions

- Necessary protection measures shall be taken to prevent top soil from being scattered by wind or water streams or other factors, from being mixed with foreign materials/subsoil and from being polluted and/or deteriorating with respect to soil quality.

- Necessary protection measures shall be taken to minimize erosion and sediment load as per the Erosion Control, Reinstatement & Landscaping Plan (SYA-PLN-ENV-GEN-007) which shall be separately submitted (including use of geotextile where required e.g. at restricted spaces, grading, contouring and the maintenance of slope lengths and slope gradient, use of slope breakers, etc.)

- The excavation soil that will be taken out during the pipeline construction shall at first be accumulated throughout the route in order to be used for bedding, padding and backfilling. The excavation material remaining after bedding, padding and backfilling process shall be used for reinstatement of roads and land preparation. Remaining excavation soil shall be stored on permitted sites.

- Waste excavation material (soil, rock) shall be handled as per the Waste Management Plan (SYA-PLN-ENV-GEN-003) which shall be separately submitted.

- Any soil contamination identified shall be immediately addressed in strict compliance with the Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources dated 08.06.2010 and numbered 27605.

- Special attention shall be paid in the areas where there is high contamination risk and heavy metal contamination potential (as per the ESIA Report, Appendix 4.5 and Chapter 8.1, Table 8.1.2.8).

Measures shall be implemented for safe storage, handling, transport and disposal of chemicals including fuels and greases in order to prevent soil and water pollution. These measures shall particularly include but not be limited to the following:

- Hazardous materials shall be selected as per best practice, taking into consideration any legal/contractual limitations/prohibitions.
- Hazardous materials such as fuel, lubricants, paints, solvents, etc. shall be properly stored in designated locations and in adequate secondary containments, as required by manufacturer's instructions through relevant MSDS (Material Safety Data Sheet).
- All storage areas shall be located such that any spill should be easily contained and be out of flooding occurrence
- A shelter shall be established around the area with cover and wind protection
- All the HazMat storage or use areas (Workshops, Garages & Storage Areas) shall have their storm water drained and collected in hydrocarbon separator basins/pits before discharge
- Acids, coagulants and flocculants shall be stored separately to other HazMat.

- Shotcrete accelerators, chemical resins and cement grouts shall be stored together and shall be protected from weather impacts
- Fuels, lubricants and other chemicals shall be stored in tightly sealed containers that are clearly labelled in Turkish and in English
- There shall be containment bunds or dip trays for the storage of hazardous materials.
- Bunds shall be of sufficient capacity to contain at least the 110% of the volume of the largest tank. If the containment bund is not practical than dip trays shall be used.
- All the fuel, lubricant and chemical storages shall be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir
- All the machineries, vehicles, equipment and installations shall be checked for any fuel and grease leakage before use and shall be regularly monitored for leaks
- Maintenance procedures in line with the manufacturers' instructions shall be in place for all the machineries, vehicles and equipment
- Maintenance activities (including refueling) shall be performed at designated areas selected to be away from environmentally sensitive areas, (e.g. water courses, high groundwater levels and such)
- No storage of chemicals and/or refueling shall be performed within 30 m. of a watercourse
- Adequate amount of appropriate absorbents shall be kept in designated maintenance area in order to handle with leakages
- Machineries and vehicles shall never be left unattended in case of a jammed valve during maintenance or refueling activities
- Taps and valves shall be checked regularly for signs of wearing, and be securely closed and locked when they are not in use
- All the equipment and storage areas shall be secured properly with safety fences, and gateways shall be locked in order to prevent pollution which may arise from violent acts and thefts
- Site personnel shall be trained related to dissemination/spill response and use of dissemination/spill response equipment and also carry absorbents in their machineries and vehicles
- Good housekeeping practices shall be in place at camps, construction areas and at locations where construction related activities take place

Chemical management issues shall also cover the following:

- Identification and amount of all chemical materials used on site
- Hazardous characteristics of each material (ignitable, corrosive, toxic, reactive, etc.)

- Main dangers posed by each material (poison, burning, danger for eyes, skin, lungs, environmental pollution, etc.)
- A copy of the MSDS (Material Safety Data Sheet) for each chemical shall be available in the same location as where the chemicals are stored
- MSDS to be stored and used on site will be “clear and understandable” and “in Turkish” by the site staff in order to be able to use when required.

Containers of hazardous chemical or waste shall be labeled with:

- The words “Hazardous Chemical” or “Hazardous Waste”
- The name of the material and its physical state (solid, liquid, etc.)
- The hazard characteristics of the waste (ignitable, corrosive, toxic, reactive, etc.)
- Main danger for user (poison, burning, danger for eyes, skin, lungs, etc.)

Safety procedures with regard to handling and use of chemicals shall be applied as per the Health & Safety Management Plan (SYA-PLN-HSE-GEN-002) which shall be separately submitted. Safety rules shall be in Turkish and English and printed on posters to be displayed around where chemicals are to be used or handled.

Relevant personal protective equipment shall be provided to all the employees including subcontractors and suppliers involved in chemical use or handling, their use shall be enforced and monitored.

Monitoring will be conducted according to Environmental Monitoring Plan. Spread Environmental Supervisors will be responsible for the monitoring and inspections of Pollution prevention activities on a daily basis.

4.7.4 Requirements for Maintenance Areas

- An area with sealed floor, bunding and sump pit shall be established for all maintenance and refueling activities

- Oil and water separator traps shall be installed for treatment of runoff from maintenance facilities prior to discharge

- Spill trays shall be used during maintenance and repair activities, care shall be given in lubricating machineries and vehicles so that there are no or minimal spills.

- Chemicals shall not be discharged into sanitary or storm sewer systems or water source when cleaning machinery.

- Alternative methods shall be used when cleaning larger equipment parts, as far as practicable such as high-pressure, high-temperature water washes or steam cleaning.

- Small parts can be cleaned with degreasing solvents, which can then be reused or recycled.

- All petroleum waste shall be collected and stored in clearly marked closed drums in the designated stock yard and shall be forwarded for recycling through approved contractors. Stock yard shall be secured to prevent spill hazards.

- HSES Office shall be immediately notified in the event of any spill or release. All the necessary actions shall be taken to contain the affected area and to safely clean all contaminated surroundings.

- Rags or absorbent material used for cleaning shall be considered hazardous waste and shall be disposed of in compliance with legal/contractual requirements.

Monitoring will be conducted according to Environmental Monitoring Plan. Spread Environmental Supervisors will be responsible for the monitoring and inspections of Pollution prevention activities on a daily basis.

4.7.5 Housekeeping

High standards of cleanliness and workplace tidiness shall be maintained and tools and equipment shall be kept in good order at all times.

Work areas, all stairways, passageways, gangways and access ways must be kept free of materials, supplies and obstructions at all times.

Cleaning up and disposal off debris shall be performed on a daily basis. Special attention shall be given to the proper disposal of hazardous and flammable materials.

The foregoing materials including other debris resulting from construction activities shall be disposed of in the designated disposal area(s) as per legal/contractual requirements.

Inspection will be performed weekly and recorded to ensure that housekeeping requirements.

Monitoring will be conducted according to Environmental Monitoring Plan. Spread Environmental Supervisors will be responsible for the monitoring and inspections of Pollution prevention activities on a daily basis.

4.7.6 Waste Management

Identification of waste streams and waste management actions including minimization, re-use/recycling, collection, storage, treatment and disposal of waste shall be performed as

described in the Waste Management Plan (SYA-PLN-ENV-GEN-003) which shall be separately submitted.

Proper water drainage and separator/treatment systems or arrangements shall be in place before any discharge in order to ensure the allowable discharge limits.

Hazardous and non-hazardous waste shall be identified, segregated, stored, transported and disposed as per national legislation and project standards (through licensed contractors for recycling and disposal).

4.7.7 Refueling Procedure

- Bulk quantities of fuel shall be stored in a secure area in an overhead steel tank supplied and maintained by the CONTRACTOR. A 110% volume bund wall shall be provided for fuel and diesel areas to accommodate any spillage or overflow. Drainage water and oil/petrol shall be collected in oil trap before storm water is released in stream

- Fuel tanks shall be protected from accidental dislodgement by plant vehicles or natural causes

- Tanks and tankers shall be fitted with screw fitting connectors. A tap shall be provided between the tank and the hose. Fuel hoses shall be equipped with auto shut off valve to prevent overfilling

- Appropriate service vehicles shall be dedicated for the refueling of machineries and vehicles

- Tanker drivers shall have knowledge with regard to precautions which shall be taken to prevent environmental harm

- Fuel pump station shall be provided minimum 50 meters away from the camp area (fuel pump station shall be installed in secondary containment)

- Refueling of machineries and vehicles shall be performed via permanent station and/or mobile fuel trucks only

- Fire and accidental spill management posters shall be displayed on site. Non-smoking posters shall be displayed in each place where fuel is handled, used or stored.

- Ensure that there is an observer present throughout the following operations.
- Ensure that there is an operative trained in spill control close by and available in the event of a spillage.

- Where possible all refueling should be carried out within a permanent hard standing bunded area.

- Mobile phones and general sources of ignition must be isolated before commencing fuelling operation
- Plant and equipment should be turned off during re-fuelling process
- Before refueling commences, place a drip tray beneath the refueling point
- The refueling point during all refueling operations is where fuel is poured from one container and/or supply nozzle to another container and/or directly to equipment/vehicle.
- When refilling a portable fuel storage container from a supply hose and/or from another portable fuel storage container, the container (to be filled) should be placed within a drip tray before refueling begins.

  During the re-filling of a bulk storage fuel tank, ensure that all supply hoses and valves from the tank are closed before re-filling commences.

Refueling from bulk fuel storage with a supply nozzle:

- Ensure that a drip tray is in place
- Place fuel supply nozzle in portable fuel storage container and/or equipment/vehicle.
- Slowly squeeze trigger of supply nozzle to release fuel.
- Fuel should always be released slowly.
- The observer must check the equipment/vehicle fuel tank capacity meter during fuelling operation to avoid spillage through overfilling.
- When the fuelling is completed ensure that the supply hose nozzle is stored in an upright position and within a bunded area.

Refueling from a portable fuel storage containers:

- Place fuel funnel in fuel tank of equipment to be refueled.
- When refueling a portable fuel storage container, place fuel funnel in the container to be refueled.
- Slowly pour the fuel from the container to the funnel in the equipment and/or container, with a drip tray placed beneath this operation
- Ensure that lids of all containers are closed tight and are leak-proof after refueling process
- Ensure no excess fuel is dripping from the fuel funnel before it is removed.
- Ensure no excess fuel is dripping from the equipment and container after refueling
- Store portable fuel storage containers and fuel funnel within a bunded area when not in use
- Ensure that a spill, should one occur, is immediately dealt with by an operative trained in spill control.
- Report all spills directly to a supervisor.
- Report all spills directly to the on-site Environmental Supervisor.

4.8 SUBCONTRACTOR & SUPPLIER ALIGNMENT

All the HSES requirements of the project described in various plans/documents shall be totally applicable to the subcontractors and suppliers without exception.

The subcontractor and supplier contracts shall cover provisions regarding HSES liabilities to be fulfilled and penalties/termination to be borne in case of violations.

One copy of this Pollution Prevention Plan, any relevant procedures/instructions, sub-plans and/or method statements shall be distributed to all the subcontractors and suppliers against signature for their full compliance.

Recruitment and worker management procedures shall be equally applied to the employees of the subcontractors and suppliers. Induction and compulsory training programs shall be provided as per the Recruitment & Worker**s** Management Plan (SYA-PLN-SOC-GEN-004) and HSES Training Matrix.

Subcontractors and suppliers shall be legally responsible for their own workforce and for ensuring execution of their activities in accordance with the HSES requirements of the project, under the supervision of the CONTRACTOR.

In case of non-conformities/violations, subcontractors or suppliers shall be first notified in written. Fines shall be applied for uncleared and/or repeating non-conformities, contracts shall be terminated as necessary.

4.9 EMERGENCY PREPAREDNESS & RESPONSE

Potential emergency situations in the project including social incidents shall be identified and measures to prevent or mitigate the relevant adverse impacts shall be implemented as per the Emergency Response Plan which shall be separately submitted (Emergency Response Plan is an H&S Plan).

On the other hand, spill response procedures shall be implemented in accordance with the Environmental Emergency Response Plan (SYA-PLN-ENV-GEN-004) which shall be separately submitted.

4.10 COMPLAINT MANAGEMENT

The complaints which might be raised by the local community with regards to the pollution prevention management activities shall be handled as per the Grievance Management Plan which shall be separately submitted.

4.11 DISCIPLINARY PROCEDURE

Compliance with the pollution prevention management plan shall be mandatory at all levels. Any relevant violations shall be handled as per the Disciplinary Action Procedure (SYA-PCD-HSE-GEN-002) which shall be separately submitted.

4.12 CHECKING

4.12.1 Monitoring & Measurement

The monitoring and measurement activities shall be scheduled and performed as per the Environmental Monitoring Plan (SYA-PLN-ENV-GEN-002) and Social Monitoring Plan (SYA-PLN-SOC-GEN-001) which shall be separately submitted.

These monitoring plans shall address all the monitoring and measurement activities required by the contract and/or regulations, and by any environmental/social manual, plan and similar document issued by the CONTRACTOR.

Tabular data listing all the legal and contractual requirements with relevant article numbers shall be also provided in the Environmental Monitoring Plan (SYA-PLN-ENV-GEN-002) and Social Monitoring Plan (SYA-PLN-SOC-GEN-001) along with all the KPIs to be monitored/measured, frequencies and people in charge.

Monitoring shall be either performed by the CONTRACTOR or by an accredited 3rd party organization, depending on the item to be monitored. Monitoring will be conducted according to Environmental Monitoring Plan. Spread Environmental Supervisors will be responsible for the monitoring and inspections of Pollution prevention activities on a daily basis. Activities requiring measurements and analysis and/or requiring specialized expert involvement which are not available in house such as aquatic life expert will be arrange by third party.

Within the scope of the monitoring programs, in-house environmental and social site inspection activities shall be performed on daily basis by the Environment and Social staff, and once weekly with the involvement of the Project Management/Coordination Team.

Monitoring and measurement equipment shall be followed and calibrated/verified as per the Calibration Procedure, at regular intervals of just before use, in accordance with the measurement standards that are internationally traceable. Labels, evidencing the

calibration/verification status shall be placed on a suitable part on the device in Turkish and in English. Results/certificates related to the calibration and verification activities shall be made available at a public place at all times.

Reporting formats and frequencies shall be implemented as discussed and agreed with the EPCM/Client.

4.12.2 Non-Conformity, Corrective Action & Preventive Action

All the environmental non-conformities related with processes, revealed as a result of the EPCM/Client's and/or third party complaints or detected at any time or during audits/after environmental near-misses/incidents shall be treated in accordance with the management of non-conformity, corrective & preventive actions. (SYA-PCD-QAC-GEN-001).

4.12.3 Internal Audit

The implementation and effectiveness of this Pollution Prevention Plan, conformity with the specified legal and contractual requirements and the ISO 14001 Environmental Management System Standard requirements shall be monitored through audits, by the auditors who have required background, experience and training, and who are independent of those having direct responsibility for the activity being audited.

Audit findings shall be documented by an audit report and audit data shall be analyzed in order to ensure continuous improvement, identify any possible remedial activity and initiate relevant corrective actions and corrections.

4.13 REPORTING

Monitoring/measurement results to be included in the Monthly Report will be reported to EPCM.

Green House Gas (GHG) Emissions will also be reported on monthly bases by using the Client provided registers through a WEB based reporting method by Environmental Manager.

4.13.1 Reporting of Environmental & Social Near-Misses/Incidents

Any incident which results in significant environmental/social impact shall be immediately communicated to the EPCM/Client via verbal notification and a written report shall follow as soon as practical (not later than 24 hours).

Key performance indicators and monitoring/measurement results to be included in the Monthly Report shall be in compliance with the EPCM's/Client's instructions.

4.13.2 Reporting of NCR

Reporting of NCR will be conducted using with NCR register table that is given at Appendix 1.

4.13.3 Reporting of Air/Vibration/Water Pollution

All measurements near sensitive receptors will be measures as required, and when complaints are lodged. All water quality, air quality, noise and vibration measurements will be conducted according to the Environmental Monitoring plan (SYA-PLN-ENV-GEN-002)

Appendix 1: NCR Register Table

Appendix 2: Water Quality Register Table

Appendix 3: Air Quality Register Table

Appendix 4: Noise Register Table

Appendix 5: Incident Register Table

Appedix 1: NCR Register Table

NCR REGISTER - LOT 2								
Reporting Period:								
Total of NCR								
To date	This reporting Period							
Total of NCR to date								
Open	Closed							
Date	Doc Control Registration Number	Summary	Date Part A completed and form submitted to assignee	Date Part B Completed	Date Part C completed	Date Part D completed	NCR closed out (green/red)	Comments

Appendix 2: Water Quality Register Table

Water Quality Management Procedure (SYA-PCD-HSE-GEN-025) for Domestic and Drinking waters will be followed.

WATER QUALITY REGISTER - CAMP 3		
Reporting Period:		

Drinking Water		
Sampling Date:		
Sampled by:		
Sample reference:		
Microbiologcial Parameters	**Concentration**	**Sample Results**
Escherichia coli (E.coli)	*0/100 ml*	
Enterococcus	*0/100 ml*	
Coliform bacteria	*0/100 ml*	
Chemical Parameters	**Concentration**	**Sample Results**
Acrylamide	0,1 µg/l	
Antimony	2 µg/l	
Arsenic	10 µg/l	
Benzene	1 µg/l	
Benzopyrene	0,01 µg/l	
Boron	1 mg/l	
Bromate	10 µg/l	
Cadmium	3 µg/l	
Chromium	50 µg/l	
Copper	2 mg/l	
Cyanide	50 µg/l	
1,2-Dichloracethane	3 µg/l	

Epichlorhydrin	0,1 µg/l	
Fluoride	1,5 mg/l	
Lead	10 µg/l	
Mercury	1 µg/l	
Nickel	20 µg/l	
Nitrate	50 mg/l	
Nitrite	0,5 mg/l	
Pesticides	0,1 µg/l	
Total Pesticides	0,5 µg/l	
Polycyclic aromatic hydrocarbons	0,1 µg/l	
Selenium	10 µg/l	
Tetrachloroethane and Trichloroethane	10 µg/l	
Trihalomethanes-total	100 µg/l	
Vinyl chloride	0,3 µg/l	

Wastewater Discharge		
Sampling Date:		
Sampled by:		
Sample reference:		
Parameters	**Concentration**	**Sample Results**
Biochemical Oxygen Demand (BOD5)	25 mg/l	
Chemical Oxygen Demand (COD)	125 mg/l	
Suspended Solids (SS)	35 mg/l	
	35 (more than 10,000 p.e)	
	60 (2,000-10,000 p.e)	
pH	6-9	

Total Nitrogen	15 mg/l	
Total Phosphorus	2 mg/l	
Oil and Grease	10 mg/l	
Total Coliform Bacteria	400/100ml	

Appendix 3: Air Quality Register Table

AIR REGISTER										
SPREAD 3										
Location	Date Sample Taken	Sample No	Sampled by	Parameters						
				Dust (visual assessment)	PM10	PM2.5	SO2	NO2 / NOx	CO	O3
				Limits						
					20 µg/m3 (year)	10 µg/m3 (year)	20 µg/m3(year)	30 µg/m3 (year)	10 mg/m3 (daily 8 hr average)	100 µg/m3 (daily)

Appendix 4: Noise Register Table

NOISE REGISTER									
SPREAD 3									
Location	Date Sample Taken	Sampled by	Parameters						
			Meteorological Conditions				LAeq (dBA)	LAeq (dBA)	LAeq (dBA)
							Limits		
			Wind direction	Wind speed	Temperature	Humidity	Building 70 (Day-time: 06:00 – 19:00)	Road 75 (Day-time: 06:00 – 19:00)	Other sources 70 (Day-time: 06:00 – 19:00)

Appendix 5: Incident Register Table

INCIDENT REGISTER - LOT 2								
Reporting Period:								
Total of incidents								
To date	This reporting Period							
Total of incidents to date								
Open	Closed							

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close By	Actual Close-out Date	

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TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc.No.	FRN-PLN-SOC-PL1-003	**Rev**	**Status**
		P4-0	**IAA**
Document Title :	TRAFFIC MANAGEMENT PLAN		
Tag Nos.			
Contractor:	**FERNAS İNŞAAT A.Ş.**		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAA. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAA. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

FERNAS	**TANAP** TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT (LOT-1)	TANAP WorleyParsons

TRAFFIC MANAGEMENT PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	APPROVED
P4-A	DIC	09.05.2015	Discipline Internal Check	CETB	GULA	OZKE	
P4-B	IDC	11.05.2015	Inter-Discipline Check	CETB	GULA	OZKE	
P4-C	IFR	15.06.2015	Issued for Review	CETB	GULA	OZKE	
P4-0	IAA	24.06.2015	Issued as Approved	CETB	GULA	OZKE	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	09.05.2015	Discipline Internal Check
P4-B	IDC	11.05.2015	Inter-Discipline Check
P4-C	IFR	15.06.2015	Issued for Review
P4-0	IAA	24.06.2015	Issued as Approved

HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1. PURPOSE AND SCOPE

This Traffic Management Plan (TMP) prepared for LOT 1 of TANAP Project, aims to identify the measures needed to mitigate the potential traffic impacts of the Project activities carried out during pre-construction and construction phases. Both phases will necessitate intensive transport operations that will have traffic impact on communities that will require developing certain procedures to prevent and/or reduce specific impacts. The Community Safety Management Plan (CSMP) (FRN-PLN-SOC-PL1-004) also outlines specific measures to reduce construction impacts on community safety which should be considered conjointly with TMP.

During the implementation of TMP, the CONTRACTOR will be in close cooperation with relevant government agencies and local authorities in order to determine if there are any plans for the development of existing roads and to formulate solutions for the traffic impacts the Project will have. Settlement level impacts, especially regarding the access to commercial and residential areas or pasture land for both pedestrians and animals will be consulted with villagers and also village headmen as also indicated in the CSMP.

The following sections of TMP address issues listed below:

- Roles and responsibilities to carry out traffic management procedures
- Potential traffic impacts during pre-construction and construction phase of the Project
- Measures to be taken and procedures to be followed to mitigate the potential impacts

Although TMP sets the procedures and specific measures for traffic related impacts, there will be other documents that need to be referenced in order to optimize the results of the actions taken.

1.1 Reference Documents

- TANAP's HSSE Policies and Standards
- CONTRACTOR Environmental Policy
- CONTRACTOR Health & Safety Policy
- CONTRACTOR Health and Safety General Requirements
- TNP-TPG-PLC1-CNT-003 - CONTRACT- Appendix K: Health and Safety,
- TNP-PLN-HSM-GEN-005 - Contractor Health and Safety General Requirements,

- The Project ESIA Report,
- ESIA Report Appendix 5.7-Traffic Management Plan,
- Health & Safety Management Plan (TNP-PLN-HSM-GEN-004),
- Road Safety Management Plan (HED-PLN-HSM-GEN-001),
- Road Safety Management Manual (HED-MAN-HSM-GEN-001),
- Driver and Vehicle Management Procedure (HED-PCD-HSM-GEN-001),
- Road Risk Assessment Management Procedure (HED-PCD-HSM-GEN-002),
- Transport Operations Procedure (HED-PCD-HSM-GEN-003),
- CONTRACTOR Emergency Response Plan (FRN-PLN-ENV-PL1-010),
- CONTRACTOR Pollution Prevention Plan(FRN-PLN-ENV-PL1-009),
- CONTRACTOR Community Relations Management Plan (FRN-PLN-SOC-PL1-005),
- CONTRACTOR Community Safety Management Plan (FRN-PLN-SOC-PL1-004),
- CONTRACTOR HS Management System and Plan (FRN-PLN-HSE-PL1-001),
- CONTRACTOR Journey Management Plan (FRN-PLN-HSE-PL1-005),
- CONTRACTOR Emergency Response Plan (FRN-PLN-HSE-PL1-006),
- CONTRACTOR Driver, Vehicle and Journey Management Plan (FRN-PLN-HSE-PL1-007),
- CONTRACTOR Road Safety and Travel Management Plan (FRN-PLN-HSE-PL1-022),
- CONTRACTOR Risk Assessment Procedure (FRN-PCD-HSE-PL1-001),
- CONTRACTOR Incident/Accident & Dangerous Occurrence Reporting Procedure (FRN-PCD-HSE-PL1-003),
- CONTRACTOR Basic H&S Practices Handbook (FRN-PCD-HSE-PL1-023)

1.2 Abbreviations

CLIENT **:** TANAP Doğalgaz İletim A.Ş.
CONTRACTOR **:** FERNAS Insaat A.S.
EPCM **:** Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi
ESIA **:** Environmental and Social Impact Assessment
H&S **:** Health and Safety
Project **:** Trans Anatolian Natural Gas Pipeline Project (TANAP)
TMP **:** Traffic Management Plan

1.3 Definitions

Light Vehicle (LV): Any vehicle less than three and half ton, excluding a mobile plant.

Heavy Vehicle (HV): Any vehicle greater than three and half tons of fixed chassis or articulated trailer, excluding a mobile plant.

M Category Vehicles: Power-driven vehicles having at least four wheels and used for the carriage of passengers.

M1 Category Vehicles: Vehicles used for the carriage of passengers and comprising not more than eight seats in addition to the driver's seat. (Ex: Passenger car)

M2 Category Vehicles: Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass not exceeding 5 tones. (Ex: Ford Transit Minibus (14+1))

M3 Category Vehicles: Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass exceeding 5 tones. (Ex: Mercedes Sprinter (17+1), Volkswagen Volt (17+1) and midi buses/ buses with 25 or more seats)

N Category Vehicles: Power-driven vehicles having at least four wheels and used for the carriage of goods

N1 Category Vehicles: Vehicles used for the carriage of goods and having a maximum mass not exceeding 3.5 tones. (Ex: Pick-up Truck)

N2 Category Vehicles: Vehicles used for the carriage of goods and having a maximum mass exceeding 3.5 tones but not exceeding 12 tones. (Ex: Commercial Truck)

N3 Category Vehicles: Vehicles used for the carriage of goods and having a maximum mass exceeding 12 tones. (Ex: Commercial Truck)

Blacktop: Asphalt, paved or concreted roads

Graded Roads: Roads which have been prepared by grading, consisting of a solid pavement with definite road edge markings by means of fencing, windrow or other markings. Graded roads include construction roads and pipeline rights-of-way.

Off Road: All areas outside camps, towns, and villages (including tracks) which are not blacktop or graded roads.

Construction Zone: Any zone that has construction activities regardless whether it is marked or unmarked, with heavy machinery/ plant and heavy goods vehicle intensive movement.

Traffic: Pedestrians, vehicles, and other conveyances either singly or together while using any road for purposes of travel.

Hours of Darkness / Night: The time period between sunset and sunrise

2. ROLES AND RESPONSIBILITIES

Roles and responsibilities defined for the implementation of TMP are provided below;

2.1. Contractor H&S Team

The Contractor H&S Team is responsible for;

- Developing and implementing a project specific TMP as well as to monitor its outcomes in line with TANAP Project Requirements,
- Ensuring that its subcontractors are working in compliance with the requirements of the TMP,
- Assisting Permitting Manager and/or Social Manager and Community Liaison Team when consulting with government agencies and local communities prior to identifying routes in order to complement existing road development plans and to define hotspots where intense traffic can be observed,
- Identifying the traffic routes that will be utilized (including number of traffic movements, access roads, types of transportation, speed limits etc.) and avoiding sensitive residential areas, historical and cultural road infrastructure during the identification of traffic routes,
- Providing justification in cases where sensitive areas need be passed and defining the measures to minimize possible risks as well as to ensure community safety while applying measures,
- Assisting in identification of the deficiencies of existing local infrastructure in order to develop upgrading plans,
- Assisting in ensuring minimal damage to existing roads and infrastructure and communicating with local authority and/or government agencies in case of damage,
- Assisting in tracking and recording all damages caused by Project related traffic in line with the Grievance mechanism, and compensating/repairing these damages,
- Assisting in preparing restoration measures for roads that need to be repaired post construction,
- Preparing and facilitating training courses for drivers and assisting in holding informative meetings for local community for the awareness of traffic impacts and measures taken.

With respect to the above stated responsibilities, some of the managerial positions and their roles are presented below;

2.2. Project Manager

- The Project Manager has overall responsibility for Traffic Management related issues of the LOT-1 construction works,
- Monitoring of Sub contractor's TMP implementations.

2.3. Construction Manager

- Will assume ultimate accountability for ensuring overall implementation of policy and meeting requirements of this management plan,
- Will allocate all necessary and required resources to Traffic Management,
- Will place Traffic Management matters high on the agenda of meetings,
- Will clearly communicate that all Traffic rules are an important TANAP Project Requirement throughout all levels of the organization,

2.4. Site H&S Manager

- Coordinating the investigation of serious or potentially serious accidents/incidents, near misses,
- Reviewing TMP performance information, results of incident investigations and scope of upcoming work phases in order to identify required adjustments to the management Plan,
- Seeking assurance that procedures are known, understood and complied with,
- Ensuring corrective action is taken in the event of noncompliance with the Traffic Management Plan.
- Promoting and sharing Traffic HS lessons learned inside and outside the Asset
- Updating procedure in consultation with HS team,
- Monitoring of subcontractor's TMP implementations,
- Reporting traffic management issues regularly to EPCM

Contractor H&S Manager will be responsible for the performance of all subcontractors with respect to the project specific traffic plans and shall ensure compliance with all relevant Project standards, statutory requirements, permit and license conditions.

2.5. Social Manager / CLOs

Social Manager will;

- Ensure compliance with this Plan
- Produce monthly reports which will include information on implementation of this plan.
- Inform, investigate and report community relation incidents
- Ensure community complaints are registered and followed in accordance with the Community Relations Management Plan.

CLOs will:

- Carry out daily community relations activities in accordance with this plan and other social plans
- Deliver and/or participate in safety awareness training to local children and adults
- Raise community awareness of safety issues through village meetings and classroom lessons
- Meet local communities in advance of significant traffic impact occurring to describe activities and explain risks
- Advise local communities of what routes will be used by construction vehicles.
- Ensure grievances received are registered and followed up in accordance with the Community Relations Management Plan.

2.6. Environmental Manager / Team

- Implementing and monitoring the Environmental Plans
- Auditing and inspecting the subcontractors in the environmental point of view
- Keeping the environmental records
- Warning people who do not comply with the environmental instructions
- Ensuring to take the environmental precautions at the construction site

2.7. Sub-Contractors

Subcontractors are bound to apply all procedures and measures specified by the Contractor in TMP and TANAP Project Requirements.

3. IMPLEMENTATION OF MITIGATION AND ACTIVITIES

3.1. Overview

The Project will have intensive transport operations during the pre-construction and construction phases. Many of the traffic related impacts are expected to occur during the construction phase. These impacts will be generated by the following activities:

1. Transfer of construction material and equipment to stock and lay down areas,
2. Transfer of wastes generated by construction activities,
3. Transfer of project personnel

In order to generate less traffic impacts during construction, the main principles to be followed for transport of material and equipment include using;

- railway or seaway for the transportation of pipes to the main pipe storage areas
- railway or highway for the transportation of pipes to stock yards
- highway for the transportation of pipes to the construction corridor and camps.

Maximum effort will be given to deliver material by railway and pipe stockyards will be located close the rail lines in order to reduce transport on roads however the majority of the construction related traffic will comprise of material and equipment transported via highways.

3.2. Potential Traffic Impacts

Transfer of construction material, equipment and wastes as well as the mobilization of project personnel may result in situations which will lead to the impacts stated below;

- increase in the existing traffic flow,
- congestions and delay in traffic,
- diversions or short term closures on certain routes,
- dust**,** noise , vibrations and emissions,
- loss of vegetation where new access roads are required,
- interrupted animal husbandry and farming activities,
- deterioration and damage of existing roads,
- pollution of natural resources caused by contamination or spills and

- traffic accidents.

3.3. Mitigation Measures

The CONTRACTOR will take certain measures for each of the impacts defined above. These measures are discussed in the following sections.

3.3.1. Traffic Control and Management

Due to the traffic generated by the transportation of construction material and equipment roads and intersections will be subject to intense construction traffic. In order to avoid impacts of such situations the CONTRACTOR will;

- Inform local authorities regarding the date, time and route of the transportation activity,
- Agree with local authorities on traffic safety and management measures to be taken,
- Set up traffic signals and signs that are clear and visible, and appoint flagmen where necessary,
- Apply temporary traffic control methods at intersections and connections that hold higher risk for accidents,
- Ensure that all speed limits (see Table 1. below) on highways are obeyed,
- Provide supervision and escort for heavy machinery and other vehicles carrying construction material for road and railway crossings,
- Ensure that project related traffic is regulated during certain dates and times where local community will require to commute (to/from schools, commercial areas etc.) or take on any agricultural activity (animal grazing or other farming activities etc.),
    - Access of vehicles to settlements will be provided by placing steel plates over ditches during limited hours; in case where limitations on access cannot be avoided, alternative solutions will be determined in consultation with local authorities and community leaders,
    - Access to private property will be ensured or appropriate accessing alternatives will be determined in consultation with the owners or users,
- Provide detailed information (closure date and time, locations –where from, where to-, duration of closure etc.) 72 hours prior to closure of roads both to local authorities and communities.

Table 3.1. Legal Speed Limits According to Highway Traffic Regulations

Vehicles (Code of Categories)	Urban	Double Direction	Divided Roads	Motorways
Cars, SUV's (M1), (M1G),	50	90	110	120
Minibuses (M2),	50	80	90	100
Buses (M2-M3),	50	80	90	100
Pickups (N1), N1G)	50	80	85	95
Panel Vans (N1)	50	85	100	110
Trucks (N2-N3),	50	80	85	90
Motorcycle (L3)	50	80	90	100
Motorcycles (L4, L5, L7)	50	70	80	80
Motorized Bicycle (L1, L2, L6) Bicycle	30	45	45	-
Vehicles Carrying Dangerous Goods Special Certificated	30	50	60	70
Rubber Track Type Tractors	20	30	40	-
Towing	20	20	30	40
Heavy Machineries	20	20	20	-

3.3.2. Access Roads

The CONTRACTOR will maximize its efforts to utilize existing roads to provide access to the construction of RoW and various AGIs. However, there may be need to open additional access roads to transport equipment, vehicles, heavy trucks, materials and personnel to certain work areas.

Before the commencement of construction, the CONTRACTOR will conduct a study to determine key routes for the additional access roads to be built. Access roads leading to AGIs such as compressor or pigging stations etc. will be permanent where as others will be used on a temporary basis. Access roads that will be used temporarily will be reinstated by the CONTRACTOR after the project activities are concluded.

New access roads will be opened once approved by EPCM and consulted with relevant authorities. The CONTRACTOR will obtain necessary permits for building all access roads. Issues of significance that pertain to building new access roads are listed below.

- Environmental and social aspects will be considered; special attention will be given to environmentally sensitive areas, water crossings, archaeological sites, natural resources, grazing lands, culturally important areas etc.,
- New access roads will be planned and built near existing road networks to avoid the need to construct lengthy roads,
- New access roads will be designed with adequate slope and cross-fall drainage to channel storm water safely to off-road soakaways, thereby preventing erosion or siltation and to provide rainwater to be transmitted safely out of the way,
- Temporarily used access roads will be removed/reinstated to its former state if no longer needed or requested by local communities,
- All access roads will have appropriate signs showing speed limits and designated routes to follow.
- Risk assessments will be carried out on all routes to be used for vehicular access weather temporary or permanent which will be reviewed and updated periodically or as required.

3.3.3. Road Crossings

In cooperation with the EPCM, the CONTRACTOR will prepare and present plans to relevant local authorities regarding the road crossing activities and will ensure that all requirements defined by these authorities are fulfilled as; Methods for every road crossing will be determined and agreed upon with authorities prior to taking any action. All methods and construction techniques proposed by the CONTRACTOR will aim to minimize possible disruptions caused by road crossings.

Appropriate supervision will be provided by the CONTRACTOR to control the flow of traffic when machinery needs to cross roads.

CONTRACTOR will ensure that road safety education will be provided at schools where roads used by children to reach schools are used by construction traffic. Vehicle traffic will be minimized during hours when children are traveling to and from school.

3.3.4. Road Maintenance and Reinstatement

The roads to be utilized for construction and operations are mostly existing paved or gravel public roads that will not require improvement or modification. However, in cases where the road base is deteriorated or unsafe, The CONTRACTOR will carry out necessary works to improve the existing roads for construction traffic in parallel to consulting with the relevant authorities.

Prior to construction, a survey will be conducted by the CONTRACTOR to assess conditions of roads likely to be affected by the construction in order to identify the upgrading activities (if any). Roads to be improved will be consulted with EPCM prior to consultations with relevant local authorities.

The CONTRACTOR will try to avoid excessive dust generation, deposit of mud, soil, rocks on publicly used roads and highways. Roads will be inspected on a regular basis for any damages. Damages and deterioration of roads and bridges will be repaired by the CONTRACTOR, ensuring that they are returned to previous or better conditions once the construction activities are completed.

3.3.5. Potential Traffic Accidents

In order to prevent traffic accidents the CONTRACTOR will comply with the following:

- Ensuring that all heavy machinery and vehicles utilized in transportation activities (including transportation of personnel) are used by qualified and licensed drivers,
- Ensuring that all drivers know and comply with all traffic signs, are aware of hotspots of intense traffic that are expected along the pipeline in Lot 1 and are trained properly for on and off road conditions,
- Managing and monitoring working and resting hours drivers according to a fatigue management program that will also comply with Turkish Law and Legislation,
- Monitoring security arrangements for loads, vehicles and drivers,
- Ensuring that all roads and highways are signposted as required,
- Limiting night drive/transportation as much as possible to reduce the risk of accidents and obtaining necessary permits shall night transportation be required,
- Compensating damages caused by an accident due to project activities according to the Complaint Management Procedure,

3.3.6. Vehicle Control, Management and Maintenance

The CONTRACTOR will;

- Ensure that all vehicles (light and heavy) used are fit for the purpose and have been maintained in safe working order.
- Follow the procedures and recommendations in the Driver Vehicle and Journey Management Plan awhich defines the procedures to conduct safe journeys as well as to audit vehicles regularly to reduce noise and emissions.
- Perform regular inspection activities on vehicles in order to ensure that all required health and safety measures are taken and standards are met. All inspection activities will be carried out on a pre-trip and daily basis prior to mobilization.
- Ensure that periodic maintenance of vehicles used is carried out by manufacture approved 3rd party service providers.

4. TRAINING

The CONTRACTOR will ensure that relevant employees be trained to understand the provisions of safety driving due to the work conducted on site. The trainings below will be given to project personnel;

- Defensive Driving Training,
- Off-Road Driving Training,
- Anti-Rollover Training,
- Night Driving Training,
- Fatigue Management Training,
- TANAP Road Safety Management System Training,

4.1 Performance Indicators

Performance indicators of TMP are given below;

- Total Traffic Accidents,
- Recorded Complaints of Project Vehicles and Drivers,
- Total Road Maintenance Recorded,
- Total Road Damage Recorded,
- Unsafe Drive Recorded,
- Visual dust monitoring, to determine appropriate actions,
- Km(s) of new access roads opened, Access Road Register
- Speed monitoring,
- Driver training undertaken versus planned.

5. MONITORING AND REPORTING

The monitoring of the traffic activities during construction will be conducted by HS Manager in coordination with Social Manager.

5.1. Auditing of Record Keeping

Auditing records of vehicle maintenance, servicing, driver training, driver medicals, journey management forms, check calls, daily vehicle check list, night driving permits, safe pass cards, driver permit card will be carried out on a weekly and monthly basis. The Transport Services Supervisor is responsible for ensuring these audits take place efficiently and in the periods specified. These audits of records must be kept as used as part of the HS assurance process.

5.2. Self-Auditing of TMP

The application of this plan shall be subject to a Self-Assurance Audit within one year of issue and be included in the Assurance plan. CONTRACTOR's H&S Department will be responsible of conducting the audit with respect to the requirements of the Road Safety and Travel Management Plan (FRN-PLN-HSE-PL1-022).

5.3. Incident and Accident Reporting

In case of any accidents made with a Contractor vehicle or personal vehicle, by any Contractor staff, the driver shall follow the Incident, Accident and Dangerous Occurrence Reporting Procedure. It is obligatory for all authorized drivers recruited within the Project, to drive safely, follow traffic rules, show courtesy to all road users, and familiarize themselves with local road conditions to adjust the driving habit.

All incidents irrespective of the cause/ fault will be immediately reported to the H&S supervisor who will fill the required form and investigate the incident (Appendix-1 & Appendix-2).

APPENDIX-1: Incident Report

REPORT
(Accident, Incident, Near Miss)

Project name		Project No	
Date & Time		Location	
Classification	□ Fatality Case □ Lost Time Accident □ Incident □ Near Miss		
Type			
Substandard Actions			
Substandard Conditions			
Description	(When)		
	(Where)		
	(Who)		
	(What)		
	(How)		
	(Why)		
Action Taken			

Details of Injured person			
Employer		Name	
Occupation		Date of Arrival on site	
Date of Birth		Passport / ID No	
Nationality		Home Address	
Details of Witnesses			
Employer		Name	
Occupation		Date of Arrival on site	
Date of Birth		Passport / ID No	
Nationality		Home Address	
Employer		Name	
Occupation		Date of Arrival on site	
Date of Birth		Passport / ID No	
Nationality		Home Address	

Further Information

Information Provided by:

FERNAS HSE Manager

APPENDIX-2: Incident Register

INCIDENT REGISTER - LOT 1

Reporting Period:

Total of incidents	
To date	This reporting Period

Total of incidents to date	
Open	Closed

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close By	Actual Close-out Date	

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TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc. No.	**PLK-PLN-SOC-PL4-004**	**Rev.**	**Status**
		P4-1	**Re-IAA**
Document Title	**TRAFFIC MANAGEMENT PLAN**		
Tag Nos.			
Contractor	**PUNJ LLOYD-LIMAK JV**		
Contractor Documet No.	**PLK-PLN-SOC-PL4-004**	**Rev.**	**P4-1**

☐	**C1/APP – <u>Reviewed & accepted</u>.** Construction may Proceed. For documents status IFR/IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC –** <u>Reviewed & accepted as marked</u>. Revise and resubmit. Construction may proceed. For documents status IFR/IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC –** <u>Reviewed & returned</u>. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR/IFA, resubmit for review Re-IFR/IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** <u>Reviewed not required</u>. Construction may proceed. Resubmit for information as IFI at next Revision Code.	
☐	**C5 /REJ–** <u>REJECTED</u>. Revise and resubmit. Construction shall **NOT** proceed. Revise documents and resubmit for review.	

Remarks:

TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
Comment Reponse Sheet

Document Title	Traffic Management Plan	Originator	PLL JV
Document Number	PLK-PLN-SOC-PL-004	Rev	

Except for the following identified comments, all other comments on this document have been resolved or incorporated.

* O - Open, C - Closed

No.	Section/ Page	Comment	By	Response	By	Date	O/C *	Remarks
1	General	General - This TMP does not adequately capture all Project required mitigation measures stipulated in Appendix 5.7 of the ESIA. Document requires to be revised to include outstanding mitigation measures. This document should link with the H&S Traffic Management Plans as required.	EPCM				C	
2	General	General - Document does not clearly outline how this Project wide TMP's relates to site specific traffic procedures / plans or Logistic Plans. Refer to Appendix 5.7 of ESIA and Appendix K of the contract. Document should link to H&S deliverables where appropriate.	EPCM				C	
3	1	Need to state that Contractor will ensure that all sub-contractors are working in compliance with the TMP and CC will be monitoring & controlling their performance	EPCM				C	
4	2.2	Add: and ensuring compliance of	EPCM				C	
5	2.5	Undertake community / social risk assessments for all access roads	EPCM				C	
6	3.3.1	Why only obey with speed limits on highways?	EPCM				C	
7	3.3.2	Reference CC's reinstatement plan	EPCM				C	
8	3.3.2	Need to link to the Environmental Management of Change Process	EPCM				C	
9	3.3.2	Add the requirement to develop a Access Road Register	EPCM				C	
10	3.3.6	All vehicles must adhere to the vehicle safety equipment standards as per Appendix K of the contract.	EPCM				C	
11	4	Road safety programs need to be implemented as per Appendix 5.7 of TANAP ESIA	EPCM				C	
12	5.3	Need to link to CC's Incident and Investigation Procedure	EPCM				C	
13	S. 2.5 p.12	R&S of Social Manager *"Produce monthly reports which will include information on implementation of this plan"* "Implementation of this MP is not only the responsibility of Social Manager . Social Manager will produce report for social requirement & register.	EPCM				C	
14	S. 2.5 p.12	"*CLOs R&R; Carry out daily community relations activities in accordance with this plan and other social plans,"* CLOs will be responsible Community safety issues of Traffic Management Plan align with Community Safety Management Plan	EPCM				C	
15	S. 5 p.18	Monitoring & Reporting ; EPCM/TANAP or their dedicated third parth consultants are also have a right to audit CC activities at site. This should be added.	EPCM				C	
16	1 / p. 7	CSMP - Within the cut-paste document of other contractor, this referred CSMP stands for “Community Safety Management Plan”. However, this is a Phase-2 Plan and has not been yet prepared by PLK	TANAP	Misinterpretation. Sentence is revised	ALAZ	27.05.2016		
17	1.3 / p. 10	Delete "Construction Zone" and its definition & delete "House of Darkness / Night" and its definition	TANAP	Deleted	ALAZ	27.05.2016	C	
18	2.2 / p. 11	Add another bullet point: "Ensuring this TMP will be revised in case of a change in the Project Requirements	TANAP	Added	ALAZ	27.05.2016	C	
19	2.4 / p. 11	Are there anyone else apart from H&S Manager? i.e. H&S Specialists should be added here.	TANAP	The roles and responsibilities for H&S Specialist is added	ALAZ	27.05.2016	C	
20	2.4 / p. 11	"Reporting traffic management issues regulary to EPCM." meaning monthly?	TANAP	Yes, revised as "monthly"	ALAZ	27.05.2016	C	
21	2.6 / p. 12	Separate the responsibilities of Env. Manager and Inspectors.	TANAP	Seperated and revised	ALAZ	27.05.2016	C	
22	3.3 / p. 14	What about environmental measures? e.g. routes will be moisturized, dust emission minimization on unpaved roads In Section 3.2 lots of impacts are defined. However, few of them are mentioned within the mitigation measures. Noise? Dust? Vegetation? Spills?	TANAP	Added	ALAZ	27.05.2016	C	
23	3.3.5 / p. 16	Revise "Lot 1"	TANAP	Changed into "Lot 4"	ALAZ	27.05.2016	C	
24	4 / p. 17	Other subjects: -Traffic management related responsibilities? - Traffic signs and control? - General Project components related traffic rules? - Access roads along the RoW?	TANAP	Added	ALAZ	27.05.2016	C	
25	5.1 / p. 18	What are the other responsibilities of this personnel? Please add it to the Chapter 2.	TANAP	Added	ALAZ	27.05.2016	C	
26	5.2 / p. 18	What Assurance Plan? What is the reference number of this doc?	TANAP	Self-auditing issue is discussed with the Logistics Manager and as per our mutual aggremeent it is decided to remove this section from TMP as it deals	ALAZ	27.05.2016	C	
27	5.3 / p. 18	This is not within the Reference List!	TANAP	Not included as explained above	ALAZ	27.05.2016	C	

Additional Notes (if any)

Distribution

PUNJ LLOYD-LIMAK JV	TRANS-ANATOLIAN NATURAL GAS PIPELINE PROJECT LOT 4	TANAP / WorleyParsons resources & energy

TRAFFIC MANAGEMENT PLAN

Rev.	Status	Date	Description	Prepared By	Checked By	Approved By	Approved by TANAP
P4-A	DIC	06/04/16	Discipline Internal Check	BABD	ASOV	DHAG	
P4-B	IDC	07/04/16	Inter Discipline Check	RICS	BHAG	DHAG	
P4-C	IFR	08/04/16	Issued for Review	DHAG	SDUT	KKSA	
P4-0	IAA	11/05/16	Issued as Approved	ZALT	KALF	MABL	
P4-1	Re-IAA	27/05/16	Re-Issued as Approved	ZALT	KALF	MABL	

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update/Amendment Details
P4-A	DIC	06/04/16	Discipline Internal Check
P4-B	IDC	07/04/16	Inter Discipline Check
P4-C	IFR	08/04/16	Issued for Review
P4-0	IAA	11/05/16	Issued as Approved
P4-1	Re-IAA	27/05/16	Re-Issued as Approved

HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1. PURPOSE

This Traffic Management Plan (TMP) is prepared for traffic management during construction works of the project at all locations which would address the mitigation/ minimization of the following impacts:

- increase in traffic flows on the road network that might lead potential delays and congestion;
- roadside litter and traffic-related noise and emissions;
- the loss of vegetative cover brought about by the construction of new roads;
- water pollution from spills or accumulated contaminants on road surfaces and potential modifications of natural drainage patterns caused by the construction of new roads;
- traffic accidents, which may result in death, injury or environmental damage

During the implementation of TMP, the CONTRACTOR will be in close cooperation with relevant government agencies and local authorities in order to determine if there are any plans for the development of existing roads and to formulate solutions for the traffic impacts the Project will have. Settlement level impacts, especially regarding the access to commercial and residential areas or pasture land -of both pedestrians and animals will be consulted with villagers and village headmen and alternative solutions will be mutually developed if/where necessary.

The following sections of TMP address issues listed below;

- Roles and responsibilities to carry out traffic management procedures
- Potential traffic impacts during pre-construction and construction phase of the Project
- Measures to be taken and procedures to be followed to mitigate the potential impacts

Although TMP sets the procedures and specific measures for traffic related impacts, there will be other documents that need to be referenced in order to optimize the results of the actions taken.

CONTRACTOR will ensure that all sub-contractors are working in compliance with the TMP and CONTRACTOR will be monitoring & controlling their performance.

1.1 Reference Documents

- TANAP's HSSE Policies and Standards
- CONTRACTOR Environmental Policy

- CONTRACTOR Health & Safety Policy
- CONTRACTOR Health and Safety General Requirements
- TNP-TPG-PLC1-CNT-003 - CONTRACT- Appendix K: Health and Safety,
- TNP-PLN-HSM-GEN-005 - Contractor Health and Safety General Requirements
- The Project ESIA Report,
- ESIA Report Appendix 5.7-Traffic Management Plan,
- Health & Safety Management Plan (TNP-PLN-HSM-GEN-004),
- Road Safety Management Plan (HED-PLN-HSM-GEN-001),
- Road Safety Management Manual (HED-MAN-HSM-GEN-001),
- Driver and Vehicle Management Procedure (HED-PCD-HSM-GEN-001),
- Road Risk Assessment Management Procedure (HED-PCD-HSM-GEN-002),
- Transport Operations Procedure (HED-PCD-HSM-GEN-003),
- CONTRACTOR Emergency Response Plan,
- CONTRACTOR Pollution Prevention Plan (PLK-PLN-ENV-PL4-005),
- CONTRACTOR Community Relations Management Plan (PLK-PLN-SOC-PL4-002),
- CONTRACTOR Community Safety Management Plan (PLK-PLN-SOC-PL4-005),
- CONTRACTOR Traffic Management Procedure (PLK-PDC-HSM-PL4-021),
- CONTRACTOR Road Safety Plan &Travel Management Plan ((PLK-PLN-HSM-PL4-001),
- CONTRACTOR Driver, Vehicle and Journey Management Procedure (PLK-PCD-HSM-PL4-006),
- CONTRACTOR Project Risk Management Plan (PLK-PCD-HSM-P4-003).

1.2 Abbreviations

Abbreviations/ Acronyms / Terms	Meaning
CONTRACTOR	Punj Lloyd-Limak JV responsible for the procurement, construction, installation, pre-commissioning, testing and commissioning assistance of the Lot 4 section of TANAP Project
EPCM	Engineering, procurement and construction management consultant engaged by Client, namely WORLEYPARSONS PROJE YÖNETIMI VE MÜHENDISLIK LIMITED

	SIRKETI or such other Person notified by TANAP to CONTRACTOR in writing
ESIA	Environmental and Social Impact Assessment
H&S	Health and Safety
Project	procurement, construction, installation, pre-commissioning, testing and commissioning assistance Lot 4 section of TANAP Project
TMP	Traffic Management Plan

1.3 Definitions

Light Vehicle (LV)	Any vehicle less than three and half ton, excluding a mobile plant
Heavy Vehicle (HV)	Any vehicle greater than three and half tons of fixed chassis or articulated trailer, excluding a mobile plant
M Category Vehicles	Power-driven vehicles having at least four wheels and used for the carriage of passengers
M1 Category Vehicles	Vehicles used for the carriage of passengers and comprising not more than eight seats in addition to the driver's seat. (Ex: Passenger car)
M2 Category Vehicles	Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass not exceeding 5 tones. (Ex: Ford Transit Minibus (14+1))
M3 Category Vehicles	Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass exceeding 5 tones. (Ex: Mercedes Sprinter (17+1), Volkswagen Volt (17+1) and midi buses/ buses with 25 or more seats)
N Category Vehicles	Power-driven vehicles having at least four wheels and used for the carriage of goods
N1 Category Vehicles	Vehicles used for the carriage of goods and having a maximum mass not exceeding 3.5 tones. (Ex: Pick-up Truck)
N2 Category Vehicles	Vehicles used for the carriage of goods and having a maximum mass exceeding 3.5 tones but not exceeding 12 tones. (Ex: Commercial Truck)
N3 Category Vehicles	Vehicles used for the carriage of goods and having a maximum mass exceeding 12 tones. (Ex: Commercial Truck)
Blacktop	Asphalt, paved or concreted roads

Graded Roads	Roads which have been prepared by grading, consisting of a solid pavement with definite road edge markings by means of fencing, windrow or other markings. Graded roads include construction roads and pipeline rights-of-way
Off Road	All areas outside camps, towns, and villages (including tracks) which are not blacktop or graded roads
Traffic	Pedestrians, vehicles, and other conveyances either singly or together while using any road for purposes of travel

2.0 ROLES and RESPONSIBILITIES

2.1 H&S Team

The H&S Team is responsible for;

- Developing and implementing a project specific TMP as well as to monitor its outcomes in line with TANAP Project Requirements,
- Ensuring that its subcontractors are working in compliance with the requirements of the TMP,
- Assisting Permitting Manager and/or Social Manager and Community Liaison Team when consulting with government agencies and local communities prior to identifying routes in order to complement existing road development plans and to define hotspots where intense traffic can be observed,
- Identifying the traffic routes that will be utilized (including number of traffic movements, access roads, types of transportation, speed limits etc.) and avoiding sensitive residential areas, historical and cultural road infrastructure during the identification of traffic routes,
- Providing justification in cases where sensitive areas need be passed and defining the measures to minimize possible risks as well as to ensure community safety while applying measures,
- Assisting in identification of the deficiencies of existing local infrastructure in order to develop upgrading plans,
- Assisting in ensuring minimal damage to existing roads and infrastructure and communicating with local authority and/or government agencies in case of damage,
- Assisting in tracking and recording all damages caused by Project related traffic in line with the Grievance mechanism, and compensating/repairing these damages,
- Assisting in preparing restoration measures for roads that need to be repaired post construction,

- Preparing and facilitating training courses for drivers and assisting in holding informative meetings for local community for the awareness of traffic impacts and measures taken.

2.2 Project Manager

- The Project Manager has overall responsibility for Traffic Management related issues of the Project,
- Monitoring and ensuring compliance of Sub contractor's TMP implementations.
- Ensuring this TMP will be revised in case of a change in the Project Requirements.

2.3 Construction Manager

- Will assume ultimate accountability for ensuring overall implementation of policy and meeting requirements of this management plan,
- Will allocate all necessary and required resources to Traffic Management,
- Will place Traffic Management matters high on the agenda of meetings,
- Will clearly communicate that all Traffic rules are an important Project
- Requirement throughout all levels of the organization.

2.4 H&S Manager

- Coordinating the investigation of serious or potentially serious accidents/incidents, near misses,
- Reviewing TMP performance information, results of incident investigations and scope of upcoming work phases in order to identify required adjustments to the management Plan,
- Seeking assurance that procedures are known, understood and complied with,
- Ensuring corrective action is taken in the event of noncompliance with the Traffic Management Plan,
- Promoting and sharing Traffic HS lessons learned inside and outside the Asset,
- Updating procedure in consultation with HS team,
- Monitoring of subcontractor's TMP implementations,
- Reporting traffic management issues monthly to EPCM.

H&S Manager will be responsible for the performance of all subcontractors with respect to the project specific traffic plans and shall ensure compliance with all relevant Project standards, statutory requirements, permit and license conditions.

2.5 H&S Specialist

- To ensure all safety measures at the site,
- To control if the necessary signs and signals are properly inserted on pipe stock sites, the roads used for transportation of pipes, heavy vehicles and personnel,
- To give tool-box trainings to the personnel every morning,
- To control the animal passways and make necessary signings and warnings,
- To monitor the traffic movements on our routes,
- Report the activities daily to H&S manager

2.6 Social Manager / CLOs

Social Manager will;

- Ensure compliance with this Plan
- Prepare social sections of the monthly reports (report for social requirement and register) which will include information on implementation of this plan.
- Inform, investigate and report community relation incidents
- Ensure community complaints are registered and followed in accordance with the Community Relations Management Plan.
- Undertake community /social risk assessments for all access roads.

CLOs will;

- Responsible for community safety issues of this Traffic Management Plan (PLK-PLN-SOC-PL4-004) align with Community Safety Management Plan (PLK-PLN-SOC-PL4-005),
- Deliver and/or participate in safety awareness training to local children and adults,
- Raise community awareness of safety issues through village meetings and classroom lessons,
- Meet local communities in advance of significant traffic impact occurring to describe activities and explain risks,
- Advise local communities of what routes will be used by construction vehicles,
- Ensure grievances received are registered and followed up in accordance with the Community Relations Management Plan (PLK-PLN-SOC-PL4-002).

2.7 Environmental Manager

- Implementing and monitoring the Environmental Plans,
- Auditing and inspecting the subcontractors in the environmental point of view,
- Keeping the environmental records,
- To monitor the noise and vibration records

2.8 Environmental Inspector

- To do daily environmental inspections,
- Warning people who do not comply with the environmental instructions,
- Ensuring to take the environmental precautions at the construction site,
- Reporting the activities daily to the Environmental Manager

2.9 Transport Services Supervisor

- Auditing if the records of vehicle maintenance, servicing, driver training, driver medicals, journey management forms, check calls, daily vehicle check list, night driving permits, safe pass cards, driver permit card are carried out on a weekly and monthly basis,
- To ensure these audits take place efficiently and in the specified periods,
- To keep the records of the audits to be used as part of the HS assurance process.
- To ensure safe loading and unloading.
- To ensure that all kinds of the loads are securely loaded and transported until the final destination, and also safely unloaded as well.

2.10 Sub-Contractors

Subcontractors are bound to apply all procedures and measures specified by the Contractor in TMP and Project Requirements.

CONTRACTOR will make sure that the subcontractors are working in compliance with the requirements of the TMP and will be controlling the performance of all subcontractors with regards to TMP, project specific TMP and procedures.

The CONTRACTOR will regularly update the TMP according to the requirements of the changing needs of the and identify in detail.

As detailed in Chapter 11 of the ESIA Report, CONTRACTOR will comply with National Laws and will also conform to international standards and practices generally prevailing in the Natural Gas pipeline industry, including relevant Performance Standards of the International Finance Corporation (IFC 2012 PS).

3.0 IMPLEMENTATION OF MITIGATION AND ACTIVITIES

3.1 Overview

The Project will have intensive transport operations during the pre-construction and construction phases. Many of the traffic related impacts are expected to occur during the construction phase. These impacts will be generated by the following activities;

- Transfer of construction material and equipment to stock and lay down areas,
- Transfer of wastes generated by construction activities,
- Transfer of project personnel.

In order to generate less traffic impacts during construction, the main principles to be followed for transport of material and equipment include using;

- railway or seaway for the transportation of pipes to the main pipe storage areas,
- railway or highway for the transportation of pipes to stock yards,
- highway for the transportation of pipes to the construction corridor and camps.

Maximum effort will be given to deliver material by railway and pipe stockyards will be located close the rail lines in order to reduce transport on roads however the majority of the construction related traffic will comprise of material and equipment transported via highways.

3.2 Potential Traffic Impacts

Transfer of construction material, equipment and wastes as well as the mobilization of project personnel may result in situations which will lead to the impacts stated below;

- increase in the existing traffic flow,
- congestions and delay in traffic,
- diversions or short term closures on certain routes,
- dust, noise, vibrations and emissions,
- loss of vegetation where new access roads are required,
- interrupted animal husbandry and farming activities,
- deterioration and damage of existing roads,
- pollution of natural resources caused by contamination or spills and
- traffic accidents.

3.3 Mitigation Measures

According to Logistics Plan that will be prepared by the CONTRACTOR, construction traffic will be provided with additional mitigation measures such as traffic control, speed reduction systems and warning signals where roads and intersections subject to intense traffic. The CONTRACTOR will also liaise with local authorities to inform them on solutions found for these areas. In addition drivers will be made aware of the presence of these hotspots during induction and routine training sessions. The access roads will be used on a temporary basis to transport personnel, equipment, vehicles, heavy trucks, and materials to project work areas. Some of these roads may not support heavy construction equipment and, therefore, will be used only for light truck traffic (e.g., pickup trucks).

CONTRACTOR will consult with the local community on locations where the project traffic routes are passing to minimize the safety risks and impacts on the livelihood and transportation patterns (i.e. animal grazing, shuttle services and similar).

Local communities will be informed by the CONTRACTOR on planned road closures or disruption with at least 72 hours' notice through official communication and signs.

Access to settlements will always be guaranteed either through diversions or by allowing the passage of vehicles and livestock at certain hours through the use of proper materials (e.g. steel plates) over the trenches; when restrictions to access are unavoidable, appropriate alternative solutions will be agreed with local authorities and with owners or users and will be implemented.
Access to properties will be guaranteed or appropriate alternative accesses solutions will be are agreed with owners or users will be implemented.

Other mitigation measures to be taken by the CONTRACTOR are as follows:

- Easy-to-read signs will be used to indicate any type of diversion or of traffic changes related to project activities;
- Temporary traffic control and appropriate signs will be used to highlight warnings and to improve safety especially in intersections and junctions where a higher road accident risk is identified;
- Authorities will be notified when the oversize heavy vehicles will be required and vehicles will be escorted;
- To work at night times, all necessary permissions will be taken from the authorities;

- Material needed for the Project and pipeline elements in particular, will be transported by rail and pipe stockyards will be located close the rail lines in order to reduce transport on roads;
- All drivers will adhere to TANAP driving rules and appropriate training will be provided;
- Related Turkish legislation on speed limits depending on the type of vehicles and roads shall be obeyed.
- Transport of staff will be organized so the reduce the number of vehicles needed (i.e. use of busses and collective means of transport) to the extent possible;
- Trainings will be provided to the adults and children in the settlement areas along and around the pipeline route in order to increase traffic awareness within the scope of the Traffic Management Plan;
- All environmental measures shall be taken to prevent/minimize the possible negative impacts, such as moisturizing the routes in order to minimize the dust emission on unpaved roads,
- The transportation activities will be conducted in the day time and during the hours beyond rush hours (such as during the transported education times or when people are in the traffic for marketing etc. purposes on specific days) as much as possible, in order to minimize the noise and traffic congestion effects,
- Regular noise and dust emission measurements will be conducted on specific points determined by the environmental team, and necessary measures shall be taken if necessary according to the results achieved,
- In case of any spills, environmental team (to be established and directed by Environmental Department) shall collect and clean them by the “spill kits” found in the site, camp areas and fly camp areas as well as in the vehicles of environmental team for the case of emergency responses,
- In case of opening new access roads, the routes shall be determined so as to give minimum damage to environment and after the completion of the works, maximum rehabilitation of the environment will be ensured,
- Local authorities and local communities will be informed and consulted on impacts on traffic due to project activities and planned mitigation measures during the pre-construction and construction meetings and related Stakeholder Engagement Activities;
- A Grievance Mechanism will be set up for communities and individuals to formally communicate their concerns, complaints and grievances to the company and facilitate resolutions that are mutually acceptable by the parties;
- Compensations to accidental damages caused by project activities will be determined according to the Grievance Management Procedure that TANAP will prepare.

The CONTRACTOR will take certain measures for each of the impacts defined above. These measures are discussed in the following sections.

Besides, CONTRACTOR and subcontractors will follow the mitigation measures defined in CONTRACTOR Traffic Management Procedure (PLK-PDC-HSM-PL4-021), Road Safety Plan &Travel Management Plan ((PLK-PLN-HSM-PL4-001), Driver, Vehicle and Journey Management Procedure (PLK-PCD-HSM-PL4-006) and Project Risk Management Plan (PLK-PCD-HSM-P4-003).

3.3.1 Traffic Control and Management

Due to the traffic generated by the transportation of construction material and equipment roads and intersections will be subject to intense construction traffic. In order to avoid impacts of such situations the CONTRACTOR will;

- Inform local authorities regarding the date, time and route of the transportation activity,
- Agree with local authorities on traffic safety and management measures to be taken,
- Set up traffic signals and signs that are clear and visible, and appoint flagmen where necessary,
- Apply temporary traffic control methods at intersections and connections that hold higher risk for accidents,
- Ensure that all speed limits given in Appendix-1are obeyed,
- Provide supervision and escort for heavy machinery and other vehicles carrying construction material for road and railway crossings,
- Ensure that project related traffic is regulated during certain dates and times where local community will require to commute (to/from schools, commercial areas etc.) or take on any agricultural activity (animal grazing or other farming activities etc.),
    - Access of vehicles to settlements will be provided by placing steel plates over ditches during limited hours; in case where limitations on access cannot be avoided, alternative solutions will be determined in consultation with local authorities and community leaders,
    - Access to private property will be ensured or appropriate accessing alternatives will be determined in consultation with the owners or users,
- Provide detailed information (closure date and time, locations –where from, where to-, duration of closure etc.) 72 hours prior to closure of roads both to local authorities and communities.

Details are given in CONTRACTOR Traffic Management Procedure (PLK-PDC-HSM-PL4-021).

3.3.2 Access Roads

The CONTRACTOR will maximize its efforts to utilize existing roads to provide access to the construction of RoW and various AGIs. The access roads are used on a temporary basis to transport personnel, equipment, vehicles, heavy trucks, and materials to project work areas. Some of these roads may not support heavy construction equipment and, therefore, would be used only for light truck traffic (e.g., pickup trucks).

New access roads may be required in some areas, particularly the mountainous areas. New access roads will be designed with adequate slope and cross-fall drainage to channel storm water safely to off-road soakaways, thereby preventing erosion or siltation. When new access roads will be required CONTARCTOR will get approval from TANAP and perform all the permitting and Environmental and Social Impact Assessment studies for the new roads.

Before the commencement of construction, the CONTRACTOR will conduct a study to determine key routes for the additional access roads to be built. Access roads leading to AGIs such as compressor or pigging stations etc. will be permanent where as others will be used on a temporary basis. Access roads that will be used temporarily will be reinstated by the CONTRACTOR after the project activities are concluded.

New access roads will be opened once approved by EPCM and consulted with relevant authorities. The CONTRACTOR will obtain necessary permits for building all access roads. Issues of significance that pertain to building new access roads are listed below;

- Environmental and social aspects will be considered; special attention will be given to environmentally sensitive areas, water crossings, archaeological sites, natural resources, grazing lands, culturally important areas etc.,
- New access roads will be planned and built near existing road networks to avoid the need to construct lengthy roads,
- New access roads will be designed with adequate slope and cross-fall drainage to channel storm water safely to off-road soakaways, thereby preventing erosion or siltation and to provide rainwater to be transmitted safely out of the way,
- For the new roads to be opened site specific “Risk Assessment Report” will be prepared and submitted for EPCM approval. In this report additional mitigation measures will be identified, other than the ones indicated in CONTRACTOR site specific traffic procedures /plans (indicated

in Section 1.1. above) and related H&S deliverables (defined in CONTRACTOR Health and Safety Management (WRP-PCD-HSE-GEN 009)).

- An “Access Road Register” will be developed, updated and shared with EPCM by the CONTRACTOR,
- Temporarily used access roads will be removed/reinstated to its former state if no longer needed or requested by local communities,
- All access roads will have appropriate signs showing speed limits and designated routes to follow,
- Risk assessments will be carried out on all routes to be used for vehicular access weather temporary or permanent which will be reviewed and updated periodically or as required.

The details concerning reinstatement, erosion and landscaping issues are described in CONTRACTOR Erosion, Reinstatement and Landscaping Plan (PLK-PLN-ENV-PL4-002).

The procedures indicated in the TANAP Environmental Management of Change Procedure (TNP-PDC-ENV-GEN-002) will be followed during design and opening of new access roads.

3.3.3 Road Crossings

All intersection between the pipeline and existing roads will be identified by the CONTARCTOR and the most appropriate construction technique will be used to reduce disruptions to the extent possible. CONTRACTOR will communicate with the local authorities in coordination with TANAP for the road crossing works and ensure all the requirements defined by the authorities are in place.

Intersections between temporary roads and access roads will be designed so to be traffic-safe, especially for heavy-load vehicles;

CONTRACTOR will;

- Conduct a road survey to assess conditions of roads affected by the construction phase to identify if they require upgrading activities;
- Ensure to minimise the damages on the road infrastructure;
- Communicate with the local authorities in case of road damages and repair such damages;
- Ensure that they are returned to previous or better conditions once construction activities are concluded;

- Inspect frequently used roads on a regular basis to ensure that they are not damaged, or to implement repair activities when necessary;
- Maintain roads on a regular basis to prevent excessive dust generation.

In cooperation with the EPCM, the CONTRACTOR will prepare and present plans to relevant local authorities regarding the road crossing activities and will ensure that all requirements defined by these authorities are fulfilled as; Methods for every road crossing will be determined and agreed upon with authorities prior to taking any action. All methods and construction techniques proposed by the CONTRACTOR will aim to minimize possible disruptions caused by road crossings.

Appropriate supervision will be provided by the CONTRACTOR to control the flow of traffic when machinery needs to cross roads.

CONTRACTOR will ensure that road safety education will be provided at schools where roads used by children to reach schools are used by construction traffic. Vehicle traffic will be minimized during hours when children are traveling to and from school.

3.3.4 Road Maintenance and Reinstatement

The roads to be utilized for construction and operations are mostly existing paved or gravel public roads that will not require improvement or modification. However, in cases where the road base is deteriorated or unsafe, The CONTRACTOR will carry out necessary works to improve the existing roads for construction traffic in parallel to consulting with the relevant authorities.

Prior to construction, a survey will be conducted by the CONTRACTOR to assess conditions of roads likely to be affected by the construction in order to identify the upgrading activities (if any). Roads to be improved will be consulted with EPCM prior to consultations with relevant local authorities.

The CONTRACTOR will try to avoid excessive dust generation, deposit of mud, soil, rocks on publicly used roads and highways. Roads will be inspected on a regular basis for any damages. Damages and deterioration of roads and bridges will be repaired by the CONTRACTOR, ensuring that they are returned to previous or better conditions once the construction activities are completed.

3.3.5 Potential Traffic Accidents

In order to prevent traffic accidents, the CONTRACTOR will comply with the following;

- Ensuring that all heavy machinery and vehicles utilized in transportation activities (including transportation of personnel) are used by qualified and licensed drivers,
- Ensuring that all drivers know and comply with all traffic signs, are aware of hotspots of intense traffic that are expected along the pipeline in Lot 4 and are trained properly for on and off road conditions,
- Managing and monitoring working and resting hours of the drivers according to a fatigue management program that will also comply with Turkish Law and Legislation,
- Monitoring security arrangements for loads, vehicles and drivers,
- Ensuring that all roads and highways are signposted as required,
- Limiting night drive/transportation as much as possible to reduce the risk of accidents and obtaining necessary permits shall night transportation be required,
- Compensating damages caused by an accident due to project activities according to the Complaint Management Procedure.

3.3.6 Vehicle Control, Management and Maintenance

The CONTRACTOR will;

- Ensure that all vehicles (light and heavy) used are fit for the purpose and have been maintained in safe working order,
- Follow the procedures and recommendations in the Driver Vehicle and Journey Management Plan which defines the procedures to conduct safe journeys as well as to audit vehicles regularly to reduce noise and emissions,
- Perform regular inspection activities on vehicles in order to ensure that all required health and safety measures are taken and standards are met. All inspection activities will be carried out on a pre-trip and daily basis prior to mobilization,
- Ensure that periodic maintenance of vehicles used is carried out by manufacture approved 3rd party service providers.
- Ensure that all vehicles will adhere to the vehicle safety equipment standards as per Contractor Health and Safety Management (WRP-PCD-HSE-GEN-009) (Appendix-K of the Contract).

Details are given in CONTRACTOR Driver, Vehicle and Journey Management Procedure (PLK-PCD-HSM-PL4-006).

4.0 TRAINING

The CONTRACTOR will ensure that all Contractor personnel participate in all training programme including regular site-specific training sessions on E&S issues including Traffic Management and Safety throughout the course of the Contract. (Refer to App 5.4 of TANAP ESIA).

The CONTRACTOR will ensure that road safety programs will be implemented as per Appendix 5.7 of the TANAP ESIA.

The CONTRACTOR will ensure that relevant employees be trained to understand the provisions of safety driving due to the work conducted on site. The trainings below will be given to project personnel;

- Defensive Driving Training,
- Off-Road Driving Training,
- Anti-Rollover Training,
- Night Driving Training,
- Fatigue Management Training,
- TANAP Road Safety Management System Training.

Information about the other subjects such as traffic management related responsibilities, traffic signs and control, general project components related traffic rules and access roads along the RoW will be given to the relevant parties both with the “Traffic Management Trainings” and when needed according to the requirements of the work.

4.1 Performance Indicators

Performance indicators of TMP are given below;

- Total Traffic Accidents,
- Recorded Complaints of Project Vehicles and Drivers,
- Total Road Maintenance Recorded,
- Total Road Damage Recorded,
- Unsafe Drive Recorded,
- Visual dust monitoring, to determine appropriate actions,
- Km(s) of new access roads opened, Access Road Register
- Speed monitoring,
- Driver training undertaken versus planned.

5.0 MONITORING and REPORTING

The monitoring of the traffic activities during construction will be conducted by HS Manager in coordination with Social Manager.

5.1 Auditing of Record Keeping

Auditing records of vehicle maintenance, servicing, driver training, driver medicals, journey management forms, check calls, daily vehicle check list, night driving permits, safe pass cards, driver permit card will be carried out on a weekly and monthly basis. The Transport Services Supervisor is responsible for ensuring these audits take place efficiently and in the periods specified. The other responsibilities of this person are ensuring safe loading and unloading. He/she ensures that all kinds of the loads are securely loaded and transported until the final destination. These audits of records must be kept as used as part of the HS assurance process.

5.2 Incident and Accident Reporting

In case of any accidents made with a Contractor vehicle or personal vehicle, by any Contractor staff, the driver shall follow the Incident, Accident and Dangerous Occurrence Reporting Procedure. It is obligatory for all authorized drivers recruited within the Project, to drive safely, follow traffic rules, show courtesy to all road users, and familiarize themselves with local road conditions to adjust the driving habit.

All incidents irrespective of the cause/ fault will be immediately reported to the H&S supervisor who will fill the required form and investigate the incident (Appendix-2 & Appendix-3).

The details are given in CONTRACTOR Incident and Investigation Procedure (PLK-PCD-HSM-PL4-004).

APPENDICES

APPENDIX-1 : Legal Speed Limits According to Traffic Regulations

Vehicles (Code of Categories)	Urban	Urban Double Direction	Divided Roads	Motorways
Cars, SUV's (M1), (M1G),	50	90	110	120
Minibuses (M2),	50	80	90	100
Buses (M2-M3),	50	80	90	100
Pickups (N1), N1G)	50	80	85	95
Panel Vans (N1)	50	85	100	110
Trucks (N2-N3),	50	80	85	90
Motorcycle (L3)	50	80	90	100
Motorcycles (L4, L5, L7)	50	70	80	80
Motorized Bicycle (L1, L2, L6) Bicycle	30	45	45	-
Vehicles Carrying Dangerous Goods Special Certificated	30	50	60	70
Rubber Track Type Tractors	20	30	40	-
Towing	20	20	30	40
Heavy Machineries	20	20	20	-

APPENDIX-2 : Incident Report

INCIDENT REPORT	
Project Name	**Project No**
Date of the Report	
Classification	Environmental Lost Time Accident Near Miss
Date of the Incident	
Location of the Incident	
Who Reported the Incident	
Description of the Incident	Who, what, when, here, how and why Supporting photos, as relevant
Causes	
• Immediate Cause	
• Root Cause	
Immediate Actions Taken	
Corrective Actions Taken	
Who is assigned	
Verification	
Closing Date of the Incident	
Further Information	
Information Provided by:	Punj Lloyd-Limak JV Environmental Manager

APPENDIX-3: Incident Register

INCIDENT REGISTER
Reporting Period

Total of incidents	
To date	This Reporting Period

Total of incidents to date	
Open	Closed

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actioner	To Close By	Actual Close Out Date	

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resources & energy

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc. No.	**SYA-PLN-HSE-GEN-006**	**Rev**	**Status**
		P4-2	Re-IAA
Document Title	TRAFFIC, DRIVER, VEHICLE & JOURNEY MANAGEMENT PLAN		
Tag Nos			
Contractor	Sicim-Yuksel-Akkord JV		
Contractor Document No.		**Contractor Rev**	

Tick Box	Descriptions	Signature & Date
☒	**C1/APP** - Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	17.05.16
☐	**C2/AWC** - Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC** - Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4** - Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
☐	**C5/REJ** - REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

SICIM-YUKSEL-AKKORD JV	TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT -LOT 2-	TANAP WorleyParsons

TRAFFIC, DRIVER, VEHICLE & JOURNEY MANAGEMENT PLAN

Rev.	Status	Date (dd/mm/aa)	Document status Description	Issued by	Checked by	Approved by	TANAP Approval
P3-A	DIC	02/02/15	Discipline Internal check	PODR	KURV	TENP	
P3-B	IDC	03/02/15	Inter-Discipline check	PODR	KURV	TENP	
P3-C	IFR	05/02/15	Issued for Review	PODR	KURV	TENP	
P3-D	Re-IFR	10/02/15	Reissue for Review	PODR	KURV	TENP	
P3-E	Re-IFR	17/03/15	Reissue for Review	PODR	KURV	TENP	
P3-0	IAA	04/04/15	Issued as Approved	PODR	KURV	TENP	
P4-1	Re-IAA	24/07/15	Re-Issued as Approved	ABDN	KURV	TENP	
P4-2	Re-IAA	26/02/16	Re-Issued as Approved	FSTE	KURV	RODG	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P3-A	DIC	02/02/15	Discipline Internal check
P3-B	IDC	03/02/15	Inter-Discipline check
P3-C	IFR	05/02/15	Issued for Review
P3-D	Re-IFR	10/02/15	Reissued for Review
P3-E	Re-IFR	17/03/15	Reissued for Review
P3-0	IAA	04/04/15	Issued as Approved
P4-1	Re-IAA	24/07/15	Re-Issued as Approved Annex 1 - Journey Mangement Form improved and adapted (dual language) Chapter 6.2 - Roll-Cage requirement removed
P4-2	Re-IAA	26/02/16	Re-Issued as Approved Chapter 6.2 - "Fair Consequence Procedure" WRP-PCD-HSE-GEN-013, EPCM Requirements implemented

HOLDS

No.	Section	Description	Input From	Planned Date

Table of contents

1 PURPOSE

To provide guidance to help reduce, and ultimately eliminate serious road traffic incidents by implementing Journey Management controls.

To carefully manage all phases of the transportation process to eliminate hazards and any unnecessary exposure, reduce the residual risk through the proper selection and preparation of people, equipment and routes, in order to ultimately eliminate driving fatalities and injuries to all employees, families, contractors and third parties and minimize damage to equipment

2 RANGE

It applies to the activities of "THE CONTRACTOR", for the construction project of the TANAP gas pipeline, specifically: the activities of transporting (personnel, materials, equipment and machinery) and journeys.

3 DEFINITION OF TERMS AND/OR ABBREVIATIONS

Abbreviation/ Acronym	Description
Client	TANAP DOĞALGAZ İLETİM A.Ş, its affiliates, permitted assignees and legal successors.
Project	TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT as defined in the CONTRACT between parties
EPCM	Worley Parsons; Engineering Procurement Construction Management Contractor
Contractor or SYAJV	SYAJV - SICIM-YUKSEL-AKKORD Joint Venture
JM	Journey Management
HSE	Health, Safety & Environment

4 REFERENCES

- H&S Management System (SYA-PLN-HSE-GEN-002)
- Equipment Mobilisation Plan (SYA-PLN-GEN-PL2-001)
- Environmental Plan (SYA-PLN-HSE-GEN-001)
- THE CONTRACTOR's vehicles maintenance plan (SYA-PLN-HSE-GEN-006)
- Contractor Health & Safety General Requirements (TNP-PLN-HSM-GEN-005)
- HSE Training Plan (SYA-PLN-HSE-GEN-003)
- Disciplinary Action Procedure (SYA-PCD-HSE-GEN-002)
- Appendix K (BCH-AGR-CNT-GEN-013)
- TANAP Road Safety Management System:
  - HED-PLN-HSM-GEN-001 Road Safety Management Plan
  - HED-MAN-HSM-GEN-001 Road Safety Management Manual
  - HED-PCD-HSM-GEN-001 Driver and Vehicle Management Procedure
  - HED-PCD-HSM-GEN-002 Road Risk Assessment Procedure
  - HED-PCD-HSM-GEN-003 Transport Operations Procedure
  - HED-REP-HSM-GEN-002 Road Risk Assessment Report
  - TNP-MAN-HSM-GEN-001 Driver Manual
  - WRP-PCD-HSE-GEN-013 Fair Consequence Procedure

5 RESPONSIBILITY AND AUTHORITY

5.1 Project Manager

- Control, supervise and ensure the implementation of this plan

5.2 HSE Manager

- Application, control, monitoring and updating of the present procedure
- Monitors the overall implementation of the system and provides advice and guidance
- Solicits feedback on the effectiveness of the plan and ensures that any concerns are identified and solved
- Reports all incidents involving vehicles and/or drivers to the EPCM Site Manager and /or HSE Manager

5.3 Security Manager

- Activates the "Man-Lost" Procedure, when needed
- Notifies the Emergency Response Team Leader
- Informs EPCM Site Manager and /or HSE Manager, and also R3 Security Manager

5.4 Logistics Manager

- Enforcement, monitoring of compliance, updating the present procedure, makes decisions and takes actions considered as being necessary to improve its application.

5.5 Site Manager

- Responsible for the implementation of the present procedure on site
- Approve journeys upon road and weather conditions
- Follow-up journeys, provide that the data is preserved on the computer

5.6 Journey officer

- Being the "Call Receiver", he is responsible for following-up the journeys according to this procedure
- Retains a copy of the original JM Form which is kept by the driver
- Receives and logs the check calls
- Maintains a record of all completed JM Forms
- initiates "Man Lost" procedure if necessary
- If there is any deviation, the deviation form will be prepared by Journey Officer and receive the necessary approval from site manager (or in charge of site manager). Please refer to Deviation Form– Annex 2.

5.7 Drivers

- Be familiar with this procedure and the plan
- Attend and successfully complete the project-specific Vehicle and Driver Safety Education. Please refer to (HSE Training Plan SYA-PLN-HSE-GEN-003)
- Carry a reliable communication device (cell phones, radio, etc.) for emergency cases, especially when travelling in rural areas
- Follow all the requirements and report unsafe conditions

- Immediately notify the "Call Receiver", in case there is anybody in the vehicle not travelling in compliance with the plan
- Complete the journey as detailed in the JM Form (Annex 1) and keep in touch with the "Call Receiver".
- Contact the "Call Receiver" as soon as there is a need to change the planned journey arrangements so that the "Call Receiver" can revise the form accordingly
- Get confirmation from the "Call Receiver" for any deviation from the planned journey resulting in unplanned or overnight stops
- Inform immediately about any incident to "Call Receiver"

5.8 Passengers

- Be on time at the meeting point with the driver and never attempt to rush the driver.
- Secure his/her cargo by placing it in the cargo compartment or fastening it up. He/she shall not put any objects in front of the airbags.
- Ensure that the Journey Management Plan Form is completed.
- Request the checklist of the vehicle and a confirmatory check, if he/she is in doubt that the vehicle is not road worthy.
- Assist the driver while manoeuvring, if required.
- Always wear a seatbelt and adjust the headrest.
- Not smoke inside the vehicle.
- Advise the driver, if the driver fails to comply with the safety codes.
- Suggest a break when he/she feels tired.
- Report unsafe driving practices or performance of the driver, or unsafe conditions in the vehicle or on the road.
- While the vehicle is in motion, at least one passenger in the vehicle should remain awake to support the driver.

6 DEVELOPMENT OF ACTIVITIES

In order to follow the purpose described in Section 1, SYA JV shall apply practices of safe driving for all the vehicles and equipment that use the roads, as following:

6.1 General

- A video of the existing roads that serve as evidence shall be done before starting work (so that, at the end of the work they are on an equal footing as they were before the start of the work)
- Permissible speeds from km 375 to km 825, Spreads 3 and 4 will follow the speed limits for the road type and vehicle type being driven, according to the Turkish legislation (Annex 4).

  (The speed limit for off-road areas in TANAP project is 20km/h and 5 km/h in the vicinity of people. Additional precaution Risk Assessment will be prepared and the speed limit could be decreased according to road &weather conditions, etc.)
- Types of vehicles used / traffic that will exist in the project - please refer to Equipment Mobilisation Plan (SYA-PLN-GEN-PL2-001)

6.2 Safety measures for the conveyance of vehicles and equipment

All staff (no exceptions), contractors or personnel of THE CLIENT, driving THE CONTRACTOR's vehicles to transport personnel, materials, or load, must:

- be subject to medical visits before the allocation of the vehicle/equipment, which will be assessed with an eye exam, lab tests (drugs or alcohol consume), as well as exams demonstrating that the driver does not have any diseases developed in another company or project to affect development in the activities of THE CONTRACTOR.

- be subject to physical review to determine its suitability for handling specific equipment
- receive an induction course taught by safety and environment staff of the project and sign all the agreements, rules and regulations applicable to the HSE management system.
- be subject to drugs and alcohol tests, carried out randomly throughout the duration of the project.
- get internal warnings for each violation of the traffic laws and internal rules for driving.
- have current license issued by the responsible national official entity according to the vehicle or equipment operating and project driving permit (including the access pass) - Annex 3, obtained according to Appendix K - 16.2.4 requirements .
- to complete successfully the project-specific Vehicle and Driver Safety Education Courses provided by TANAP approved companies.

Administrative sanctions apply in the following manner:
(also refer to ''Disciplinary Action Procedure'' SYA-PCD-HSE-GEN-002 and to "Fair Consequence Procedure", WP Document WRP-PCD-HSE-GEN-013)

WRP-PCD-HSE-GEN-013 Traffic Rule Violation Categories:

- **Red Card** (Life threatening traffic violations) – Immediate dismissal include, but is not limited to:

  - Life threatening traffic violations include the following:
  - Disobeying directions conveyed on a road traffic sign at a railway crossing
  - Turning in the face of oncoming traffic
  - Illegal overtaking
  - Disobeying a red traffic light or red flickering traffic light
  - Exceeding the indicated speed limit by 30km/h or more
  - Stopping in the middle of the road to pick up/off load passengers or goods
  - Disobeying a pedestrian crossing (while there are pedestrians waiting to cross)
  - Driving a vehicle without a valid drivers' license
  - Driving a vehicle with the following defects:
  - Brakes
  - Both brake lights defective
  - Steering mechanism
  - Defective tyres (two or more)

- **Orange card** – First and final warning (Serious traffic offences) – First and final warning include, but is not limited to:
  - Disobeying a stop sign
  - Disobeying a no entry sign
  - Using an unlicensed or unregistered vehicle
  - Driving a vehicle without headlights switched on after sunset and before sunrise
  - Exceeding the indicated speed limit by 20km/h or more
  - Failing to use indicators to indicate your intention to turn
  - Passing a vehicle on the left hand side
  - Failing to wear a safety belt
  - Driving a vehicle with the following defects:
    - Electrical
    - Windscreen
    - Trailer lights
    - Trailer brakes

- **Yellow Card** - *These offences will be charged according to the Disciplinary Code (*SYA-PCD-HSE-GEN-002*). They involve any national traffic rule infringement or any workplace traffic rule that is not life threatening, serious, or on which elements of progression are applicable or no aggravating circumstances exist.*

Traffic infringements include but is not limited to:

- Failing to obey a no parking or no stopping road traffic sign
- Allowing the engine of a vehicle to run without proper control over the vehicle
- Exceeding the indicated speed limit by 10km/h or more

'Disciplinary Action Procedure'' SYA-PCD-HSE-GEN-002 reference:

- **first penalty**: written warning signed by the offender.
- **second penalty**: withdraw the keys of the driver without allowing him to drive for two days of actual work and possibility of being suspended without payment.
- **third penalty**: withdraw the driver licence, the safe pass card and the keys from the vehicle and the possibility for dismissal with prior analysis in conjunction with the Project manager and the HSE manager. No permission to the driver to use project vehicles
- **fourth penalty:** dismissal with prior analysis in conjunction with the Project manager and the HSE manager. No permission to the driver to use project vehicles

Minimum requirements for project vehicles safety equipment:

- 4 Wheel Drive
- IVMS (In-vehicle Monitoring System) and front view camera
- Seat belts (for the driver and all passengers riding in vehicles used to transport multiple individuals)
- Rear view mirrors (internal and external – both sides)
- Lights (head & tail, stop, turn signal, and emergency warning)
- Reflective warning triangle (portable emergency warning)
- Signage: Maximum number of passengers (buses and other similar vehicles only)
- Daytime running lights
- ABS brakes (and Electronic Stability Program-ESP, where possible)
- Backup alarms
- Fire extinguishers
- Spare tyre in good condition
- Hydraulic jack
- Environmental and emergency procedures manuals
- HI-VIS vest
- Emergency phones numbers
- Driver handbook (refer to SYA-GUI-LGM-PL2-002)
- Drinking water supply
- First aid kits
- Large candle backup light
- Emergency survival kits (climate/location-specific)
- Flashing lights (construction vehicles)
- Spare light bulb kit
- Fog lights
- Tow Line with suitable capacity
- Inspection and Drug and Alcohol Warning Decal to be posted on the driver's side front windshield/screen at the bottom corner, so as not to restrict driver's view.

6.3 Safe Worksite Layout

A safe worksite layout will be developed according to CONTRACTOR's Site Establishment Procedure but meeting the minimum requirements for:

- Pedestrian routes
- Vehicle routes
- Traffic control and Site entrances
- Proper safety and traffic signage

- Parking
- Loading
- Storage

6.4 Vehicle Inspection and Maintenance

All vehicles/ mobile equipment will be maintained in terms of use and should be inspected every day, before use; this verification must be reported to the Journey officer and HSE staff (the same will be the periodic mechanical inspection by specialized personnel).

Each driver/operator shall carry out a thorough inspection of the machine prior to operate, according to a daily checklist - to be delivered to the supervisor (The necessary documents/checklists shall be completed daily) If any abnormality is found in this inspection, the supervisor responsible for the area and the personnel of THE CONTRACTOR must be informed immediately for correction. Likewise, the driver/operator is obliged to immediately report any damage to the vehicle/equipment during the work day to the maintenance area.

Maintenance records will include the detailed inspection and repair procedures carried out for vehicles, and will be kept on all maintenance activities and maintained for the duration of the vehicle's use on the project.

All vehicles and equipment will be authorized by the project manager or designee, so that they can enter the places where the project will take place (the pass will be included in the driving permit and visible in the front of the car)

6.5 Vehicle Tracking

All the vehicle and equipment traffic will be tracked.

All vehicles will be equipped with GPS tracking devices and a designated personnel will check all traffic during the project duration.

Software should be able to give proper detailed reports about all trips. THE CONTRACTOR will submit separate username and password to EPCM & CLIENT who has the right to follow travels and take reports from the system whenever necessary.

6.6 Driving rules

All drivers (no exception) must know and comply with all the following:

- It is forbidden to carry any type of external passenger, family, community neighbour, etc. with the equipment, machinery or vehicles owned by THE CONTRACTOR.
- All passengers vehicles transport exclusively the capacity of passengers according to the recommendations of the manufacturer, without exception.
- Before attempting to start the vehicle or equipment, you must wear the safety belt, and ensure that passengers also do so.
- If, for any reason, the driver must talk on the phone, he must pull off in special designated areas. It is not allowed to use hands-free devices while driving, insert CDs, change channels on music player, control devices or find addresses on the phone. It is also forbidden to smoke or light cigarettes, eat or drink while driving. - in general, any possibility of distraction in the interior of the vehicle should be avoided.
- Avoid driving tired or after a day of physical or mental intense activity. Avoid driving during the night (when possible) or immediate inform the supervisor and journey officer when you do so and it's strictly necessary.
- Drivers must maintain a safe distance between vehicles. A safe distance means having enough time and distance between vehicles to allow for emergency braking to avoid an accident.
- Drivers must obey traffic signs, signals, and other postings while operating vehicles

- Passing moving vehicles is prohibited unless the driver being passed has acknowledged via hand-signal or radio that passing is safe. Never pass a stopped bus or multi-passenger vehicle loading/unloading persons.
- Drivers must operate vehicles with headlights on at all times.
- Drivers must not leave vehicle running unattended.
- Drivers must shut off motor to refuel. no smoking or operating mobile/cell phones while refuelling.
- Driving under the influence of alcohol or controlled substances is strictly prohibited.
- Driver and passengers must only sit in a designed seat and cannot ride-on or in the back of the vehicle without a seat.
- Vehicles must come to a complete stop to load and unload passengers.
- Drivers must park only in designated areas.
- Drivers must set parking brakes when leaving a vehicle unattended.
- Reverse parking should be practiced at all times when stopping the vehicle
- Drivers should not park in heavily congested areas or where heavy equipment is in operation, if possible.
- No one is allowed to smoke in project vehicles.
- No one is allowed to drive a vehicle on-site without previously being trained according to the HSE Training Plan (SYA-PLN-HSE-GEN-003)
- Driver will prepare the JM Form (Annex 1)
- Driver will obey JM Plan - every two hours stop vehicle in a suitable place take a break of 15 minutes

Note:

Authorized speeds to circulate in the project will be according to SYA-MAP-LGM-PL2-001.

The violation of speed limits is considered as a serious violation of the safety regulations.

For social events the use of CONTRACTOR's vehicles is not permitted. It is forbidden to transport children or pregnant women without permission and also to keep/handle domestic or wild animals in the cabin or in the cargo box.

6.7 Signalling

For the access to the track, signs are placed on the roads indicating the TANAP pipeline route mileage.

6.8 Transport

Prior to any transfer of machinery, the person in charge of handling will travel to detect potential risks and possible needs; this activity should be accompanied by a truck driver.

All the personnel who operate any vehicle/ equipment must comply with the following regulations:

- respect speed limits set out in this procedure
- respect and enforce traffic signals
- park in dedicated places for this purpose, never obstructing emergency routes and always reverse outputs for easy exit in case of emergency. if possible, use the parking lots and avoid main streets (in front of night clubs or similar places that, in the event of a mishap, is related to the image of the company)
- always respect the pedestrians, taking mostly the priority of the driver.

- when parking on slope, place shims behind the wheel of the vehicle - front left (driver's side) - and turn the steering wheel in such a way that if the brake is bounced, the vehicle automatically binds on the edge, blocking itself and avoiding an accident; the same when parking on the left side, make the manoeuvre in the opposite direction.

do not operate any vehicle without first:

- having received the course of safe handling
- having made the initial verification

management and credential of qualified driver licenses:

- issued by a Government entity according to the vehicle
- issued by THE CONTRACTOR

6.9 Training

All drivers/operators, including subcontractors will receive the training, according to the HSE Training Plan (SYA-PLN-HSE-GEN-003) and CLIENT requirements in the Appendix K - 16.2.5, so they will meet internal rules and the legislation for driving vehicles/equipment.

7 JOURNEY MANAGEMENT PROCEDURE

7.1 Assessment before journey

All potential journeys that involve driving and/or road transportation will be screened and assessed in terms of hazards, risks and costs, considering the following items, where practicable:

- Road trip will be limited if possible and will be done only when necessary
- A safer method of travel (plane, train, etc.) will be considered
- A business trip that is likely to be required can be delayed and possibly combined with a later trip
- A journey can be combined with another by sharing a vehicle
- A relevant vehicle for the route and road conditions should be available (for example - 4WD vehicle)
- A driver will possess a Driver Permit Card and will comply with the procedure before planning any trip
- The person who plans the journey will be fully aware of the routes, the dangers on the road and the road conditions of journey, from a safety point of view
- The journey will be planned to be completed during daylight hours, whenever practicable
- During adverse weather conditions, journeys will be avoided as much as possible. In particularly harsh conditions, cancelling the trip or rescheduling will be considered
- Journeys that exceed 14 hours/ day will be split to a second day. This allows the driver to rest
- Planned night work is forbidden (exception made when approved by EPCM Project Manager after submitting Risk Assessment and Journey Management Form)

Before departure, the driver will ensure that:

- all emergency supplies are in the vehicle
- has a cell phone for emergency cases
- rested enough before beginning the journey

General rule:

- When the proposed journey is field oriented, it requires a journey management (JM) form, and the JM procedures of THE CONTRACTOR are to be followed. The journey management will also be in accordance with the Health & Safety procedures.

7.2 Journey management plan

JM plan **will apply** to these activities :

- Vehicle movements with departure from/arrival to sites or constructions on public roads
- Any one-way or round trip of more than 100 km, which is conducted on public roads within the same day and outside the designated urban areas
- Any one-way or round trip of more than 50 km, which is conducted within the same day around the camp sites
- Even under 50 km in total: on roads with frequent or significant hazards or through security risk areas
- Journeys involving the transportation of large scale, critical or sensitive plant equipment, as determined by the site manager
- Convoy operations (multiple vehicle)

JM plan **will not apply** to these activities:

- The journeys within the Ankara Metropolitan Area
- The journeys to/from airport
- Any single or round trip journey of not more than 100 km within the same day

All business trips during the business week, weekends and holidays are subject to the below procedure:

- The person who decides (or assigned) to go to a trip will make a pre-request orally or via e-mail to the authority in his department
- The requestor will fill-in the relevant forms and get approval from the authorized people in the system, if the result of the pre-request is positive

The requestor will enter all journey details into the JM system, which should demonstrate at least the following information:

- purpose/reason of the travel
- time (duration, estimated departure and arrival time)
- details about the route to be used (including distances)
- details about the vehicle to be used
- details about the driver and the passengers
- department confirmation

Only authorized users can make computer transactions. Therefore any person who requires immediate trip but has no computer or system access will:

- request from his line manager to enter this journey to the system
- if the above are not possible, fill-in the form manually, take all relevant authorizations and deliver them to the Logistics manager

When the user enters journey requisition to the system, the system generates automatic e-mails to the authorities. Then the authorities will control and approve the requisition in the sequence of the system

During this process, the Journey Officer will control the vehicle before going out for the trip

The Journey Officer will record all vehicle movements by receiving "check calls" every 2-hours until the journey ends

The driver will retain the form and send a copy to the Journey Officer

The driver will report any points of concern that are identified along the route to the Journey Officer

- reason for delay (if any)
- deteriorating road conditions, etc.

The other people who complete the journey will also submit the significant situations encountered during the journey to the Journey Officer:

- identified dangers and risks on the road
- other emergency measures needed

7.3 Check calls

The Journey Officer will administer and properly register the vehicle movements that are in the scope of JM, via "check calls" using the "Check calls" table in ANNEX 1.

The driver will :

- Communicate with the "Call Receiver" every 2 hours, give location information and continue until the journey is complete
- Immediately contact to the "Call Receiver" as soon as it is realized that the planned journey arrangements may need to be changed and revise journey as appropriate
- Get confirmation from his department for any deviation from the planned journey resulting in unplanned and/or overnight stops. (he may contact the Duty Manager during the out-of-office hours)
- Not use the Duty Manager's number for routine check calls

7.4 In case check call is not received

If the driver or his companion does not make the planned check call within 2 hours, the Journey Officer will initiate the Emergency Procedure.

In case the loss of contact lasts more than 1 hour after the determined contact time, then it will be assumed that the driver and passengers are either lost, or are involved in an accident. The Security Manager will put the "Man-Lost Procedure" in action and will immediately inform EPCM Site Manager and /or HSE Manager, and also R3 Security Manager.

7.5 Journey management plan form

A specific "Journey Management Plan" in accordance with the route or kind of transport, will be prepared and shared with the travellers before they perform any driving on company business. A copy of the plan will be kept at the workplace. The travellers will carry a copy of the plan, also.

Before taking a trip to an unfamiliar location, the travellers will learn the routes they are going to use and take printed driving directions with them. Although a GPS device may be used for directions, the printed version of the directions will be kept in the vehicle as a backup.

7.6 Man-lost procedure

7.6.1 Purpose

An incident is an unexpected event resulting in loss. Therefore, all drivers can avoid incidents by taking everything under control and overcome unforeseen problems encountered through good planning and safe driving. The aim is to locate and rescue a driver and his passenger(s) who fail to reach the destination at the estimated arrival time.

7.6.2 Basic principles

- In case of any loss of contact lasts more than an hour after the scheduled call, initial search will be conducted to determine the approximate location of the vehicle
- In case no result is achieved for the previous attempt, a full-scale search shall be commenced if the loss of contact with the driver lasts for more than 2 hours after the scheduled call

- Assumptions, starting debates or blames for over-reaction about giving decision for activating the search and rescue system are not acceptable. This is because this system is based on over-reaction rather than under-reaction
- The emergency procedures will be periodically tested
- All the vehicles of the Search and Rescue Team will be equipped with emergency lights
- A "Man-lost Incident" will always be investigated after the task is completed

7.6.3 Activating the procedure

- The Security Manager will first notify the Emergency Response Team (ERT) Leader about the situation with all the required details
- The ERT Leader will immediately undertake the responsibility of searching to rescue with all means of available tools, including search and rescue helicopter and local emergency services
- The ERT Leader will get in contact with the senior managers at the departure and arrival sites of the lost person to ask for support

7.6.4 Instructions to lost people

The lost people should always stay with the vehicle and not leave until rescued. If the vehicle is operable, they will begin to backtrack only if the track is visible and they have enough fuel. If not, they will find the nearest and highest point or an identified landmark. They will use radio or mobile phone for help

During daylight, the lost person should:

- Use a mirror or make a fire to send a signal to others
- Protect himself/herself from the sun or the cold
- Use the vehicle for shelter and make signals by the hour and every half hours and wait for rescue

After nightfall the lost person should:

- Not move from last position
- Use both vehicle lights and fire
- Use all available means to attract attention when the search team is noticed

7.6.5 Instructions to Search & Rescue Team members

Each team will consist of minimum 2 persons. The team members will:

- Call out the lost person with his full name and continue the search by radio or phone call
- Determine when the co-workers last saw the missing person
- Notify the base camp to organize on-site search when the missing person and his last location is identified
- Notify the Head Office about the search and the changing conditions at all times
- Adopt the most suitable search pattern for the area
- Only follow the assigned routes along the lines
- Meet at the place where the lost person was last seen or another designated location on the way back
- Continue searching by shouting and listening for a response
- Never leave the searching line
- When the lost person is found, assess the condition and give the first aid
- Stop searching before the nightfall

8 ANNEXES

Annex 1 - JM FORM (includes "Check calls" table)

Annex 2 – Deviation Form

Annex 3 - Project Driver Permit

Annex 4 – Speed limits

Annex 1 : Journey Management Form

Reason for journey / Yolculuğun amacı **:** _____

Drivers/Şöförler: _____Mobile/Cep Telefonu :_____

Passengers/ Yolcular: _____

_____

_____

Plate Number /Araç Plakası _____**Type**/ Tipi : _____ **Colour**/Rengi : _____

Journey Start Location/ Seyahat Başlangıç Yeri : _____

Destination /Gidilecek Yer :_____

VIA (Planned Stops)/ Planlanan Mola Yeri : _____

ETD : _____ETA : _____

(**estimated time** / **date of departure**) (**estimated time**/**date of arival**)

(Tahmini çıkış saat/tarihi) (Tahmini varış saat/tarihi)

CHECK CALLS (Time & Location) to head office be made by driver:

Kontrol Aramaları(Saat/Bulunulan yer) şöför tarafından ofise haber verilecektir:

Time Saat	**Location** Yer	**Person Contacted** İletişim Kurulan Kişi	**Overdue?** Gecikme	**Additional Details/Action Taken** İlave Detaylar/Alınan aksiyon

Driving after dark may only be authorized for emergencies or special requirements
Gece sürüşü sadece acil durumlar ve özel izin gerektiren durumlarda yapılabilir

TRIP AUTHORIZED BY / Seyahati Onaylayan:

(MJS) _____(**Signature**/ İmza)_____

Journey Controller/ İrtibat kurulacak kişi: ……

Annex 2: Deviation Form

DEVIATION FORM

Güzergah Değişikliği Formu

Starting Point/Başlangıç Noktası**:.....**

Ending Point/ Bitiş Noktası**: .....**

Details Of Deviation / Güzergah Sapma ayrıntıları:

.....
.....
.....
.....

Approval / Onay **: .....**

Annex 3

SAMPLE OF DRİVİNG PERMİT / ACCESS PASS

front side

DRIVING PERMIT / ACCESS PASS

Picture

Name:

Surname:

Position:

Company:

Driver license and category:

City,Country:

ID number

rear side

VALID ONLY WITH A DRIVING LICENCE
The card owner has taken all the necessary trainings and is authorized to drive in TANAP project.

Issued by:
Date:

Annex 4

LEGAL SPEED LIMITS FOR VEHICLES IN TURKEY

VEHICLE TYPE	IN RESIDENTIAL AREAS	OUT RESIDENTAL AREAS		FREEWAYS (AUTOBANS)
		Intercity Double Highways	Divided Highways	
Cars (M1,M1G)	50	90	110	120
Minibus (M2)	50	80	90	100
Bus (M2-M3)	50	80	90	100
Pick-up (N1,N1G)	50	80	85	95
Panel van(N1)	50	85	100	110
Truck (N2,N3)	50	80	85	90
Tow Truck (N2,N3)				
Motorcycle (L3)	50	80	90	110
Motorcycle (L4, L5, L7)	50	70	80	80
Bicycle with motor (L1,L2,L6)	30	45	45	No Entry
Bicycle				
Vehicles carrying dangerous substances and vehicles with special freight transport permit (unless otherwise indicated on the permit.)	30	50	50	60
Tractor with wheels	20	30	40	No Entry
Vehicles towing another damaged vehicle.	20	20	30	40
Work equipment	20	20	20	No Entry without permission from the organization responsible for road construction, maintenance and/or operation

WorleyParsons
resources & energy

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	SYA-PLN-SOC-GEN-001	REV	STATUS
		P4-0	IAAC
Document Title :	Community Safety management plan		
Tag Nos.			
Contractor :	SYA - Sicim-Yuksel-Akkord JV		
Contractor Document No.		REV	

		Signature	Date
X	**C1-** Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Construction may proceed.		26-6-15
	C2- Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall NOT proceed.		
	C4- Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:

Prepared by: On behalf of: SICIM-YUKSEL-AKKORD JV	TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT – LOT 2	TANAP WorleyParsons resources & energy

COMMUNITY SAFETY MANAGEMENT PLAN

Rev.	Status	Date (dd/mm/yy)	Document status Description	Issued by	Checked by	Approved by	TANAP Approval
P4-A	DIC	16/03/15	Discipline Internal Check	ARAO	KURV	TENP	
P4-B	IDC	06/04/15	Inter Discipline Check	ARAO	KURV	TENP	
P4-C	IFR	16/03/15	Issued for Review	ARAO	KURV	TENP	
P4-0	IAAC	07/05/15	Issued as Approved for Construction	ARAO	KURV	TENP	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	16/03/15	Discipline Internal Check
P4-B	IDC	06/04/15	Inter Discipline Check
P4-C	IFR	16/03/15	Issued for Review
P4-0	IAAC	07/05/15	Issued as Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

Table of Contents

APPENDICES

LIST OF TABLES

LIST OF ABBREVIATIONS

AoI	Area of Influence
CRP	Community Relations Plan
CRT	Community Relations Team
e.g.	for example [exempli gratia]
EMP	Environmental Monitoring Plan
ERP	Emergency Response Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
etc.	*et cetera* (and so on)
H&S	Health and Safety
i.e.	*id est* (that is)
ISO	International Organization for Standardization
IVMS	Integrated Vehicle Monitoring System
min.	minute
OHSAS	Occupational Health And Safety Management System
PPP	Pollution Prevention Plan
RAP	Resettlement Action Plan
RoW	Right of way
RWMP	Recruitment and Workers Management Plan
SEP	Stakeholder Engagement Plan
SYA	Sicim-Yüksel-Akkord Consortium
TANAP	Trans Anatolian Natural Gas Pipeline Project
TMP	Traffic Management Plan
TS	Turkish Standards
WMP	Waste Management Plan

LIST OF DEFINITIONS

EPCM	Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi

1. PURPOSE AND SCOPE

Lot-2 of the TANAP Project aims to provide a Community Safety Management Plan that includes all relevant parties. Most of the technical, environmental, and social project information and commitments as outlined in this plan aims to draw out general safety approaches for the safety of the community that will be impacted by the project activities to be carried out during the pre-construction and construction phase.

This plan is a generic document that is used as a framework approach for the community safety applications and it is a living document and it will be detailed during the pre-construction and construction phase with the additional information and experiences gained during the execution of the activities.

2. LEGISLATION FRAMEWORK

All activities in the management and monitoring plans will comply with the Environmental and Social Management System (ESMS) of TANAP Project that aligns with:

- TANAP's environmental and social management policies;
- National statutory and regulatory requirements;
- International Organization for Standardization (ISO) 14001:2004 Environmental Management System Standard;
- ISO 9001: Quality Management Systems;
- OHSAS 18001: Occupational Health and Safety Management System;
- All requirements/ mitigations/ commitments stipulated in TANAP Project's Environmental and Social Impact Assessment Report.

Activities conducted for providing the safety of the community as identified in this document will be undertaken to support the construction activities of SYA with adherence to Turkish national regulations.

2.1. TANAP Environmental and Social Management Policies

Health and Safety (H&S) responsibilities are integral to the way for the Project and TANAP management at all levels is dedicated to protect and prevent harm to employees, communities, and all others who could be affected by the project activities.

It is SYA's obligation to undertake any action, which may be necessary or required to establish and maintain safe working conditions while performing work for the TANAP Project.

SYA recognises that it has the responsibility to ensure that all the potential adverse impacts on the environment associated with the Project are either avoided or appropriately mitigated through the implementation of good environmental management practices.

In addition to the above stated plans and procedures, the following documents will be used as a reference during the construction activities for the actions that might have impact on the safety of the community:

BCH-SPC-PPL-PLG 012	Specification for Blasting
BCH-DID-PPL-PLG-040	Typical Trench Design at Fault Crossing
BCH-DID-PPL-PLG-042	Typical Road Crossing (Open Cut)
BCH-SPC-PPL-PLG-010	Pipeline Construction Specification
TNP-PLN-HSM-GEN-004	H&S Management Plan
ILF-MAN-HSM-GEN-001	Health and Safety Manual for Construction
TNP-PLN-HSM-GEN-005	Contractor Health and Safety General Requirements
TNP-POL-PRM-GEN-001	TANAP Integrated Management System Policy
ILF-PCD-LAC-GEN-001	Procedure for the Management of Land Interfaces

TS EN 1594:2010	Gas Supply Systems - Pipelines for Maximum Operating Pressure over 16 bar - Functional Requirements
SYA-PLN-SOC-GEN-002	Community Relations Management Plan
SYA-PLN-ENV-GEN-001	Environmental and Social Management System
SYA-PLN-HSE-GEN-006	Traffic, Driver, Vehicle and Journey Management Plan
SYA-PLN- ENV-GEN-002	Environmental Monitoring Plan
SYA-PLN-ENV-GEN-007	Erosion, Reinstatement and Landscaping Plan
SYA-PLN-ENV-GEN-003	Waste Management Plan
SYA-PLN-ENV-GEN-004	Emergency Response Plan
SYA-PLN-SOC-GEN-004	Recruitment and Workers Management Plan
SYA-PLN-ENV-GEN-005	Pollution Prevention Plan

This document should not be considered to include all the hazards that might be encountered during the project execution activities, safe practices that should be performed, or safe conditions that should be maintained during the course of the works by SYA and its sub-contractors.

Accordingly, all work shall be conducted in compliance with all applicable environmental laws and regulations as well as the standards and best-practices, which support the protection, preservation and enhancement of the environment. To achieve this aim, SYA shall:

- Establish and implement Health and Safety Management System of the Project;
- Perform H&S Management reviews, to ensure compliance with established policies, procedures and applicable laws and regulations;
- Be committed to building relationships with government, the scientific community, and the public to promote the development and communication of safe solutions to the community health and safety problems;
- Ensure the continuous improvement of the H&S Management System, wherever possible and sustainable.

All project personnel employed by SYA shall be individually and collectively responsible for adherence to, and effective application of the policies and principles contained in health and safety policies of TANAP.

3. ROLES AND RESPONSIBILITIES

SYA will be responsible for the performance of all sub-contractors with respect to the project specific plans and shall comply with all relevant project standards, statutory requirements, permit and licence conditions and secure all applicable permits and licences.

SYA will appoint on-site inspectors having appropriate experience and qualifications. The structure of the team is addressed in Section 4.1.

In relation to this plan;
The Project H/S Manager will be responsible for:

- Following up community related KPIs,
- Submitting community related incident reports to EPCM.

The Social Manager will be responsible for:

- Ensuring that the activities are in compliance with this Plan,
- Ensuring employees are aware of the requirements of this Plan and the Code of Conduct,
- Reviewing the Plan and make necessary revisions on an annual basis,
- Ensuring sub-contractors are aware of the requirements of this plan and are in compliance,
- For supporting site based staff to undertake required community safety awareness/trainings,
- To inform, investigate and report all community related incidents to Project HS Manager.

Community Liaison Officers (CLO) will be responsible for:

- Communicating with the local authority for specific project activities such as crossings, blasting and similar,
- Participating in and delivering safety awareness training to, local school children and their parents and/or their teachers,
- Raising community awareness of safety issues through village meetings and classroom lessons,
- Meeting local communities in advance of construction occurring in a particular area, to describe the construction activities and to explain the dangers associated with the construction works,
- Advising local communities of the routes that will be used by construction vehicles and conduct necessary trainings for the communities / make announcements if necessary.

Site HS Manager will be responsible for:

- Ensuring all safety measures are taken on construction site.

4. COMMUNITY SAFETY MANAGEMENT PLAN

This plan outlines the methodology to be followed by SYA for provision of a safe environment for the communities that live and/or facilitate in the area of the impact of the project during the pre-construction and construction phase.

SYA will establish his own Health and Safety Team, who will be responsible for health and safety related issues. This team is responsible with the health and safety of the workers and community within the impact area of the project construction activities.

The construction activities cover but not limited with the following works along the right of way (RoW), transportation of the pipes and travels of all project vehicles through the national, provincial, village roads and access roads, their interaction with the traffic through the above mentioned roads, all activities conducted within and around the residential locations, blasting activities during the construction, pipe laying works, pipe welding activities etc.

SYA is responsible with the execution of the above stated activities and it will be responsible with providing a safe environment to the community and all project related employees and workers. The workers health and safety is not covered in this plan. This plan only focuses on the safety issues related to the community.

4.1. Structure of the Team

The Community Relations Team (CRT) of SYA will have a coordinating role for the community safety related issues. CRT of SYA will be supported by the Health and Safety (H&S) Team of SYA for the health and safety related issues, the environmental inspectors of SYA for the environment and traffic related issues. In case there is a community safety concern, CRT of SYA will be informed about the issue and CRT will report directly to the Project Management.

CRT Team will be established by SYA during pre-construction phase and will be responsible for managing relations with related local communities at site on a daily basis throughout the construction phase. The teams will periodically report about social performance of the Project. Detailed information on the CRT is given in Community Relations Management Plan of SYA (SYA-PLN-SOC-GEN-002).

The H&S Representative is responsible for a continuing survey of SYA's and its Sub-Contractors operations to ensure that the adequate safety measures are provided for the safety of the community.

Key Engagement Activities Register and the reporting period of this register will be specified by EPCM (see Appendix-1).

4.2. Work Procedure

During the execution of works, SYA's H&S Representative will audit and inspect the suitability of the works at site with the procedures and method statements. If the expected procedures and method statements does not minimize the risk of activities on the safety of the community, the work will be immediately stopped by the H&S Manager and additional mitigations will be provided through revised method statements. The work stoppage due to unsafe conditions will be considered as an incident and Incident Register given in Appendix-2 will be filled out.

The following documents will be prepared by SYA before the execution of the works at a specific work site;

- Community risk analysis report,
- Site Specific Work Procedure including the mitigation measures to minimise or eliminate the risks of the works to the community that were foreseen in the risk analysis report,
- The authority permits required to execute the works,
- Certificates of all equipment to be used for the project (the equipment will meet applicable in-country and other H&S regulations), and
- Transport Management Policies/Plans/Procedures.

SYA is responsible to develop a comprehensive Road Safety Management Plan that will include the following:

- Procedures for tracking movement of all vehicles working for the Project including the use of electronic devices to monitor location, speed, etc.
- The trip reports will be filed for each trip prior to the start of each journey by preparation of Journey Management Plan
- Further, drivers are to drive no more than 9 hours per day, 15 min. break in every 2 hours' drive, 7 days per week without having a 2 day break;
- The policies and procedures will be established, including a program that will issue right of use of vehicles within the Project, driver training, supervision and social impact of vehicles on local community, villages, roads etc.

4.3. Safety Training

All the personnel of SYA will be trained to get adequate understanding of the provision of required safety level due to the work conducted at site. The Training Register given in Appendix-3 will be filled and filed for each training session. The following trainings sessions will be provided to the SYA's own personnel and its sub-contractors personnel:

- Each personnel will take an induction training including general safety issues when newly employed, promoted and/or transferred from another site or position.
- Follow-up training will be conducted to all personnel regularly to memorize, refresh or update the general safety concerns explained during the induction training.

- Hazard Awareness/Compliance Training will be given to all employees and foremen to describe the possible hazards that are to be faced during execution of specific duties. This training will focus on specific positions and duties and safety risks that might be associated with these assignments.
- Specific Trainings to be given that are required to be taken for execution of certain jobs. Before an employee is to be assigned for such kind of jobs, the competency certificate of the employee will be obtained.
- In addition to the above stated training sessions, the specific work methodology prepared for provision of community safety will be trained to the related responsible staff to provide appropriate execution of the work.

The CRT of SYA will develop and undertake community safety awareness training to cover topics including pedestrian safety, traffic safety, and construction areas safety. SYA will target school children as a particularly vulnerable group in regard to road safety. SYA will conduct risk assessments when construction activities are particular close to populated areas in order to identify other mitigations or trainings/awareness that may be required.

The project commitments related to the provision of the safety of the communities to be applied by SYA are listed in Table 4.1 and Table 4.2.

Table 4.1: General Commitments Related to the Provision of the Community Safety

No	Location under Effect	Project Commitments and Mitigation Measures	Other SYA Management Plans/Documents	ESIA Chapter
1	Roads crossings	Posting signs at open-cut road crossings and other measures will be implemented to help ensure safety and minimize traffic disruptions.	Traffic, Driver, Vehicle and Journey Management Plan (SYA-PLN-HSE-GEN-006)	2.8
2	Channel crossings	The stability of the channel at the crossings shall be monitored and remedial actions implemented if signs of instability such as erosion, sedimentation or other indicators of channel instability are noted.	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	
3	River Crossing	A protocol will be signed with the relative authority and necessary permits will be obtained before the start of activities for crossing rivers along the pipeline route.	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	
4	Pipe Yards	The pipe yards will be fenced and levelled with proper entry/exit gate(s). There will be a containerized tally office, a store office and a QA/QC office.	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	
5	Roads	Some of these roads may not support heavy construction equipment and, therefore, would be used only for light truck traffic (e.g., pickup trucks)	Traffic, Driver, Vehicle and Journey Management Plan (SYA-PLN-HSE-GEN-006)	2.11.3

No	Location under Effect	Project Commitments and Mitigation Measures	Other SYA Management Plans/Documents	ESIA Chapter
6	Particularly the mountainous areas	New access roads will be required in some areas, particularly the mountainous areas. Existing roads and bridges would likely have to be improved for safe pipe and personnel transport.	Traffic, Driver, Vehicle and Journey Management Plan (SYA-PLN-HSE-GEN-006)	2.11.3
7	New Access Roads	New access roads will be designed with adequate slope and cross-fall drainage to channel storm water safely to off-road soak ways, thereby preventing erosion or siltation	Traffic, Driver, Vehicle and Journey Management Plan (SYA-PLN-HSE-GEN-006)	2.11.3
8	Airports	Approval needed by airport authorities where pipeline passes close by (Sivas (NuriDemirağ) Airport (General Directorate of Civil Aviation)).	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	App 4.3
9	RoW	Land to be acquired in the scope of the project will be expropriated by the General Directorate of BOTAŞ, assigned as the Nominated Official Authority based on the Host Government Agreement as per the Law on Expropriation No. 2942	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	4.5
10	RoW and Stations	All the construction studies within the scope of the project will be performed in compliance with the provisions of the “Regulation on Buildings Constructions in Disaster Areas” which was published in the Official Gazette no. 26454 and dated 06.03.2007 (amended by the Official Gazette no. 26511 and dated 03.05.2007).	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	4.5
11	RoW	The project route determination studies were performed avoiding the areas with high risk of landslide, flood, avalanche, rock fall whenever possible, and TANAP's construction technology and design were carried out taking the earthquake risks and active fault zone crossings into account.	Erosion, Reinstatement and Landscaping Plan (SYA-PLN-ENV-GEN-007)	4.5
12	RoW and Stations	SYA will implement all safety measures to prevent accidents and damage to the health of employees and to the parties whose health is affected by construction operations; to prevent occupational diseases; and to prevent environmental and social impacts;	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	4.5
13	RoW and Stations	SYA will not permit reprisal of any employee objecting to safety conditions or refusing to perform work under unsafe conditions;	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	4.5
14	RoW and Stations	SYA will develop Emergency Response Plans (ERP) to be able to respond to accidents and emergency situations for all activities;	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	4.5
15	RoW and Stations	SYA will develop Incident Investigation Procedures to ensure all incidents are investigated to prevent recurrence of similar incidents;	Incident Investigation Procedures (SYA-PCD-HSE-GEN-003)	4.5
16	RoW and Stations	SYA is committed to comply, in all its activities, with the applicable legislation, internationally accepted standards, and best business practices of the International Natural Gas Pipeline Industry;	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	4.5

No	Location under Effect	Project Commitments and Mitigation Measures	Other SYA Management Plans/Documents	ESIA Chapter
17	RoW and Stations	SYA is aware of the importance of individual advancement and organizational improvement by encouraging further education and training, as well as, to communicate the requirements of health, safety, environmental and social policies and improve health, safety and environmental skills and competency requirements of employees, contractors and others at the workplace	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	4.5
18	RoW, Stations and Camp Sites	SYA will prevent pollution and protect the environment and communities by implementing a mitigation hierarchy aimed at avoiding, reducing, restoring, and, as appropriate, off-setting adverse impacts of following activities; The noise and vibration to be generated by construction activities, Ambient Air Quality of the construction sites, (Cumulative impacts on air quality are likely to occur at most sites where construction will be conducted concurrently. Considering the type of projects identified, construction activities will generate both respirable dust and gaseous emissions, hence will have a negative impact on health of the communities.) Soil Quality and Ground Water Quality at the construction sites, Surface water quality (oil and grease, siltation, turbidity, at the river crossings, etc.) Domestic waste water will be treated to the acceptable efficiency and the discharge will cause the change of water quality at the discharge location,	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	
19	Entire Project Corridor	SYA establish its own ESMS in compliance with the last version of the requirements of ISO 14001 Environmental Management System Standard and ensure that ESIA and Environmental and Social Management Plan (ESMP) requirements are addressed and met.	Environmental Monitoring Plan (SYA-PLN- ENV-GEN-002)	12.5

Table 4.2: Specific Commitments Related to the Provision of the Safety of the *Communities*

Impact	Project Commitment		Other Management Plans and Documents	ESIA Chapter
	Mitigation Measures	Responsibility Phase		
Infrastructure and Mobility *These interactions will need to be carefully evaluated as they could potentially trigger disruption of daily activities.(ESIA Chapter 12.5)*				
Impacts on traffic and mobility Impacts on infrastructures and utility service	The following main standard mitigation measures will be applied throughout the construction phase: • Local communities will be informed on planned road closures or disruption with at least 72 hours notice through official communication and signs; • Easy-to-read signs will be used to indicate diversion or traffic changes related to project activities; • Temporary traffic control and appropriate signs will be used to highlight warnings and to improve safety; • Temporary traffic control will be used in intersections and junctions where a higher road accident risk is identified; • Intersections between temporary roads and access roads will be designed so to be traffic-safe, especially for heavy-load vehicles; • Authorities will be notified when the oversize heavy vehicles will be required and vehicles will be escorted; • Frequently used roads will be inspected on a regular basis to ensure that they are not damaged, or to implement repair activities when necessary; • Transport during night-time will be avoided to the extent possible, in order to prevent road accidents; • Material needed for the project, and pipeline elements in particular, will be transported by rail and pipe stockyards will be located close the rail lines in order to reduce transport on roads; • All drivers will adhere to TANAP driving rules and appropriate training will be provided; • All project related vehicles will respect Turkish legislation on speed limits depending on the type of vehicles and roads; • Transport of Project staff will be organised so to reduce the number of vehicles needed (i.e. use of busses/minibuses and collective means of transport) to the extent possible; • Trainings will be provided to the adults and children in the settlement areas along and around the pipeline route in order to increase traffic awareness within the scope of the Traffic Management Plan, • Local authorities and local communities will be informed and consulted on impacts on traffic due to project activities and planned mitigation measures during the pre-construction, construction meetings and related Stakeholder Engagement Activities, • Compensations to accidental damages caused by project activities will be determined according to the Grievance Management Procedure ***of SYA.***	**Access to settlements** During the pre-construction phase SYA will prepare site specific studies to identify remote settlements, settlements with poor road conditions and settlements with limited access to basic services (markets, healthcare centres, school facilities etc.) Based on the outcomes of these studies SYA will liaise with local authorities and will agree on site specific solutions, both at a design and logistical level, to ensure that impacts on access are reduced to a minimum. Where: the presence of settlements with high impacts is likely to be expected to be generally distributed in all affected Regions, therefore additional studies should be performed along the entire pipeline corridor. **Road accident risks** According to Logistics plan that will be prepared by the SYA, roads and intersections subject to intense construction traffic will be provided with additional mitigation measures such as traffic control and warning signals; in addition all SYA vehicles including trucks will be equipped with Integrated Vehicle Monitoring System (IVMS) and the vehicle movements will be monitored through these systems. SYA will also liaise with local authorities to inform them on solutions found for these areas. In addition drivers will be made aware of the presence of these hotspots during induction and routine training sessions. Where hotspots of intense traffic are expected along the entire pipeline corridor, particularly in the surroundings of specific Project components such as compressors stations, campsites and pipe stockyards.	• Traffic Management Plan (TMP) • Grievance Procedure • Community Relations Plan (CRP) • Stakeholder Engagement Plan (SEP) • Recruitment and Workers Management Plan	8.3.1.3
Livelihood and Economic Displacement *Land acquisition for TANAP and the other projects considered could have a significant impact on livelihood and economic displacement. New highways and railways and also industrial areas in the same area of the TANAP project, the expropriation activities could affect the same people and have the potential for example of reducing the viability of some farming activities. Furthermore, limitations to economic activities due to traffic and limitations to access to market have the potential to be cumulated in certain areas with difficult access (ESIA Chapter 12.5)*				
Impacts on livelihood from livestock activities	• Transhumance paths will be identified during pre-construction activities to ensure that interferences with Project activities are reduced to a minimum; where interferences are unavoidable appropriate alternative solutions will be agreed with affected local communities; • All drivers will adhere to TANAP driving rules and appropriate training will be provided to ensure that attention is paid to reduce road accidents with animals; • Trenches and project areas will be surrounded with stock-proof fence and appropriate signals in order to reduce animal and human injury risks;	**Transhumance paths** SYA will prepare studies to identify animal transhumance paths in areas where pastoralism is particularly relevant for communities' livelihood. Once the areas have been identified, SYA will liaise with local communities to agree on solutions to reduce impacts, such as finding alternative paths or planning construction activities to avoid periods when transhumance is performed (mainly beginning and end of summer).	• RAP • Grievance Procedure	8.3.3.3

Impact	Project Commitment		Other Management Plans and Documents	ESIA Chapter
	Mitigation Measures	**Responsibility Phase**		
Community Health, Education and Safety *Cumulative impacts can be expected in several locations particularly related to increase in heavy and slow traffic and the consequent increased risk of road accidents. The potential concurrent presence of construction sites in the same area can increase the risks to the community, particularly if health and safety measures are not coordinated. The cumulative impacts on air quality and noise could increase the health risks for the local affected communities at selected locations (ESIA Chapter 12.5)* *The following points are described as the minimum requirements to be followed during the project land preparation and construction phase of the project.* *• The crossings on the trenches will be made safe and recognizable, surrounded by fences and illuminated.* *• Community members will be informed and consulted for the location of the crossing points, they will be informed on the health and safety precautions and procedures through consultation meetings.* *• Related Turkish legislation on speed limits depending on the type of vehicles and roads shall be obeyed. Project personnel should be warned/trained to be more sensitive while driving in or close to settlements.* *• Local authorities and local communities will be informed and consulted on impacts on human health and safety due to project activities and planned mitigation measures during the pre-construction and construction meetings and related Stakeholder Engagement Activities.* *• Compensations to accidental damages caused by project activities will be determined according to the "Grievance Management Procedure" and in line with the Turkish legislations.* *• Trenches and project areas will be perimetered with fence when the trenches are filled with water and appropriate signs to reduce human injuring risks; trespassing of fenced areas will be prohibited and security personnel will control these areas.* *• The maximum length of open trench per spread will not exceed 7 km per spread / the limits specified in technical specifications.*			
Impacts on local healthcare services and facilities activities	• The mitigation of impacts on local healthcare services and facilities are partially addressed in the Emergency Response Plan. The following main standard mitigation measures will be applied throughout the construction phase: • Assessment of all healthcare facilities in thearea of influence (AoI) will be performed to ensure that Project activities do not limit access to the structures; if limitations are unavoidable SYA will agree with local authorities on alternative solutions to guarantee healthcare access to communities; • Campsites will be provided with health facilities equipped to deal with emergency procedures and routine medical operations, so as to avoid pressure on existing healthcare facilities to the extent possible; • Assessment of all healthcare facilities in the AoI will be performed to determine which facilities should be used for emergencies and medical treatments that cannot be dealt by internal healthcare facilities; attention will be paid so as to avoid impacts on users of these facilities; • SYA will liaise with local health authorities to ensure that any critical issues are communicated promptly and that agreed solutions are found; • Access to settlements will always be guaranteed either through diversions or by allowing the passage of vehicles and livestock at certain hours through the use of appropriate solutions; • Local authorities and local communities will be informed and consulted on impacts on health services and facilities due to project activities and planned mitigation measures during the pre-construction meetings and Stakeholder Engagement Activities;	**Access to health facilities** During the construction phase SYA will identify settlements where healthcare services are more critical, due to absence of healthcare facilities, distance to reach facilities or presence of elderly population. In these cases SYA will liaise with local health authorities to ensure that access to healthcare services is not limited, implementing additional solutions such as organised transportation or increase of visiting doctors in certain periods. Where: high impacted settlements are likely to be found in all Regions, therefore studies should be performed along the entire pipeline corridor. Medical risk assessment document that was prepared by 3rd party company for TANAP and SYA's Health Risk Assessment document (SYA-PCD-HSE-GEN-029) will be considered.	• Grievance Mechanism	8.3.4
Impacts on human health and safety	The following main standard mitigation measures will be applied throughout the construction phase: • Trainings will be provided to the adults and children in the settlement areas along and around the pipeline route in order to increase traffic awareness within the scope of the Traffic Management Plan; • Transport during night-time will be avoided to the extent possible, in order to prevent road accidents; • All drivers will adhere to TANAP driving rules and appropriate training will be provided; • All project related vehicles will respect Turkish legislation on speed limits depending on the type of vehicles and roads; • Trenches and project areas will be premiered with fence and appropriate signs to reduce human injuring risks; trespassing of fenced areas will be prohibited and H&S personnel will control these areas; • Workers will be subject to legal health screening during employment procedure and if necessary will be provided with required immunisation treatments; all health information will be dealt with confidentially; • Random drug and alcohol tests of the workforce will be performed, recorded and audited; • Health awareness training will be provided to workers, during induction and periodically throughout their employment; training will include information on communicable diseases; • SYA will liaise with local health authorities to ensure that any critical issues are communicated promptly and that agreed solutions are found;	**Road accident risks** According to Logistics plan that will be prepared by the SYA, roads and intersections subject to intense construction traffic will be provided with additional mitigation measures such as traffic control and warning signals; in addition all SYA vehicles including trucks will be equipped with IVMS systems and the EPCM will monitor vehicle movements through these systems. SYA will also liaise with local authorities to inform them on solutions found for these areas. In addition drivers will be made aware of the presence of these hotspots during induction and routine training sessions. Where: hotspots of intense traffic are expected along the entire pipeline corridor, particularly in the surroundings of specific Project components such as compressors stations, campsites and pipe stockyards. **Trespassing accidents** In order to avoid risks of accidents due to presence of construction site and construction activities, SYA will identify all residential areas within 500 m from the pipeline corridor. Additional fencing and warning signals will be used in these areas to avoid trespassing and general accidental events. In addition local population will be informed about construction activities taking place through stakeholder engagement. **Communicable diseases** Based on epidemiological information available, SYA will prepare studies on incidence of communicable diseases in affected Provinces, to ensure that all precautions are taken to prevent the transmission of such diseases due to the presence of workers. SYA will liaise	• EMP • TMP • WMP • ERP • RWMP • Pollution Prevention Plan (PPP)	8.3.4.3

Impact	Project Commitment		Other Management Plans and Documents	ESIA Chapter
	Mitigation Measures	**Responsibility Phase**		
	• Campsites will be provided with health facilities equipped to deal with emergency procedures and routine medical operations; • Assessment of all healthcare facilities in the AoI will be performed to determine which facilities should be used for emergencies and medical treatments that cannot be dealt by internal healthcare facilities; • All wastes will be segregated and recycling procedures will be set up; licensed domestic solid waste disposal areas will be identified through communication with the local authorities; licensed hazardous waste disposal area are identified through communication with the local authorities; temporary site waste storage areas will be identified and arranged in compliance with local regulations. • Medical waste will be disposed of through appropriate contractors; • Catering providers will conserve, prepare and serve food according to national regulations and international standards; catering operations will be regularly inspected and non-compliances will be reported promptly; • Measures for preventing zoonotic disease transmission will be implemented; • Emissions of pollutants in air and wastewater comply with national regulations and international standards; • Emissions of dust will be reduced through the watering of roads, especially unpaved ones. • Local authorities and local communities will be informed and consulted on impacts on human health and safety due to project activities and planned mitigation measures during the pre-construction meetings and Stakeholder Engagement Activities; • Compensations to accidental damages caused by project activities will be determined according to the Compensation Policy that SYA will prepare;	with local health authorities to agree on appropriate strategies and plans to mitigate the transmission of communicable. Medical risk assessment document that was prepared by 3rd party company for TANAP and SYA's Health Risk Assessment document (SYA-PCD-HSE-GEN-029) will be considered.		
Impacts on local education services	The following main standard mitigation measures will be applied throughout the construction phase: • Assessment of all schooling facilities in the AoI will be performed to ensure that Project activities do not limit access to the structures and that disturbance to school activities is avoided; if limitations and disturbances are unavoidable, SYA will prepare a site specific risk assessment and will agree with local authorities on alternative solutions; • SYA will liaise with local education facilities to ensure that Project activities do not interfere with transport of students to schools; if limitations are unavoidable, SYA will agree with local authorities on alternative solutions; • Special attention will be paid in the Traffic Management Plan to identify areas where there is a higher presence of children (i.e. schools, school bus stops) to ensure that all necessary mitigation measures are implemented to reduce the risk of road accidents; • Compensations to accidental damages caused by project activities will be determined according to the Compensation Policy that SYA will prepare;	**Mobile education** SYA will assess the presence of mobile schooling in settlements in the AoI. Once the Logistics Plan is prepared interferences between construction activities and mobile education need to be identified. SYA will then liaise with local education authorities to plan strategies so to avoid restrictions to mobile schooling, through additional mitigation measures that may include identifying alternative routes or allowing the passage of school busses at certain times. **Safety and disturbance to schools in surroundings of construction activities** SYA will identify school facilities within 500 m from the pipeline corridor. SYA will then liaise with local authorities to agree on strategies to reduce disturbance to schooling activities and reduce safety hazards for students.	• TMP	8.3.4.4
Impacts on disturbances and nuisances to daily activities	The following main standard mitigation measures will be applied throughout the construction phase: • Emissions of dust will be limited through road watering, especially on unpaved roads; • Local authorities and local communities will be informed and consulted on impacts due to project activities and planned mitigation measures during the pre-construction meetings and Stakeholder Engagement Activities;	**Noise, vibration and dust emissions** SYA will identify all residential areas within 500 m from the pipeline corridor. Additional mitigation measures will be used in these areas to avoid disturbing surrounding houses, including avoiding night-time work, use of protective barriers and watering of roads. **Presence of workers** Additional Stakeholder Engagement Activities will be implemented in settlements surrounding campsites, to ensure that the presence of workers does not create situations of conflict and tension. The situation will be regularly monitored and any critical situations will be promptly reported. Where: in settlements close to campsites.	• RWMP • Community Relations Plan • Stakeholder Engagement Plan	8.3.3.4

5. MONITORING, EVALUATION AND REPORTING

The monitoring of the construction activities will be conducted on continuous basis when there is a work conducted by SYA at site by the H&S Representative. The execution of the activities at site by SYA from the point of view of Community Safety Management will be assessed by the H&S Representatives of SYA and will be regularly communicated to the CRT of SYA. In addition to that the Environmental Inspectors of SYA will also communicate all Community Safety Issues including the traffic to the CRT of SYA, who collects all the above stated feedback and reports the outcomes of the monitoring activity through monthly reports to EPCM.

In case there is a community safety risk or an incident, the CRT and H&S representative of SYA will communicate the issue immediately to the Construction Management of SYA and then to EPCM via Incident Register given in Appendix-2. Construction team has responsibility to communicate community safety issues to CRT of SYA.

The community safety measures implemented in the Site Specific Work Procedures will further be evaluated with their outcomes as a result of the execution of the activities. As a result of these assessments conducted the safety measures implemented in Site Specific Work Procedures are developed to a much more efficient and practical applications.

The outcomes of the community safety related monitoring activities of H&S Representatives are reported in the monthly reports with detailed assessment of the case specific applications and results.

Appendix-1: Key Engagement Activities Register

KEY ENGAGEMENT ACTIVITIES REGISTER - LOT 2
Reporting Period:

Month	Date	Location (village, town, authority office, etc.)	Attendees (number and description)	Meeting Type (Introductory, Awareness, Regular, Other)	Key Notes/Outcomes

Appendix-2: Incident Register

INCIDENT REGISTER - LOT 2

Reporting Period:

Total of incidents	
To date	**This reporting Period**

Total of incidents to date	
Open	**Closed**

Date Raised	Contractor Registration Number	Location	Incident Summary	Actions		Close Out		Comments
				Corrective Actions	Actionee	To Close By	Actual Close-out Date	

Appendix-3: Training Register

TRAINING REGISTER - LOT 2
Reporting Period:

Date	Subject	Duration (min)	Location	Attendees (who)	Number of attendees	Total Manhours

WorleyParsons
resources & energy

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc. No.	**TKF-PLN-ENV-PL3-020**	**Rev**	**Status**
		P4-0	**IAA**
Document Title	**Traffic Management Plan**		
Tag Nos			
Contractor	**Tekfen Construction and Installation Co., Inc.**		
Contractor Document No.	**TKF-PLN-ENV-PL3-020**	**Contractor Rev**	**P4-0**

Tick Box	Descriptions	Signature & Date
☐	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** Review not required. Construction may proceed For documents status IFI, no action required. For documents with status different of IFI, resubmit for information as IFI at next revision code.	
☐	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
Comment Response Sheet

Document Title	Tekfen Traffic Management Plan	**Originator**	**M Morgan**
Document Number	TKF-PLN-ENV-PL3-020	**Rev**	**P4-C**

Except for the following identified comments, all other comments on this document have been resolved or incorporated.

* O - Open, C - Closed

No.	Section/ Page	Comment	By	Response	By	Date	O/C *	Remarks
	Section 2, Scope	Please add: "This plan will be distributed to all subcontractors, including pipe transportation subcontractors, who will be obliged to comply with the commitments and requirements contained within the Plan. "	EPCM	Added.	M.T.	19.07.2016	O	
1	Section 3 Reference	Please add reference to night work procedure, corrective and preventive action procedure, highway related regulations (for permitting, road crossing, installing signage, etc)	EPCM	Added.	M.T.	19.07.2016	O	
2	Section 5 Responsibilities	Please add that the Project HS & ES Manager will also be responsible for overall performance of the Health and Safety Management System.	EPCM	Added.	M.T.	19.07.2016	O	
3	Section 5 Responsibilities	Please add the following to site H&S Manager position: assist site management about the health and safety requirement according to TANAP and legislative requirements, report the procedural deficiencies to HS&ES Manager, take necessary precautions if the vibration /noise levels exceed the legal or project requirements, identify the hazards and assess the risks (inform the site management)	EPCM	Added.	M.T.	19.07.2016	O	
4	Section 5 Responsibilities	Please add the following to Env Manager position: work closely with site Site HS Manager , share the records with Site HS Manager (also add dust related measurements)	EPCM	Added.	M.T.	19.07.2016	O	
6	Sectiom 6.2 Routing Of Construction Traffic	Please add that a road and access road risk assessment will be prepared and issued to EPCM	EPCM	Added.	M.T.	19.07.2016	O	
7	Section 6.3 Traffic Control And Management	Please add that dust will be managed as per Pollution Prevention Plan (TKF-PLN-ENV-PL3-010). Page 15: Please note that the speed limit will be defined according to Road Risk Assessment and max speed limit will be 30 km/h in RoW	EPCM	Added.	M.T.	19.07.2016	O	
8	Section 6.4 Road Crossings	3rd bullet: please add that night worlk will be undertaken in accordance with Night Work Procedure (provide reference).	EPCM	Added.	M.T.	19.07.2016	O	

9	Section 6.6 Maintaining Highways	Comment last bullet: please add that a RA will be carried out before placing workers on a public road to clean the roads.	EPCM	Added.	M.T.	19.07.2016	O	
11	Section 6.9 Noise And Dust Measurements	Please add "dust" to last part of sentence: "complaints about noise/vibration ***and dust*** are received."	EPCM	Added.	M.T.	19.07.2016	O	
12	Section 7 Records	Please confirm that Traffic Mgmt training records are "restricted" and, if so, please add footnote as to why they are restricted and who has access.	EPCM	Added.	M.T.	19.07.2016	O	
	General	Please add that Tekfen will keep an access road register to track how many KM of new access roads were opened and dates when they were reinstated.	EPCM	Added.	M.T.	19.07.2016		

TEKFEN CONSTRUCTION	TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT LOT 3	TANAP

TRAFFIC MANAGEMENT PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP Approval
P4-A	DIC	11.05.2015	Discipline Internal Check	MTAS	SBAG	MKOP	
P4-B	IDC	11.05.2015	Inter-Discipline Check	MTAS	SBAG	MKOP	
P4-C	IFR	13.05.2015	Issued for Review	MTAS	SBAG	MKOP	
P4-0	IAA	19.07.2016	Issued As Approved for Construction	TASM	BAGS	KOPM	

DOCUMENT REVISION HISTORY

REV.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	13.03.2015	Discipline Internal Check
P4-B	IDC	20.03.2015	Inter-Discipline Check
P4-C	IFR	26.03.2015	Issued for Review
P4-0	IAA	19.07.2016	Issued As Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1. PURPOSE

The purpose of this plan is ;

- to set out mitigation measures to reduce the environmental and social impact of traffic movement during Project execution
- to maximise use of existing roads and tracks
- to minimize opening new access roads
- to process for obtaining approval for opening new access roads
- to ensure public accesses are maintained
- to identify transport routes and vehicles/loads that are allowed on each route
- to suppress dust
- to manage traffic safety via speed limits, driver training, safety signage, flagmen, etc
- to proceed pre-use surveys to document condition of roads

2. SCOPE

This Plan applies to all traffic management issues at project affected areas associated with TANAP Natural Gas Pipeline Project during the pre-construction and construction period.

This plan will be distributed to all subcontractors including pipe transportation subcontractors, who will be in comply with the commitments and requirements contained in this plan.

3. REFERENCES

TKF-PCD-HSM-PL3-001 Management of Change Procedure
TKF-PLN-HSM-PL3-001 Project HS Plan
TKF-PLN-ENV-PL3-001 E&S Management Plan
TKF-PLN-ENV-PL3-003 E&S Training Plan
TKF-PLN-HSM-PL3-002 Driver, Vehicle and Journey Management Plan
TKF-PLN-ENV-PL3-012 Construction Camp Management Plan
TKF-PLN-ENV-PL3-014 Community Safety Management Plan
TKF-PLN-ENV-PL3-015 Community Relations Plan
TKF-PLN-ENV-PL3-016 Employment and Training Plan

TKF-PLN-ENV-PL3-009 Waste Management Plan

TKF-PCD-QAC-PL3-010 Corrective and Preventive Action Procedure

BCH-REP-ENV-GEN-003 APPENDIX 5-3 Community Relations Plan of ESIA Report

BCH-REP-ENV-GEN-003 APPENDIX5-2 Community Safety Management Plan of ESIA Report

BCH-REP-ENV-GEN-003 APPENDIX 5-4 Employment and Training Plan of ESIA Report

BCH-REP-ENV-GEN-003 APPENDIX5-7 Traffic Management Plan of ESIA Report

TNP-PCD-SOC-GEN-001 Grievance Management Procedure

All Related Highway Regulations

4. DEFINITIONS AND ABBREVIATIONS

TANAP	Trans Anatolian Natural Gas Pipeline
ESIA	Environmental and Social Impact Assessment
RoW	Right of Way
ESMS	Environmental and Social Management System
CLO	Community Liaison Officer
HS&ES Manager	Health,Safety and Environmental, Social Manager

5. RESPONSIBILITIES

TEKFEN's Construction Manager has the overall responsibility for the implementation of the site activities stated in this procedure.

TEKFEN's Project HS & ES Manager will direct the field team where necessary and he will be responsible for the overall performance of **the Health and Safety**, Environmental and Social Management System (ESMS) via Environmental Manager and Social Manager.

The Environmental Inspector (Field Environmental personnel) will assist the TEKFEN Construction Manager during the implementation of this procedure.

The principal on-site role of TEKFEN will be the monitoring of construction activities to ensure the implementation of mitigation measures to minimize any adverse environmental impacts.

Site HS Personnel will assist and monitor the parking areas inside the camps and working areas along the RoW.

Construction Manager :

- Ensure that necessary resources are provided for all safety measures to be implemented,
- Ensure all safety measures are implemented on construction sites,

Project HS&ES Manager:

- To review the Plan and make necessary revisions,
- To ensure that all employees and sub-contractors are informed about the requirements of the Plan,
- To control the performance of all subcontractors,
- Ensure suitable and sufficient assessment of all risks to the health and safety of their employees, or any third parties and all risks to environment, caused by work activities.
- Ensure competence of involved personnel, appropriate information, instruction and training are given to employees.
- **To be responsible for overall performance of Health And Safety Management System.**

Site HS Manager:

- To ensure that all safety measures are taken on construction site.
- To audit and inspect the subcontractors with regards to implementation of this plan
- To ensure that assessments are recorded, reviewed and maintained as valid.
- **To assist the site management about the health and safety requirement acc. to the TANAP and legislative requirements, report the procedural deficiencies to HS&ES Manager, take necessary precautions if the vibration/noise levels exceed the legal or project requirements, identify the hazards and assess the risks.**

Environmental Manager:

- To implement, and monitor the Environmental Plans,
- To audit and inspect the subcontractors in the environmental point of view,
- To keep the environmental records,

- To have noise and vibration monitored and take necessary records.
- **To work closely with the Site HS Manager**
- **To share the records with the Site HS Manager**

Site Environmental Advisor/ Inspector

- To do daily environmental inspections,
- To warn people who do not comply with the environmental instructions,
- To ensure to take the environmental precautions at the construction site.
- Daily activity reports are provided promptly.

Social Manager:

- To ensure the compliance to this Plan,
- To produce monthly report with regards to implementation of social mitigation measures
- To inform, investigate and report all community related incidents to Project HS&ES Manager,
- To ensure all community complaints are registered and followed up in accordance with the Community Relations Plan

Community Relations Advisor/ CLO

- To carry out daily community relations activities in accordance with the Social Plans.
- To participate in, or deliver safety awareness training to, local children and their parents and/or their teachers,
- To raise community awareness of safety issues through village meetings and classroom lessons
- To meet with local communities in advance of significant traffic impact occurring in a particular area, to describe the activities and to explain the dangers associated with the construction works.
- To advise local communities of the routes that will be used by construction vehicles.

- To ensure all grievances received from the affected communities and other stakeholders to be registered and followed up in accordance with Complaints Mechanism explained in the Community Relations Plan.

6. METHOD

TEKFEN will comply with the following community liaison requirements:

• TEKFEN will implement design and construction best practice measures to mitigate infrastructure and property damage when planning activities such as for primary roads, including highways, the trenchless construction technique will be used to avoid interruption of traffic. Crossings of secondary and local roads will be performed through the open cut technique, which requires the temporary closure of the road (generally 1-3 days). In these cases delays in travel times and difficulties in reaching certain areas could occur, however diversions will be created if no alternative routes are present in order to guarantee road access to settlements and houses. Once the construction is over, affected roads will be returned to their previous state and possible damages will be repaired. Affected settlements and related authorities will be informed at least 72 hours prior to interruption of traffic.

• TEKFEN will implement proper planning and construction measures to address inconvenience to communities caused by impeded access, temporary or permanent blocking of access or restricted access to routes normally used by Project-affected people, thus creating longer and delayed journeys; or the temporary or permanent exclusion of affected people from areas of land traditionally used for cultivation, gaining access to water, grazing or leisure. Access to settlements will always be guaranteed either through diversions or by allowing the passage of vehicles and livestock at certain hours through the use of appropriate solutions (e.g. steel plates over the trenches); when restrictions to access are unavoidable, appropriate alternative solutions will be agreed with local authorities. Access to properties will be guaranteed or appropriate alternative accesses that are agreed with owners or users will be implemented. TEKFEN community liaison team will engage with Project-affected people via community meetings prior to construction activities starts, documenting their concerns, explaining the reasons for and the duration of the inconvenience, conveying the contact details and listening to their suggestions. During construction and other project activities according to the nature of the work follow up meetings will be organised as per need. Minimum one follow up meeting will be held.

• TEKFEN will disclose relevant Project information to help affected communities understand the risks, impacts and opportunities of the Project and provides such communities

with information on the purpose, nature and scale of the Project, the duration of proposed Project activities, and any risks to the communities. TEKFEN's Social Advisors and CLOs will organize meetings at least three days before the initiation of construction works, namely before land clearance activities.

- TEKFEN will inform the affected communities about the grievance mechanism they have established to receive affected communities' concerns and grievances about TEKFEN environmental, social performance and related traffic issues and facilitate resolution of them.

6.1 Access Roads

If new access roads that require land rental except the areas that are not specified in ESIA report, TEKFEN shall follow the format in PROCEDURE FOR RENTAL AGREEMENT (TKF-PCD-PPL-PL3-021) Attachment 2 "Table of Contents for Environmental and Social Assessment of Newly Required Land" and submit the assessment to EPCM. TEKFEN's Field Environmental personnel will ensure that:

Key access routes will be determined prior to commencement of any construction activities and will be considered and discussed as part of the environmental and social process. The pre-construction surveys should include photos and maybe videos which will be processesed by a mix team up of environmental and social staff and the records will be kept on site offices. Also a copy of each record will be supplied to main office as well. The following environmental aspects will be considered in determining the location of the access roads:

- Archaeology;
- Nature reserves;
- Environmentally sensitive areas;
- River crossings (particularly if the road is going to be used for the transportation of fuels and chemicals during construction and operation).

The locations of access roads, other infrastructure and the pipeline will be selected such that they meet the following requirements:

- Balance project costs with biophysical and socio-economic issues/considerations;
- Satisfy the hydraulics requirements of the transportation system;
- Minimize passage through wetland areas;
- Preferentially utilize land already impacted by human activities.
- Access will be via specified routes, which will be agreed to previously with the relevant authorities.

- Existing, upgradeable roads and the Right of Way will be used where practicable, to avoid the need to construct new roads.
- Maximise use of existing roads and tracks
- Minimise opening new access roads
- Access roads to previously inaccessible sensitive areas will be avoided
- Access roads will be designed so as to limit physical land usage and the concomitant need for land clearing and/or vegetation removal
- Temporary roads will be removed when no longer needed and will be reinstated. All damage to existing roads will also be reinstated by TEKFEN.
- Any additional routes will be selected to avoid ecologically sensitive areas, and to minimize erosion.
- TEKFEN will liaise with the appropriate regulatory authorities to gain approval to use, and regularly inspect, the road infrastructure.
- Culverts will be installed, as necessary, where access roads cross watercourses.
- Watercourse crossing locations will be selected so as to avoid unstable watercourse beds or banks.
- The size of new project road/bridge watercourse crossings will be minimized.
- New project road/bridge watercourse crossings will be oriented so as to be nearly perpendicular to the axis of the watercourse channel.
- Temporary access roads will be kept free of deposits to prevent silt, oil or other materials from entering drains or watercourses. Small dams in roadside ditches may therefore be required to assist in silt retention, particularly on steep slopes.
- Access routes to be used by construction traffic will be properly signposted. This will be sufficient to prevent vehicles from leaving the designated routes and ensure that the appropriate speed limits are enforced particularly through residential areas.
- Access and site roads will be maintained in good condition.
- Suitable measures will be implemented to avoid damage to public roads and any damage will be repaired to an equal or better standard in a timely manner.
- TEKFEN will remove all temporary roads or road enlargements, except where local communities or landowners request that a new road be left in place. EPCM/Client will advise TEKFEN regarding the views of regulators, environmental considerations and the concerns of stakeholders for those roads that are to be left in place.

6.2 Routing Of Construction Traffic

The following main standard mitigation measures will be applied throughout the construction phase:

- Relevant authorities and communities within the affected area are consulted to agree on specific routes for use by construction traffic to avoid any sensitive residential areas and unsuitable parts of the road network.

- The working width of the pipeline construction route will be used where practicable, as the principal transport route for moving supplies to the head of operations.

- Precautions will be taken by TEKFEN to avoid damage to the public highways used by vehicles or other items of equipment. Timber mats, tyres or steel plates will be laid as necessary, in particular under tracked equipment. Any road damage will be repaired.

- Hump-backed, Roman or Seljuk bridges, steep gradients and sinuous or narrow roads will be avoided where practicable.

- Advance warning will be given of any proposed road diversions and closures.

- TEKFEN will comply with all statutory vehicle limits (width, height, loading, gross weight) and any other statutory requirement.

- All intersection between the pipeline and existing roads will be identified and the most appropriate construction technique will be used to reduce disruptions to the extent possible;

- A survey will be conducted to assess the existing and post conditions of the roads to be used by the construction. An additional survey will be conducted to understand whether the access roads used require upgrading activities and to ensure that they are returned to previous or better conditions after construction;

- Access to settlements will always be guaranteed either through diversions or by allowing the passage of vehicles and livestock at certain hours through the use of appropriate solutions (e.g. steel plates over the trenches); when restrictions to access are unavoidable, appropriate alternative solutions will be agreed with local authorities;

- Access to properties will be guaranteed or appropriate alternative accesses that are agreed with owners or users will be implemented;

- Local communities will be informed on planned road closures or disruption with at least 72 hours notice through official communication and signs;

- Easy-to-read signs will be used to indicate any type of diversion or of traffic changes related to project activities;

- Temporary traffic control and appropriate signs will be used to highlight warnings and to improve safety;
- Temporary traffic control will be used in intersections and junctions where a higher road accident risk is identified;
- Intersections between temporary roads and access roads will be designed so to be traffic-safe, especially for heavy-load vehicles;
- Authorities will be notified when the oversize heavy vehicles will be required and vehicles will be escorted;
- Frequently used roads will be inspected on a regular basis to ensure that they are not damaged, or to implement repair activities when necessary in co-operation with the relevant authorities;
- Transport during night-time will be avoided to the extent possible, in order to prevent road accidents;
- Material needed for the project, and pipeline elements in particular, will be transported by rail and pipe stockyards will be located close the rail lines in order to reduce transport on roads;
- Transport of Project staff will be organised so the reduce the number of vehicles needed (i.e. use of busses/minibusses and collective means of transport) to the extent possible;
- Trainings will be provided to the adults and children in the settlement areas along and around the pipeline route in order to increase traffic awareness within the scope of the TEKFEN Traffic Management Plan and Community Relation Plan;
- Local authorities and local communities will be informed and consulted on impacts on traffic due to project activities and planned mitigation measures during the pre-construction, construction meetings and related Stakeholder Engagement Activities;
- Resolutions and when required compensations to accidental damages caused by project activities will be determined according to the relevant rules and regulations. In case of any complaint made TEKFEN Grievance Mechanism will be followed to facilitate resolutions that are mutually acceptable by the parties.
- **Access Road Risk Assessments will be prepared and issued to EPCM.**

6.3 Traffic Control And Management

TEKFEN will ensure that:

- Traffic flows will be timed, wherever practicable, to avoid periods of heavy traffic flow along main roads. In addition, TEKFEN will not commence any work that affects the public highway until all agreed traffic safety and management measures essential for the works are accepted and agreed to with the relevant authorities.

- In terms of traffic control, vehicles will be prohibited from reversing unattended into the construction base, construction sites or working width along the pipeline route. Vehicles and plant will enter and exit these areas in a forward direction, as far as possible. In addition, TEKFEN will ensure that all heavy goods vehicles are equipped with audible reversing alarms.

- Clear signs, flagmen and signals will be set up where necessary. Where temporary traffic signals are required, the details and locations of the signs will be discussed with the relevant authorities. The signs will be fixed safely and securely to ensure that they do not become detached or dislocated, and will be visible and comprehensible by all. TEKFEN will also carry out maintenance checks to clean and re-secure signs , as required.

- Appropriate supervision will be provided by TEKFEN to control the flow of traffic when machinery needs to cross roads.

- Liaison with the police and other authorities will occur prior to the movement of any abnormal loads. In particular, liaison with the General Directorate of State Highways will occur prior to transportation on motorways.

- Access to commercial and residential properties will be maintained and speed limits will be established and enforced over all construction traffic routes.

- Where roads used by children to reach schools are used by construction traffic, road safety education will be provided at schools. Vehicle traffic will be minimized during hours when children are traveling to and from school.

- Ambulances and fire services will be consulted regarding road diversions. Road diversions will not increase the response time of these services to local communities.

- Access to residential and commercial properties will be maintained.

- If road closures are required, diversions will be planned and communicated to the authorities (including emergency services and public transport providers) and affected

communities minimum 72 hours in advance (via the pre-construction community meeting) and will be properly sign-posted. Crossing for pedestrians and animals will be provided to avoid the need for a diversion.

- No diversion will be permitted that prevents a public transport service from continuing or requires a diversion of more than 1km for vehicles or a diversion of more than 500m for pedestrians or livestock. Notification periods for road closures are as follows: two weeks minimum notice on closure of up to 28 days; one month minimum notice on closure of 28 days to three months; three months notice for closure over three months or for permanent closure.

- Education on traffic safety will be provided by the Community Liaison Officers (CLOs) to communities not normally subjected to high traffic loads.

- Fuel use will be minimized during the transportation of construction materials and personnel. A fuel use assessment will be undertaken, in conjunction with safety assessments, at the outset of the construction programme.

- Speed limits will be as required project limits on the RoW, motorways and highways. The speed limit will be 50km/h in the cities and villages **and 20 km/h at ROW.**

- **Dust will be managed as per Pollution Prevention Plan .(TKF-PLN-ENV-PL3-010)**

6.4 Road Crossings

TEKFEN will ensure that:

- Crossings of main roads and railways will be undertaken by non-open cut methods (including thrust boring, pipe jacking and auger bore). The crossing of tracks and roads by open-cut techniques will be expedited in the shortest time frame possible.

- Plans for all road and rail crossings will be submitted to the relevant authorities for approval and permitting. Any specific requests from the authorities will be adopted by TEKFEN and will form part of the permit for the works.

- Provision will be given for the continuation of normal traffic during open-cut road crossings and all open cuts will be covered at the end of each working day night-time work is prohibited except in emergency situations. If nighttime work is required under an emergency operation, then warning lights will be used around the working site. **Night work will be undertaken in accordance with the Night Work Risk Assessment and Night Work Driving Risk Assessment.**

- A method statement will be produced for each crossing, for approval by the appropriate authorities and the EPCM/Client representative, prior to commencing work. (A protocol has to be signed in accordance with the requirements of General Directorate of Highways or General Directorate of State Railways. Without a protocol crossings are not possible.)

6.5 Parking Facilities

TEKFEN's HS Inspector will ensure that:

- Signposted, parking facilities will be provided at pipe yards and accessible locations on the road network. The parking of construction vehicles on footways, and double parking, will be prohibited on public highways in the vicinity of the working width.
- Part of the temporary hard standing area on the construction bases is set aside for the parking of emergency service vehicles.
- The Emergency Service Parking area and access routes around the sites are never occupied by any other vehicles and will be provided with a sign denoting Emergency Services Parking Area. TEKFEN will make provision for a dedicated parking area on the construction base for the private vehicles of construction personnel.

6.6 Maintaining Highways

TEKFEN's Environmental inspector will ensure that:

- No vehicle or other items of equipment leaving the construction base or working width, deposit soil, debris or rock on public highways or public right of ways.

Measures will be implemented to ensure that the transport of mud and dust from the site onto public highways and roads is limited. Such measures will be developed in consultation with the EPCM/Client representative and may include:

- The use of hard core surfaces on access roads;
- The provision of an easily cleaned hard standing area within the construction base for vehicles entering, parking and leaving;
- The appointment of site personnel to clean the construction base hard standing area and to remove any mud or debris deposited on the public highways;
- Fully sheeting all works vehicles carrying potentially dusty material or likely to deposit loose materials on the public highway during transit;

- TEKFEN will clean and maintain temporary and permanent roads, and will remove mud and debris from public roads. **A specific JHA will be carried out before placing workers on a public road to clean the roads.**

6.7 Training

TEKFEN will give adequate training to its personnel and to community to raise awareness on how to deal with Traffic Management.

The TEKFEN HS&ES Manager will ensure that all TEKFEN personnel are aware and trained in their responsibilities and use of this Traffic Management Procedure. Additionally, the TEKFEN HS&ES Manager will work to ensure that construction personnel are trained in the use of this plan and with respect to the appropriate course of action to be taken in the event of an incident. Training records will be managed, as specified in the Training Procedure.

The Field Environmental personnel with support of the TEKFEN HS&ES Manager will ensure that the employed contractors, working on behalf of TEKFEN, are trained with respect to the appropriate course of action, in the event of an incident with environmental consequences.

Trainings will be provided to the adults and children by the Community Relations personnel in the settlement areas along and around the pipeline route in order to increase traffic awareness within the scope of the TEKFEN Traffic Management Plan.

6.8 Communication And Complaints

From the monthly review of accident/incident report forms the TEKFEN HS&ES Manager , with assistance of the Environmental Manager, Social Manager and HS personnel , will ensure that personnel responsible for other areas, where a similar incident could occur, are informed, to avoid any potential recurrence.

Any complaints received from third parties will be managed in accordance with the provisions specified in the Community Relations Plan (TKF-PLN-ENV-PL3-015).

6.9 Noise And Dust Measurements

TEKFEN will conduct noise and dust measurements as per Pollution Prevention Plan (TKF-PLN-ENV-PL3-010) at sensitive receptors such as residential areas and when traffic related complaints about noise/vibration **and dust** are received.

7. RECORDS

Record	Person Responsible for Managing the Record?	Where the Record can be found?	Who has access to the records?	How long does the record need to be kept?
Traffic Management Training records	TEKFEN Training Manager TEKFEN HS&ES Manager TEKFEN Cons. Manager	Ankara Office Main Camp Sites	Restricted	Indefinitely
Journey Management Form	TEKFEN HS&ES Manager	Ankara Office Main Camp Sites	All	5 Years
Pre-use vehicle inspections record	TEKFEN HS&ES Manager	Ankara Office Main Camp Sites	All	5 Years
Driver Training Records	TEKFEN HS&ES Manager	Ankara Office Main Camp Sites	All	5 Years
Pre-Trip Check form	TEKFEN HS&ES Manager	Ankara Office Main Camp Sites	All	5 Years
Dust and Noise Monitoring Records	Environmental Manager	Ankara Office Main Camp Sites	All	5 Years
Complaints Record	Community Relations Manager	Ankara Office Main Camp Sites	All	5 Years

8. VERIFICATION CHECKLIST

The purpose of this verification checklist is to assist TEKFEN H&S inspector to verify that traffic management practices are operating effectively and that they are consistent with this procedure. Where deficiencies are observed the appropriate corrective action should be initiated, which should be documented using the reporting form given in Corrective and Preventive Action Procedure.

Item	Yes	No	N/A
Monthly Checks:			
Have planned maintenance and inspection programmes been conducted to verify vehicle and roads operating efficiencies?			
Have there been any complaints regarding traffic management, either internal or external?			
If so, have corrective action(s) been implemented to address these complaints?			
Quarterly Checks:			
Are there up-to-date traffic management inventories?			
Were results within project limits?			
If not, have corrective action(s) been implemented to address the problem?			
Have employees been given training in traffic management?			
Are all documents and records associated with traffic management readily available?			

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TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Document No.	**PLK-PLN-ENV-PL4-006**	Rev	Status
		P4-2	**Re-IAA**
Document Title	**WASTE MANAGEMENT PLAN**		
Tag No's			
Contractor	**PUNJ LLOYD – LİMAK - KALYON JV**		
Contractor Document No.	PLK-PLN-ENV-PL4-006	Contractor Rev.	**P4-2**

Tick Box	Descriptions	Signature & Date
☐	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
☐	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

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TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
Comment Reponse Sheet

TANAP

Document Title	WASTE MANAGEMENT PLAN	Originator	PLK
Document Number	PLK-PLN-ENV-PL4-006	Rev	P4-1

Except for the following identified comments, all other comments on this document have been resolved or incorporated.

* O - Open, C - Closed

No.	Section/ Page	Comment	By	Response	By	Date	O/C *	Remarks
1	General	There are still numerous refers to "Regulation on Control of Hazardous Waste" and "Regulation on General Principles of Waste Management". However these regulations are superseded by "Regulation on Waste Management". Therefore, please check the whole Plan and its Appendices to prevent such confusion with outdated legislation.	TANAP	revised	YOGD	11-07-16		
2	General	delete all refernce to : WHA / Waste Hanling Area and replace with CWAA	TANAP	replaced	YOGD	11-07-16		
3	4.3 / pg 15	**Change to: There will be a waste handling areaCentral Waste Accumulation Area in each camp, as well as waste collection points throughout the camps and construction site such as RoW, pipe stockyards, any other extra lands, block valve stations and so on. The waste handling areaCentral Waste Accumulation Area will be constructed so as to meet the related legal requirements**	TANAP	revised	YOGD	11-07-16		
4	4.3 / pg 16	**change WHA to CWAA**	TANAP	revised	YOGD	11-07-16		
5	4.4 / pg 17	**change to 'Treat Licensed at Licensed Wastewater Treatment Plant'**	TANAP	revised	YOGD	11-07-16		
6	4.4.2 / pg 18	**Complete sentence, 'Liquid hazardous waste is …… '**	TANAP	Completed	YOGD	11-07-16		
7	4.4.2 / pg 19	**Annex-4 of Regulation on General Principles of Waste Management (published in the Official Gazette dated 05.07.2008 and numbered 26927). ' This regulation is not in force. Please update this sentence according to Regulation on Waste Management. It is contractor responsibil;tity to monitor changes in legislation and to implement changes accordingly**	TANAP	revised	YOGD	11-07-16		
8	4.4.2 / pg 24	**the Regulation on Control of Hazardous Wastes published in Official Gazette No: 25755 on 14.03.2005', Please update the statement according to Regulation on Waste Management.**	TANAP	revised	YOGD	11-07-16		
9	4.4.2 / pg 24	**delete: repealed Regulation on**	TANAP	revised	YOGD	11-07-16		
10	4.4.2 / pg 25	**add: No hazardous liquid waste will be treated with other non-hazardous liquid wastes.**	TANAP	revised	YOGD	11-07-16		
Additional Notes (if any)								
Distribution								

Punj Lloyd / Limak / kalyon	**TANAP** **TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT** **48" ONSHORE PIPELINE CONSTRUCTION LOT 4**	TANAP / WorleyParsons resources & energy

WASTE MANAGEMENT PLAN

Rev.	Status	Date	Status Description	Issued by	Checked by	Approved by
P4-A	DIC	2/4/2016	Discipline Internal Check	YOGD	ASOV	DHAG
P4-B	IDC	5/4/2016	Inter-Discipline Check	YOGD	BHAG	DHAG
P4-C	IFR	6/4/2016	Issued for Review	YOGD	SDUT	KKSA
P4-0	IAA	9/5/2016	Issued as Approved	YOGD	KALF	MALB
P4-1	Re-IAA	17/6/2016	Re-Issued as Approved	YOGD	KALF	MALB
P4-2	Re-IAA	12/7/2016	Re-Issued as Approved	YOGD	KALF	MALB

DOCUMENT REVISION HISTORY SHEET

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P4-A	DIC	2/4/2016	Discipline Internal Check
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HOLDS

No	Section	Description	Input from	Planned Date

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1 INTRODUCTION

1.1 Background

The Trans Anatolian Natural Gas Pipeline will be built to transport natural gas emanating from the South Caucasus Pipeline Company Pipeline in Georgia to the Trans-Adriatic Pipeline in Greece. In addition to the mainline termination, dedicated off-takes will be provided to BOTAŞ at strategic points in the Republic of Turkey. Contract of Lot 4 of this project is awarded to PUNJ LLOYD – LİMAK Joint Venture and consists mainly of a 48" Onshore Pipeline Construction and also other Above Ground Installations.

1.2 Scope

This plan is intended to specify the waste management techniques proposed to be adopted by Punj Lloyd-Limak JV (CONTRACTOR), and its all sub-contractors and suppliers for managing its wastes generated during the construction of the Project.

This waste management plan will first identify the wastes generated from the Project construction activities. The wastes are qualified according to their nature and quantified. This plan elaborates the fate of the wastes generated as per the project legal requirements.

1.3 Purpose

The purpose of this document is to describe the requirements for establishing and conducting proper waste management during the construction works of the Project. These procedures are designed to demonstrate how the requirements of the Waste Management Plan (WMP) will be implemented and to assure that construction works is conducted in a manner that minimizes environmental risk in accordance with project standards and Turkish legislations.

1.4 Definitions

CLIENT	TANAP DOĞALGAZ İLETİM A.Ş.
PROJECT	Trans Anatolian Natural Gas Pipeline Project (TANAP)
EPCM	WorleyParsons Proje Yönetimi ve Mühendislik Limited Şirketi
CONTRACTOR	PUNJ LLOYD – LİMAK Joint Venture
CONTRACT	48" Onshore Pipeline Construction Contract for Trans-Anatolian Natural Gas Pipeline Lot 4
Contamination	Punj Lloyd-Limak JV responsible for the procurement, construction, installation, pre-commissioning, testing and commissioning assistance of the Lot 4 section of TANAP Project
Dust	Refer fine (small) particles of dry matter resulted from traffic on road
Hazardous Waste	Hazardous wastes are the wastes having at least one of the properties listed in the App. 3/A of the Waste Management Regulation and the wastes marked with (*) near the six-digit waste code in App. 4 of the subject regulation.
Impact	The consequence of an action or activity on the human or natural environment. Impacts may be positive, negative or neutral
Key Performance Indicator	An indicator that is measured against a target, with the expectation that the target will be met. Indicates compliance with Project requirements.
Measure	An indicator of the volume or quantity of an impact.
Medical Waste	Wastes that are produced as a result of health service activities and the use of first aid kit materials. Medical waste defined in the Turkish 'Regulations on the Control of Medical Wastes', for example dressings, swabs, needles etc.

Monitoring	Process of observation and sampling to obtain information to establish baseline and trends.
MSDS	Safe Handling of Chemicals or Materials Safety Data Sheet
Noise	Refers to excessive noise that may harm the activity or balance of human or animal life.
Pollution	Refers to the contamination of air, water, or land by the any adverse effects of human activities
Risk	A risk is an event or condition that, if it occurs, could have a positive or negative effect on a project's objectives.
Solid Waste	Refers to all solid waste that has the potential to cause pollution
Subcontractor	Company working under a contract to a Contractor
Waste	Refer to any solid, liquid, gaseous or hazardous materials cause environmental damage or hazard
Wastewater	Refers to all liquid wastes that have the potential to cause ground and surface water pollution

1.5 **Abbreviations**

TANAP	Trans Anatolian Gas Pipeline Project
EPCM	Engineering, Procurement and Construction Management
ROW	Right of Way
H&S	Health and Safety
E&S	Environment and Social
QA/QC	Quality Assurance / Quality Control
ESIA	Environmental and Social Impact Assessment
CWAA	Central Waste Accumulation Area
MoEU	Ministry of Environment and Urbanization
WWTP	Wastewater Treatment Plan

1.6 References

	Document Number	Document Title
1.	PLK-PLN-ENV-PL4-001	Environmental and Social Management Plan (ESMP)
2.	PLK-PLN-ENV-PL4-003	Construction Impact Management Plan (CIMP)
3.	PLK-PLN-SOC-PL4-003	Employment and Training Plan (ETP)
4.	PLK-PLN-SOC-PL4-004	Traffic Management Plan (TMP)
5.	PLK-PLN-ENV-PL4-002	Erosion, Reinstatement and Landscaping
6.	PLK-PLN-ENV-PL4-005	Pollution Prevention Plan (PPP)
7.	PLK-PLN-ENV-PL4-007	Environmental Emergency Response Plan (EERP)
8.	PLK-PLN-ENV-PL4-004	Camp Management Plan (CMP)
9.	PLK-PLN-ENV-PL4-010)	Environmental and Social Monitoring Plan
10.	TNP-REP-ENV-GEN-002	ESIA Report Appendix 5.11 – Waste Management Plan
11.	TNP-REP-ENV-GEN-002	ESIA Report Appendix 5.10 – Pollution Prevention Plan
12.	TNP-REP-ENV-GEN-002	ESIA Report Chapter 4 and Appendix 4.6 (Legislation Register)
13.	TNP-PLN-ENV-GEN-001	TANAP Environmental and Social Management
14.	TNP-PLN-ENV-GEN-003	Environmental Monitoring Plan
15.	TNP-POL-ENV-GEN-001	TANAP Environmental Policy

1.7 Turkish Legislation

The following national legislation shall be applied during construction phase of the project regarding the management of wastes:

1. Regulation on Waste Management (02.04.2015 – 29314)
2. Regulation on Control of Medical Wastes (22.07.2005 – 25883)
3. Regulation on Control of Waste Vegetable Oil (19.04.2005 – 25791)
4. Regulation on Control of Waste Oil (30.07.2008 – 26952)
5. Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources (08.06.2010 – 27605)
6. Regulation on Control of Excavation Soil, Construction and Demolition Wastes 18.03.2004 – 25406
7. Regulation on Control of Waste Batteries and Accumulators (31.08.2004– 25569)
8. Regulation on Wastes Resulted from the Use of Radioactive Materials (02.09.2004 – 25571)
9. Regulation on Management of Radioactive Wastes (09.03.2013 – 28582)
10. Regulation on the control of End of life Tires (25.11.2006 - 26357)
11. Regulation on the control of End of life Vehicles (30.12.2009 - 27448)
12. Regulation on Control of Waste Electrical and Electronical Items (22.05.2012 - 28300)
13. Regulation on Waste Incineration (06.10.2010 - 27721)

2 METHOD

All wastes from CONTRACTOR activities will be controlled, handled and disposed of in an environmentally acceptable manner by fulfilling project requirements and related legislations.

Measures to minimize the production of waste in general will be developed and implemented. Waste material and consumables produced by the activities being carried out in various areas will be collected and stored without creating a threat to the health and if possible be recycled at the stage of disposal or reused on site and if not be disposed without causing any harm to the environment.

2.1 Basic Principles

CONTRACTOR will follow the basic principles for waste management:

1. Follow-up of wastes with cradle to grave approach (explained in below paragraph)
2. Segregation of wastes at source and waste categorization.
3. Reuse, recovery and recycling have the priority.
4. All wastes should be handled throughout the route and will not be left at site.
5. Dumping and burning of wastes are strictly forbidden.
6. Waste transportation and disposal should be done via licensed facilities
7. Mixing different waste types is strictly forbidden.
8. Waste transportation to the nearest licensed facility to a possible extent.

CONTRACTOR will manage the waste using a cradle-to-grave approach, identifying all potential waste streams at their point of generation, their nature (classification) and quantity to be generated during construction. CONTRACTOR will keep the waste identification study data up to date, including new waste streams, or waste streams that have not yet been classified, and/or approved disposal locations in accordance with Client/EPCM requirements. Approval of the final destination for all waste streams ensuring that a “cradle to grave” solution will be applied and that disposal sites comply with appropriate requirements such as possessing permits licenses.

Other details concerning methods of waste classification, waste minimization, waste collection and storage and disposal requirements are given in Waste Management Section, Chapter 4 below.

3 ROLES AND RESPONSIBILITIES

3.1 Project Manager

1. Will ensure that the Waste Management Plan reflects any changes during the construction process that may have a significant environmental impact and manage them accordingly,
2. Will ensure that there are sufficient resources (such as people, time, consumable chemical and physical material, and equipment) to collect, manage, monitor, and remove all type of wastes.
3. Will ensure that WMP is effectively implemented,
4. Will ensure that waste management non-conformities are investigated and appropriate corrective actions are implemented,

5. Will ensure to investigate root cause of non-conformities and establish remedial measures to prevent re-occurrence,
6. Will ensure that all project personnel are well aware of WMP and responsibilities
7. Will ensure that all project personnel receive waste management training
8. Will provide necessary resources for waste management issues.

3.2 Construction Manager

1. Will be responsible for ensuring that all site staff, including sub-contractors, and activities comply with the CONTRACTOR Waste Management Plan,
2. Will be responsible for ensuring that all site personnel are aware of the requirements of the Waste Management Plan,
3. Will coordinate with environmental manager the waste issues according the construction program,
4. Will ensure to implement of this plan requirements.

3.3 Environmental Engineer

1. Will be site based during the construction of the project and will have responsibility for the identification and management of all environmental issues,
2. Will ensure that all consents/licenses are in place prior to carrying out the associated works,
3. Will ensure that the Project Manager and Construction Manager are fully informed on any waste management issues,
4. Will write procedures for site-specific issues,
5. Will ensure that Environmental inspector(s) are implementing or overseeing the implementation of WMP requirements,
6. Will carry out internal audits in line with the program of audits agreed upon with Client/EPCM,
7. Will ensure that all remedial action identified by inspections and NCR are closed out Will ensure that all recyclable solid waste is recorded, segregated, recycled according their types in compliance with related regulations,
8. Will ensure that all hazardous and medical solid wastes are recorded, segregated, stored in suitable condition and transported to licensed company in compliance with related regulations,
9. Will ensure that all wastewater is collected, treated, stored or disposed in compliance with related regulations and recorded,
10. Will be responsible for producing and maintaining the Waste Management Plans,
11. Will ensure arrangements for waste and water & wastewater management training programs,
12. Will ensure that all project personnel are trained and are well aware of solid waste management requirements and responsibilities,
13. Will ensure that all MSDS are available at where the hazardous materials are stored,
14. Will ensure that environmental incident is investigated and ensure that the corrective/preventive actions are taken as described in incident investigation reports,

15. Will ensure that all domestic wastes are recorded, stored in suitable condition, and disposed of at licensed/authorized facilities
16. Will ensure effective implementation of WMP,
17. Will coordinate all waste management activities,
18. Will conduct frequent site visits and monitor the activities,
19. Will participate actively in the relevant meetings,
20. Will update respective documents as per requirements,
21. Will prepare periodic and or demand reports,
22. Will ensure that policies, plans, procedures, and etc. are communicated to all personnel as well as subcontractors and suppliers,
23. Will ensure that waste registers for all kind of waste are prepared and recorded,
24. Will ensure that waste management is in line with ESIA and related legislations.

3.4 Environmental Inspector(s)

1. Will ensure the effective implementation of all environmental management plans with specific emphasis on waste management plan, pollution prevention plan and environmental emergency response plan, "Will guide and train personnel on waste management issue/requirements,
2. Will ensure that all documentation is collected, and recorded a per the ESIA requirements,
3. Will investigate accidents and incident, near miss and implement all corrective actions,
4. Will ensure adequate and appropriate waste containers are available on vehicles and necessary areas on both camp site and construction site,
5. Will carry out or supervise all environmental monitoring on the project ensuring that all records are fully completed correctly,
6. Will ensure that the Environmental Manager is fully informed on environmental issues,
7. Will generate accident and incident investigation report,
8. Will give ınstruction and guidance to the personnel on waste management matters,
9. Will participate relevant meetings,
10. Will prepare periodic reports,

Will conduct periodic environmental inspection to evaluate waste management performance.

4 WASTE MANAGEMENT

The followings are the waste categories that are generated from main and fly camp area: Wastes to be generated from Camp Sites:

S. No.	Waste Type	Sources and Categorization	Preferred disposal
1.	Organics/ kitchen waste	Kitchen (NH)	To the CWAA and then to the licensed waste disposal

			area
2.	Paper/ boards (Office + residences)	Office (NH)	Recycling
3.	Plastics	Office (NH)	Recycling
4.	Metals	Office (NH/ H)	Recycling
5.	Glass	Office (NH)	Recycling
6.	Tyres	Maintenance	Recycled
7.	Containers	Campsite	Recycled
8.	Contaminated soils	Refueling areas, car park areas	To the licensed firm
9.	Batteries Dry	Office	Recycled
10.	Steel	Workplace	Recycled
11.	Filters air/oil	Maintenance	CWAA and licensed companies
12.	Solvents	Paint areas	CWAA and licensed companies
13.	Greases	Workplace (Construction)	CWAA and licensed companies
14.	Sewage Sludge	Sewage Treatment Plant (NH)	To the waste water treatment plant having discharge permit

Wastes to be generated from Row:

WASTE STREAMS	**SOURCE**	**Disposal Options**
Organics	RoW/ Lunch at site	To the CWAA and then to the licensed waste disposal area
Soil and gravel	RoW	Low-lying areas
Welding materials	RoW	CWAA and licensed companies
Batteries Wet	RoW / Vehicles	CWAA and licensed companies
Chemicals	RoW	CWAA and licensed companies
Contaminated soils	RoW	CWAA and licensed companies

Wastes to be generated at the RoW will be collected daily from the site and will transport first to the Central Waste Accumulation areas to be established at Dutluca and Gönen (Ilıcak). After their temporary storage at CWAA, they will transfer to the related waste disposal/recycling facilities having the related licenses and the records will be kept regularly.

Potential wastes to be generated from camp site and RoW are domestic wastewater

Waste management at various locations will consist of the following activities:

1. Waste identification
2. Waste Collection
3. Waste Segregation
4. Waste Storage
5. Waste Transport and disposal
6. Waste minimization studies and training
7. Waste recycling

Identification of the licensed domestic waste disposal areas through communication with the local authorities.

4.1 Waste Identification, Collection and Segregation

The subsequent management of waste depends upon the initial identification of waste at the point of generation. Waste identification and segregation at various locations can only be possible by training and re-training. Adequate segregation of waste types, the storage requirements of the waste and ultimately the recycling, treatment/disposal route of the waste all rely on its sufficient classification. CONTRACTOR will diagnose all wastes generated, sampling and checking, testing or analyzing as necessary in order to classify the waste in accordance with legislation.

Following are the waste collection management measures proposed by CONTRACTOR:

1. All waste containers on-site (bins, skips, drums, etc.) will be clearly labeled (Turkish and English) to show which wastes can be disposed into them and which wastes they contain
2. All kind of waste will be segregated into hazardous, non-hazardous, inert wastes and medical waste by applying waste regulations and international standards
3. Any unidentified wastes will be treated initially as hazardous and will be subject to the classification process;
4. There will be waste collection twice a day at each of the departmental waste collection points;
5. The time for waste collection will be prominently displayed near the waste collection area;
6. Wastes so collected will be hand-carted to the CWAA located inside each camp;
7. The same methodology will be followed even at the RoW
8. CONTRACTOR shall make protocol or contracts with licensed Waste Disposal facilities, Recycling Facilities, Medical Waste Collectors, Licensed Transport Company before waste generation starts for all types of wastes (waste oil, vegetable waste oil, hazardous waste transport, and battery collectors)
9. In case of excavation material usage is not appropriate for bedding, padding and backfilling, then it will also be added to the waste material list.

Subject waste codes are given in Appendix. 5.11 of the EISA Report ((TNP-REP-ENV-GEN-002) and section 4.4.2.

4.2 **Waste Minimization**

4.2.1 Waste Management Hierarchy

CONTRACTOR will ensure that the waste disposal strategy developed for the project through the plan

will follow the following handling hierarchy:

1. Waste avoidance is the most preferable option;

2. Minimization of quantities and hazards of waste generated is the second preferred option;

3. Reuse, recovery and recycling shall be preferred over treatment of waste;

4. Disposal shall be considered as a last resort;

4.2.2 Reduction at source

CONTRACTOR will reduce the amount of waste at source by means such as selecting materials for use that avoid waste generation (e.g. purchasing in bulk) and contracts to be established to allow return of excess product to vendor.

4.2.3 Reuse and recycling materials

CONTRACTOR will identify any of its waste streams that include waste materials that could be segregated for re-use or recycling (e.g. packaging wood for reuse in construction and plastic bottles, cardboard/paper or metal for recycling).

CONTRACTOR will identify organizations in the region that carry out processes to re-use and recycle waste materials. CONTRACTOR will not release waste materials to individuals or non-commercial entities.

4.3 **Waste Collection and Storage**

There will be a Central Waste Accumulation Area in each camp, as well as waste collection points throughout the camps and construction site such as RoW, pipe stockyards, any other extra lands, block valve stations and so on. The Central Waste Accumulation Area will be constructed so as to meet the related legal requirements.

The Central Waste Accumulation Area (CWAA) will have separate storage containers for prime recyclables (paper, plastic [excluding bottles], glass and vegetable matter), domestic waste, and scrap metal and separate containers for other hazardous waste requiring segregation including oils, chemicals and batteries. Special care will be taken to ensure that chemicals are kept in separate containers in order to avoid a chemical reaction. The all area will be labeled according to their classification. PPE and spill kit to combat accidental spills will be located. First aid kit will be provided.

There will also be secondary containment for hazardous liquid wastes (oils, etc.). The hazardous liquid waste resulted from secondary containment areas will be collected and stored in a temporary storage area. Liquid wastes will be stored in leak-proof sealed containers (e.g., steel drums with fixed lids).

This waste area will be located on an impervious layer with all the design facilities to prevent the wastes to come into contact with the environment in case of accidental spill of these wastes.

Regular control and measures for pest and nasty smell will be taken in the Central Waste Accumulation Area (CWAA) . Animal (bird, snake, and rat) repeller will be located in CWAA. Entrance of unauthorized people to

CWAA will be forbidden. Eye wash equipment will be located in CWAA.

Spill response equipment will be available for storage compartments where waste oils, chemical waste and etc. are stored.

4.4 Waste Streams and Waste Disposal

1. Wastes will only be disposed by an approved waste disposal subcontractor. These subcontractors will be selected among the ones possessing necessary permit and licenses. The licensed facilities will be identified thru MoEU database and they will be contacted by the permits department first and then agreements will be made by the contracts department.
2. No waste will be burned on the site.
3. An approved third party company will receive and transport our non-hazardous waste from site.
4. CONTRACTOR will track the waste till its final disposal. Waste transfer notes will be filled for every consignment of hazardous waste leaving the site.
5. Wastes will not be allowed to leave the facility in containers or vehicles that are unfit for purpose.

The waste streams and disposal requirements in the below sections are given for the land preparation and construction phase.

Waste streams during the preparation and construction activities are given below:

CONTRACTR’s contract does not cover commissioning phase.

Prior to the full commissioning of the camp, and site CONTRACTOR will identify licensed waste disposal

Waste Type	Source	Requirements
Construction debris	Earthworks, excavation	Reuse during construction, dispose in accordance with legislation, check for contamination and dispose accordingly
Hazardous wastes (such as empty containers of chemicals, waste oil, light bulbs grease, welding material, electrical/electronic wastes and similar)	Earthworks, workshops, vehicle cleaning areas	Store separately at site, dispose in accordance with legislation, incinerate at licensed facilities
Excavated soil	Earthworks, excavation	Reuse during construction, dispose in accordance with legislation, check for contamination and dispose accordingly, use during reinstatement.
Paper, cards, plastic, glass, packaging waste	Offices, Workshops	Recycle
Domestic waste	Canteen, workers accommodation	Dispose in accordance with legislation
Scrap metal and similar	Construction areas, workshop	Recycle
Waste pipe/piping material	Construction areas, workshops	Recycle if not hazardous in accordance with legislation
Waste sludge	Wastewater treatment plant	Dispose in accordance with legislation, dispose to licensed wastewater treatment facilities in the vicinity
Medical	First aid rooms	Dispose through licensed contractors in accordance with legislation
Waste tires	Workshops, vehicle cleaning areas	Dispose in accordance with legislation
Domestic wastewater	Canteen, sanitary network	Treat at Licensed Wastewater Treatment Plant
Hydrotest wastewater	Hydrotesting	Tested prior to discharge at a controlled rate to a site or sea agreed with MoEU. Discharged by fulfilling ESIA requirements.
Oily water	Workshops, spills, vehicle cleaning areas	Collect separately and dispose in accordance with legislation

facilities for all types of waste material and ensure they meet the project requirements and in compliance with related legislation. All kind of generated waste will be stored, transported, recycled, and disposed according to related legislations.

As per ESIA, specific studies such as ensuring disposal facility infrastructure sufficiency including drainage system, geo-textile etc. will be done on waste management facilities and landfills to verify to ensure that they are capable of sustaining additional pressure brought by Project without affecting current waste management services.

For the non-hazardous waste, CONTRACTOR will have a protocol with the licensed private/municipality facilities for the recycling/disposal of these wastes. Non-hazardous waste will be disposed at licensed facilities. No facilities other than licensed ones will be allowed by disposal. During the transferring the hazardous waste, chemical wastes, waste oils, waste accumulators / batteries and etc. from camp site to licensed company, the National Waste Transportation Form will be used and records will be kept.

CONTRACTOR will prepare documentation to track the disposal of waste by the municipality to the licensed disposal facility.

There are different options and plans for transfer and disposal of different kinds of wastes generated in the project. They are discussed separately in the below sections.

4.4.1 Domestic solid waste

Domestic solid waste from the camp staff will be segregated at source and collected in closed containers located at various points of the camp areas. These solid wastes will be collected in containers and at certain intervals will be transported to the nearest pre-identified licensed/authorized disposal facility and be disposed of.

Domestic waste is waste; that is generated as a result of the ordinary day-to-day use of a domestic premise. Domestic solid waste produced in the camp sites will be disposed of according to the "Regulation on Waste Management. ESIA commitments will be fulfilled during Domestic Solid Waste Management.

4.4.2 Hazardous waste

Hazardous Waste: is a waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment (https://www.epa.gov/hw/learn-basics-hazardous-waste). Hazardous waste is generated from many sources, ranging from industrial manufacturing process wastes to batteries and may come in many forms, including liquids, solids gases, and sludge.

Liquid hazardous waste is liquid form of wastes that poses substantial or potential treats to public health and environment. There will also be secondary containment for hazardous liquid wastes (oils, etc.). The hazardous liquid waste resulted from secondary containment areas will be collected and stored in a CWAA. Liquid wastes will be stored in leak-proof sealed containers (e.g., steel drums with fixed lids). As the same with non-liquid hazardous wastes, liquid wastes will be located on an impervious layer with all the design facilities to prevent the wastes to come into contact with the environment in case of accidental spill of these wastes. Besides regular control and measures for pest and nasty smell will be taken in the Central Waste Accumulation Area (CWAA) . Animal (bird, snake, and rat) repeller will be located in CWAA . Entrance of unauthorized people to CWAA will be forbidden. Eye wash equipment will be located in CWAA. Spill response equipment will be available for storage compartments where waste oils, chemical waste and etc. are stored. No hazardous liquid waste will be treated with other non-hazardous liquid wastes.

Hazardous wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies

licensed by the MoEU.

The waste codes for the hazardous wastes are given below in accordance with Annex-4 of Regulation on Waste Managemenet (published in the Official Gazette dated 02.04.2015 and numbered 29314)

07 WASTES RESULTING FROM ORGANIC CHEMICAL PROCESSES

07 02 Wastes Resulting from Manufacturing, Formulation, Supply and Usage of Plastics, Synthetic Rubber and Synthetic Fiber

07 02 16	Wastes containing harmful silicon	(M)*

*** (M)** Whether waste is hazardous or not is determined by looking threshold concentration that is given in Waste Management Regulation (Appendix F)

- Waste originated from materials used for insulation

1. ***04 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Organic Plant Protection Products (excluding 02 01 08 and 02 01 09), Materials (Agents) used for Wood Preservative (excluding 03 02) and Other Biosids***

07 04 13	Wastes containing hazardous material	(M)

- These wastes will be generated as a result of shaping, scission, maintenance of lubricated and preservative-treated materials such as wood, 5/10 lumber, playwood etc.

2. **WASTES RESULTING FROM MANUFACTURING, FORMULATION, SUPPLY AND USAGE OF LINING (DYES, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, PUTTY AND PRINTING INKS)**

08 01 Wastes Resulting From Manufacturing, Formulation, Supply and Usage and Detachment of Dye and Varnish

08 01 11	Waste dyes and varnish containing organic solvent or other hazardous materials	(M)
08 01 13	Sludges with dye and varnish, containing organic solvents and other hazardous materials	(M)
08 01 21	Wastes of dye and varnish remover	(A)*

*** (A) Definitely hazardous waste regardless of properties**

- These wastes will be generated as a result of usage of dye, varnish, hardening agents etc.

08 03 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Printing Inks

08 03 17	Waste printing toners containing hazardous materials	(M)

- These wastes include cartridges and toners used in offices.

08 04 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Adhesives and Insulators

08 04 09	Adhesive and filling compound waste containing organic solvents or other hazardous materials	(M)

- These wastes will be generated as a result of processes like agglutination, putt etc.

09 WASTES RESULTING FROM PHOTOGRAPHY INDUSTRY

09 01 Wastes of Photograph Industry

09 01 01	Water-based bath and activator solution	(A)

10 WASTES RESULTING FROM HEAT TREATMENT

10 01 Wastes Resulting From Power Plants and Other Combustion Plants

10 01 22	Slurry containing hazardous materials resulting from boiler cleaning process	(M)

13 WASTE OIL AND FUEL OIL (EDIBLE OILS, EXCLUDING O5 AND 12)

13 01 Waste Hydraulic Fluid

13 01 10	Mineral based hydraulic fluid	
13 01 11	Synthetic hydraulic fluid without chlorine	
13 01 12	Easily Biodegradable hydraulic fluid	

13 02 Waste Engine, Transmission and Lubrication Oils

13 02 06	Synthetic oils related to engine, transmission and lubrication	
13 02 07	Easily biodegradable engine, transmission and lubrication oils	

- These wastes classified in groups 13 01 and 13 02 include oils originated from instantaneous and periodic maintenance of vehicles and heavy machinery

13 03 Waste Insulating and Heat Transfer Oils

13 03 08	Synthetic insulating and heat transfer oils	

- These wastes include waste oils originated from energy equipment such as transformers, capacitors ,generators

1. ***05 Oil/Water Separator Contents***

13 05 02	Sludges generated from oil/water separator	(A)
13 05 06	Oil generated from oil/water separator	(A)

r

- These wastes include kitchen waste, wastes from storage areas, oils from uppe part of Oil/ Water separators, bottom sediments (settleable oily matters) etc.

13 07 Waste Liquid Fuels

13 07 01	Fuel oil and diesel fuel	(A)
13 07 02	Gasoline	(A)

1. These wastes consist of residual fuel from pouring tray accumulating during fuel delivery and residual fuel during cleaning of fuel tank

2. ***06 Waste Organic Solvents, Refrigerators and Foam/Aerosol Propellant Gases***

14 06 01	Chlorofluorocarbons, HCFC, HFC	(A)

1. These wastes contain packaged waste gas to be generated during repair and maintenance of cooling elements

3. **WASTE PACKAGES; UNSPECIFIED ABSORBERS, MOPS, FILTER MATERİALS AND PROTECTIVE SUITS**

15 01 Package (including waste packages collected separately by municipality)

15 01 10	Packages including residuals of hazardous materials or contaminated with of hazardous materials	(M)

- These wastes contain contaminated packages, packaging waste, container having hazardous materials.

1. ***02 Absorbers, Filter Material, Swabs and Protective Suits***

15 02 02	Absorbers contaminated with hazardous materials, filter materials(oil filter provided that not defined differently),swabs, protective suits	(M)

- These wastes contain spill kit contaminated with hazardous materials, clothing and textile wastes such as workers' suit, shoe, glove etc. and also wastes coming from air and oil filters

2. **WASTES NOT PREDEFINED IN THE LIST**

16 01 Scrap Vehicles (including heavy machinery) and Wastes Resulting From Detachment of Pieces and Vehicle Maintenance (excluding 13,14, 16 06 and 16 08)

16 01 07	Oil filters	(A)
16 01 14	Antifreeze liquid containing hazardous materials	(M)

- These wastes contain oils resulting from periodic and instant maintenance of vehicles and heavy machinery.

16 02 Waste Electrical and Electronic Equipment

16 02 11	Waste equipment containing chlorofluorocarbon, HCFC, HFC	(M)

- These wastes are originated from periodic and instant maintenance and change of electrical and electronic equipment. Capacitors and transformers are so important to be collected

very dangerous PCB(polychlorinated biphenyl) and PCT

(polychlorinated terphenyls)

16 04 Waste Explosives

16 04 01	Waste ammunition	(A)
16 04 03	Other waste explosives	(A)

- These wastes result from blasting operations during pipeline excavation.

16 05 Gasses in Pressure Tank and Waste Chemicals

16 05 06	Laboratory chemicals consisting of hazardous matters or containing hazardous materials	(M)

- These wastes contain chemical wastes from laboratory such as concrete, quality control etc. that will establish in camps and stations

1. **06 Batteries and Accumulators**

16 06 01	Lead batteries	
16 06 02	Nickel batteries	(A)
16 06 03	Mercury cell	
16 06 06	Electrolytes collected separately from batteries and accumulators	(A)

- These wastes include all kinds of electrolytes from batteries and accumulators in camps and stations.

2. **CONSTRUCTION AND DESTRUCTION WASTES (INCLUDING EXCAVATION FROM POLLUTED AREAS)**

17 01 Concrete, Brick, Roof Tile and Ceramic

17 01 06	Concrete, brick, roof tile and ceramic mixture or separate groups containing hazardous materials	(M)

17 02 Wood, Glass and Plastics

17 02 04	Wood, glass or plastic including or contaminated with hazardous materials	(M)

17 03 Bituminous Mixtures, Coal Tar and Tarred Products

17 03 01	Bituminous mixtures including coal tar	(M)

17 04 Metals (Including alloys)

17 04 09	Scrap metal contaminated with hazardous materials	(M)
17 04 10	Cables containing oil, tar and other hazardous materials	(M)

1. **05 Soil (Including Excavation from Polluted Areas), Rocks and Dredging Sludge**

17 05 03	Soil and rocks containing hazardous materials	(M)

17 08 Gypsum-Based Construction Materials

17 08 01	Gypsum-based construction materials contaminated with hazardous materials	(M)

17 09 Other Construction and Demolition Wastes

17 09 03	Other construction and demolition wastes containing hazardous wastes(including mixed waste)	(M)

- All wastes in this section cover all excavation soil, ruins, construction wastes contaminated with hazardous materials that are not included in the "Regulation on Control of Excavation Soil, Construction and Demolition Wastes".

2. **WASTES RESULTING FROM STUDIES ON HUMAN AND ANIMAL HEALTH AND/OR SIMILAR (EXCLUDING KITCHEN AND RESTAURANT WASTES THAT ARE NOT DIRECTLY RELATED TO HEALTH)**

18 01 Wastes Resulting From Birth, Diagnosis, Cure or Disease Prevention Studies For Humans

18 01 03	Wastes which are collected and disposed according to specific procedures in order to prevent infections	(A)
18 01 08	Cytotoxic and cytostatic medicine	(A)

- These wastes contain contaminated MEDICAL WASTES formed after medical attention and cutting, drilling and infectious wastes from infirmary, health cabinet and first aid center. They are disposed according to Regulation on Control of Medical Wastes. These medical wastes could be removed by municipalities that are licensed for medical waste collection.

20 MUNICIPAL WASTES INCLUDING FRACTIONS COLLECTED SEPARATELY (DOMESTIC WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES)

20 01 Fractions Collected Separately (Excluding 15 01)

20 01 21	Fluorescent lamps and other wastes containing mercury	(A)
20 01 29	Detergents containing hazardous substances	(M)

These wastes contain exhausted fluorescent lamps used in camps and stations for lightening, cleaning agents including hazardous materials, pesticides (in bag or container), battery, cell, accumulator and other hazardous wastes

The quantity of the hazardous wastes would be dependent of the activities in the camp sites and it is not possible to give exact information on the amount of the waste at this stage.

According to the provisions in the Regulation on Waste Management (published in the Official Gazette dated 02.04.2015 and numbered 29314) the hazardous wastes would be stored temporarily within the camp site separate from other wastes in a closed environment preventing any chemical reaction. After that, these wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by

the Ministry of Environment and Urbanization.

During the storage of hazardous wastes in land preparation and construction period of the project following provisions indicated in Regulation on Waste Management will be respected:

1. A record shall be kept on the amount of the waste and packaging and labelling of the waste shall be according to the internationally accepted standards required by the environmentally licensed recycling or disposal facility which will receive the waste.

2. The Waste Declaration Form indicated in the regulation shall be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the Ministry of Environment and Urbanization and a copy shall be stored for five years.

3. The waste would be temporarily stored in durable, leak-proof, safe containers at international standards placed on a concrete area away from the buildings of the camp, there will be hazardous waste labels on the containers, the quantity and the stored date would be indicated on the container, if the containers are damaged, the waste would be transferred to other containers having the same specifications, containers would always be kept closed, and they would be stored so that the waste does not chemically react.

4. All the measures shall be taken for the health and safety of the employees responsible for the collection, transportation and temporary storage of the waste within the facility.

5. In order to prevent pollution that happens as a result of accidental spill or by deliberate actions, depending on the type of the waste, location of the incident would be brought to its original condition by latest within a month from the time of the incident and all the expenses for this shall be borne.

Also, when waste is spilled by accident or deliberately and in other similar cases, office of the governor shall be informed and a report detailing the accident date, accident location, type and quantity of the waste, cause of the accident, the waste disposal action and rehabilitation of the accident location shall be submitted to the office of the governor.

During the storage/disposal of hazardous wastes following provisions indicated in Regulation on Waste Management will be fulfilled:

- Hazardous solid wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the MoEU,

- A record will be kept on the amount of the waste and packaging and labeling of the waste will be according to the ESIA standards required by the environmentally licensed recycling or disposal facility which will receive the waste,

- The National Waste Declaration Form indicated in the regulation will be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the MoEU and a copy will be stored for five years,

- The waste would be temporarily stored in durable, leak-proof, safe containers placed on a concrete area away from the buildings of the camp in accordance with related legislation,

- There will be hazardous waste labels on the containers name of waste, type of hazard,

- Waste vegetable oils caused from any kitchen activities shall be stored separately and recycled according to related legislation. Storage containers will be in line with legislation and labelled clearly. Drip trays will be

used under the storage containers. It will not drained to prevent clog up camp drains,

- The quantity and the stored date would be indicated on the container, if the containers are damaged, the waste would be transferred to other containers having the same specifications, containers would always be kept closed, and they would be stored so that the waste does not chemically react.

- End disposal of hazardous waste will be licensed disposal facilities.

- Hazardous waste will be segregated at source and stored in separate containers in accordance with related legislation, ESIA, plans and procedures. Mixing of hazardous waste with other waste will not be allowed. In case of such mixing, all waste will be accepted as hazardous waste and stored and disposed according to related legislation.

- Storage compartment and containers of hazardous waste must fulfil requirements of the legislation and project requirements

- No hazardous liquid waste will be treated with other non-hazardous liquid wastes.

4.4.3 Packaging wastes

The packing paper, plastic and glass bottles i.e. packaging wastes will be segregated at source and collected separate from other wastes and should be sent to licensed recycling facilities according to Article 23 of the Regulation on Control of Packaging Waste, Management Plan PLK-PLN-ENV-PL4-006. All waste containers on-site (bins, skips, drums, etc.) will be clearly labeled (Turkish and English) to show which wastes can be disposed into them and which wastes they contain, all recyclable solid waste will be separated at source (e.g. glass, paper, metals, and plastics) and all solid waste that can be recycled will be recycled by licensed company. Records will be kept for recycled waste.

4.4.4 Medical wastes

Medical waste must be collected and stored in containers which are defined in related legislation. Bags, containers, amount of waste, duration of storage must be in line with the related legislation. Medical waste must not be stored out of medical unit. Medical wastes collected in the camp sites will be disposed of by delivering to the nearest health institution or licensed municipal medical waste collection system by a licensed company. End disposal facilities for medical waste must be authorized and or licensed facilities.

Medical waste that are produced under the project will be regularly recorded according to the Regulation on Control of Medical Waste, will be sent to the Provincial Directorate of Environment and Urbanization, this information will be kept for at least three years and be kept open to examination of the MoEU upon request.

The National Waste Declaration Form indicated in the regulation will be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the MoEU and a copy will be stored for five years.

4.4.5 Waste oils

Waste vegetative oil will occur in the cafeterias of the camp sites within the scope of the project. These wastes will be collected separate from other wastes and would be disposed according to the provisions given in the Regulation on Control of Waste Vegetative Oil Published in Official Gazette No: 25791 on 19.04.2005. Drip trays will be located under the storage bins/tanks of waste vegetable oils. Transportation, recycling and disposal (if any) will be handled with licensed firms and records of amount will be kept.

Lubricating oil and other wasted oil (from maintenance process of the vehicles) will be collected in a closed temporary waste storage area with leak-proof floor and covered with a shelter. Drip trays will be located

under the storage bins/tanks of waste oils. Spill response equipment will be located where waste oils are stored. The oil collected will be given to a licensed waste oil recovery company according to the Regulation on Control of Waste Oil published in Official Gazette No: 26952 on 30.07.2008. End disposal (if any) will be licensed facilities and records will be kept.

4.4.6 Waste batteries and accumulators

Waste accumulators will be stored in a closed containers/compartments of CWAA with a leak-proof floor according to the Regulation on Control of Waste Batteries and Accumulators published in Official Gazette No: 25569 on 31.08.2004 and accumulators will be delivered to the collection points established by the municipalities or by the companies distributing or selling batteries and waste accumulators (vehicle batteries) will be delivered to the temporary storage areas established by the companies distributing or selling accumulator products and maintenance companies. Waste accumulators/batteries will be transported, recycled and/or disposed by licensed with licensed firms at licensed facilities.

4.4.7 Waste tires

If there is a need to change the tires of these vehicles and machines, the end of life tires that come out will be sent to tire distribution companies or to the authorized transporters indicated in Regulation on the Control of End of Life Tires.

Waste tires will be stored according to related regulation. On RoW, waste tires which are used for road crossing purposes will not be stored on bare soil and will be protected from rain and other water resources. The waste tires shall be stored specifically defined locations and covered with geotextile.

4.4.8 Excavation wastes

In all areas (including wetlands, marshes, areas with steep slopes, agricultural fields, etc.), included in the Right of Way, the topsoil (if present), which is the most important element to be used during bio-restoration, will be stripped seperately and stored seperately appropriately for future re-use. During the excavation works, for the laying of the pipes and construction of the above ground installations necessary amount of bottom cover soil would be excavated and would be stored at the construction site by fulfilling project requirements.

The top soil will be stored separately from the excavation materials and after the construction work is completed, it will be used in the land clearance and rehabilitation works again. Topsoil and subsoil will not be stored where it can be easily moved into a wetland or water body.Topsoil and subsoil will not be mixed during the stripping and storage activity. Topsoil and subsoil storage will be made and topsoil and subsoil will be preserved from erosion and sedimentation according to the Erosion, Reinstatement and Landscaping Plan (PLK-PLN-ENV-PL4-002). Topsoil cannot be used purposes other than reinstatement of RoW and site. Topsoil shall be returned bac to original site by ensuring quality and quantity of the topsoil.

During these operations, the following provisions indicated in the “Regulation on Control of Excavation Soil and Construction Debris” regarding the storage of the top soil would be respected;

1. The top soil shall be stored in an appropriate area to prevent from being scattered by wind or water streams or other factors, from being mixed with foreign materials and from being deteriorating with respect to original characteristics and necessary protection measures shall be taken (see paragraph below). The area where the top soil would be stored shall not have more than 5% inclination.
2. During the storage of the top soil, possible losses shall be prevented and the quality of the soil

shall be maintained.

1. If the top soil shall be kept exposed for a long time, it will be ensured that surface is covered

with fast growing plants.

If required due to excessively windy conditions, topsoil piles shall be tackified using water. The silt fence may be placed at the base of the topsoil pile (between the pile and the ditch bank) to help retain soil. The topsoil pile will be placed behind a bench or berm to prevent erosion especially at steep slopes. Vegetation of topsoil will also help topsoil preservation.

The excavation soil that will be taken out during the pipeline construction will at first be accumulated throughout the route in order to be used for bedding, padding and backfilling. In cases where excavation soil is not appropriate for bedding, padding and backfilling, material will be supplied from off-site after obtaining the necessary permissions and licenses and approval of Client/EPCM. Imported material used for bedding, padding and backfilling will be sand and will be clean and salt-free; and shall not contain clay, roots, stones or other material which is likely to cause damage to the pipe coating. The excavation material remaining after bedding, padding and backfilling process will be used for reinstatement of roads and land preparation. Remaining excavation soil will be stored on permitted sites.

The waste material which is occurred from excavation works during the land preparation and construction phase will not be emptied to the rivers that flows or dry, related to “the River Beds and

Floods Decree”.

During all excavation works under the scope of the project, provisions of Regulation on Control of Excavation Soil and Construction Debris and also provisions of the Regulation on Control of Soil Pollution and Contaminated Lands by Point Sources and project requirements would be complied with.

4.4.9 Liquid wastes

The liquid wastes to be generated from the camp sites, pipe stockyards and RoW and related management details are listed below.

1. Domestic waste water from camp sites, pipe stockyards and RoW: -
   Camp domestic wastewaters will be collected and treated in WWTP in camp site. It will then be disposed of at the discharge point authorized by the authorities. No wastewater will be discharged to water body unless fulfills discharge requirements set by legislations. Domestic wastewater will be separated from oily water discharges.
2. Hazardous liquid wastes from camp sites, pipe stockyards and RoW
3. Water from trenches at RoW, because it may be turbid and sediment laden, trench water will require filtering before it can be discharged.
4. Trenh water will be removed using a pump connected to a flexible hose. Disposal of trench water will be in accordance with the requirements set out in the CONTRACTOR’s Erosion, Reinstatement and Landscaping Plan (PLK-PLN-ENV-PL4-006), Pollution Prevention Plan (PLK-PLN-ENV-PL4-005) and the ESIA.
   Appropriate measures to prevent erosion and sediments during the disposal of trench water, hydrotest water, or any other water will be adopted. Such measures are specified in the CONTRACTOR’s ESMP and all water discharges will be undertaken in accordance with the requirements of that plan.
5. Hydrotest water discharge at the RoW; , Wastewater of hydrotesting will be treated and discharged to receiving environment which is approved by the Client/EPCM after satisfying the parameter given

in Water Pollution Control Regulation and hydrotest water discharge standards in IFC . Discharge of hydro test water will not impair the receiving body quality and will comply with relevant legislation and project requirements.

4.5 Waste Recording/Reporting

Waste data will be reported in the Waste Register Form (Appendix-A) as well as the waste related KPI figures in accordance with the monthly reporting scheme. Waste information will be sent to EPCM on a monthly basis. The amount of chemical, hazardous, package, medical and other wastes recycled, disposed will be reported with name of transporting, recovering, recycling, disposing companies and facilities.

Daily records will be kept by CONTRACTOR in daily reports. Reporting will be facilitated by regular audits and inspections conducted by the Environmental Inspector (s). These cover the following:

- Number of NCRs addressing inappropriate waste management,

- Percentage of waste reused or recycled,

- Percentage of hazardous waste generated as a result of spills or leaks,

- The amount of waste generated

- Waste collection efficiency and housekeeping at work sites.

Waste streams for each type of waste down to the final disposal location will be identified, updated, and reported on monthly basis.

The amounts and movements of waste from the site to the CWAA and other facilities (local community collection points and recycling facilities) will be documented and monitored by the Environmental Inspector(s) using the Waste Transfer Note Form (Appendix-B), daily reports, and monthly reports via the waste management register. Any incidents or non-compliances will be recorded with incidents and non-compliance forms recorded in the incident and non-compliance registers. All information will be recorded and presented on a monthly basis. All records will be kept on site for audit purposes.

Annual amount of hazardous waste and oils disposed etc. and some special types of non-hazardous wastes will be declared to the Ministry of Environmental and Urbanization via online system of the Ministry till March of every year.

Waste Management Plan (including all types of waste, handling, storage and disposal) will be prepared and submitted to the MoEU for approval every 3 years.

5 TRAINING

All workers including management team will be trained in the waste management procedures discussed above as an essential part of their required environmental training needs. Regular refreshment trainings and -when deemed necessary- additional toolbox talk meetings will be provided. CONTRACTOR will provide training to all staff to ensure that they are aware of the relevant aspects of the WMP and are able to fulfil their waste management roles and functions. Specific training will be provided to those employees identified in this WMP and with specific duties associated with waste management.

The waste management training will include the following topics, among others:

- Identification of non-hazardous waste, with examples,

- Identification of hazardous waste, with examples,

- Waste segregation and proper disposal,

- Explanation of the reduce/reuse/recycle philosophy,

- National legislation, ESIA commitments and project requirements on waste storage, transport and disposal,

- Dirty/contaminated/polluted water and soil management (spill prevention and response),

- Identification of chemical waste with examples,

- Identification of medical waste with examples,

- Contaminated and polluted water and wastewater management.

In addition, specific training will also be required for specific groups of staff, including those with responsibilities as set out in the WMP. This training will include, but not be limited to the following:

- Specific training to personnel and sub-contractors handling hazardous, chemical wastes and transporting wastes;

- Specific training to personnel and sub-contractors handling package and recyclable wastes,

- Technical training to CONTRACTOR waste facility staff;

- Training on reporting and clean up requirements as outlined in this plan and emergency response plan; and

- Training to staff that will undertake regular monitoring and auditing of CONTRACTOR waste management and waste facilities to ensure compliance.

This will be conducted by the Environmental Manager or a specialist trainer. An attendance sheet will be distributed and signed by all trainees for the record keeping after the training programme. The information of the time, place, attendance and issues discussed will be recorded also. Training of staff will be recorded in personnel records.

When it is required like non-functional waste management situation and etc. trainings will be repeated again.

6 MONITORING

Waste management activities will be monitored, some activities being periodically monitored, others being continuously monitored. Daily records will be kept by CONTRACTOR, documenting the collection of wastes across the site. Waste will be monitored, and recorded according to Environmental and Social Monitoring Plan (PLK-PLN-ENV-PL4-010).

Site inspections will be conducted on a daily basis to ensure compliance with the regulations. All deficiencies will be addressed and corrective actions will be implemented. All findings will be recorded to a check list and /or report. All records will be filled for audit purposes.

All waste management areas, waste collection area, landfill, etc. will be audited for compliance by the environmental manager.

CONTRACTOR will submit Weekly and Monthly reports to the EPCM. Weekly and Monthly reports will include;

1. NCR Register
2. Incident Register

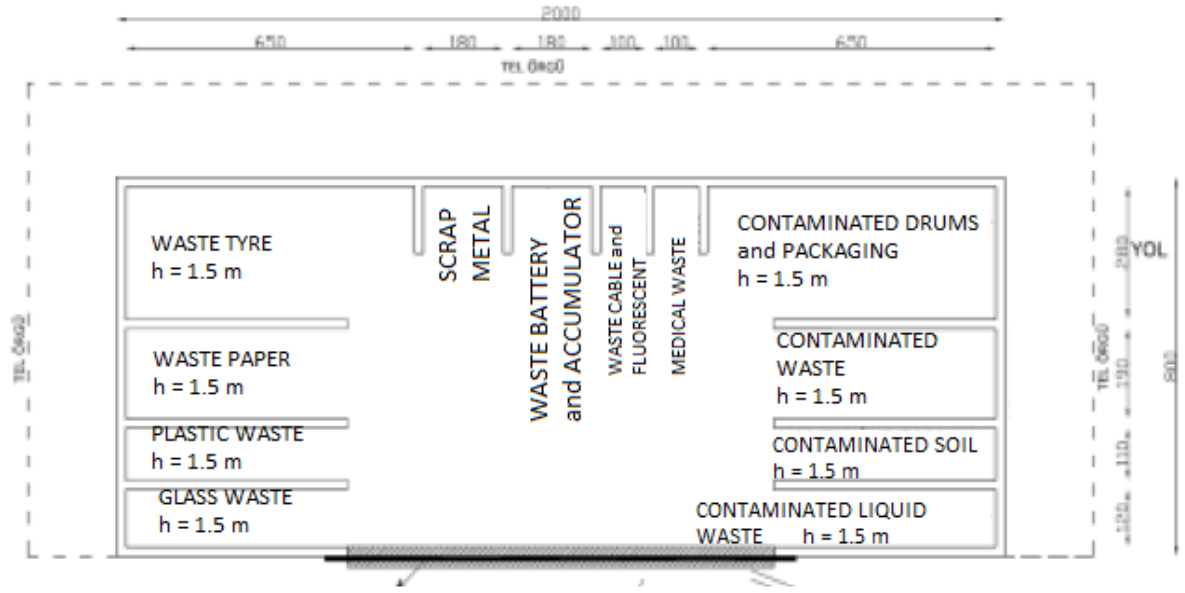
3. Waste register/Waste disposal register
4. Water Quality Register
5. Water Abstraction Register
6. Surface Water Quality Register
7. Hydrotest Water Discharge Register
8. Noise Register
9. Air Register
10. Site Inspection Reports

Daily records will be kept by CONTRACTOR, documenting the treatment and disposal of wastes at the CWAA and any other of the CONTRACTOR's facilities.

6.1 Inspection and Auditing

The CWAA and any other facilities provided by CONTRACTOR for waste management will be weekly inspected and audited for compliance with this procedure, regulatory requirements and ESIA commitments.

A generic CWAA diagram is shown below. This is a nonspecific layout and will differ from location to location according to the physical conditions and amount and type of the wastes generated at that location.



How the domestic and hazardous wastes will be stored are described above in the related sections

respectively.

In addition, facilities provided and/or operated by third parties which are utilized for management of project wastes will also be periodically inspected and audited to ensure these wastes are being/have been managed appropriately.

Inspection and Audit forms will be developed for the purpose. Records of inspections and audits will be

maintained and made available for inspection by Turkish regulatory authorities and TANAP.

Waste Monitoring Period:

WASTE ACTIVITY	**Monitoring Period**	**Responsible Person**
Non-Hazardous waste	Weekly	Env. Inspector
Inert waste	Weekly	Env. Inspector
Hazardous Waste	Weekly	Env. Inspector
Medical waste	Weekly	Nurse/Env. Inspector

Appendix A - Waste Register Form

APPENDIX A - WASTE REGISTER FORM

WASTE REGISTER – WASTE DISPOSAL REGISTER
Reporting Period

HAZADOUS WASTE DISPOSAL - (kg)		Waste Recycled at licensed facility			Waste Disposed of at Licenced Landfill			Waste Temporarly stored in Camp		Total Waste Generated (kg)	
Type of Waste:	**Code of Waste**	Name of the Licensed Facility	**Current Month**	**Total to Date**	Name of the Licensed Facility	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**
Aerosol Cans											
Air Filters											
Batteries (Dry)											
Batteries (Wet)											
Chemical Waste											
Coating Waste											
Contaminated Soil											
Fluorescent tubes											
Fuel Filters											
Glue cans											
Glycols											
Grease (tubes/cans)											
Medical waste											
Oil contaminated waste											
Oil filters											
Paint wastes											

Pesticides											
Solvents											
Used catridges & toners											
X-ray papers											
Other:											
Total (kg)											

NON-HAZADOUS WASTE DISPOSAL - (kg)		**Waste Reused by Contractor**		**Waste Recycled at licensed facility**		**Waste Disposed of at Licenced Landfill**		**Waste Temporarly stored in Camp**		**Total Waste Generated (kg)**	
Type of Waste:	**Code of Waste**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**
Aluminium cans											
Bricks and building material											
Cardboard and paper											
Cement bags											
Cement dust/waste											
Cooking oil											
Electrical cables											
End caps											
Foam											
Food waste											
Glass											
Grinding disks											
Grit from blasting											
Lifting straps/belts											
Metal shavings											
Domestic waste											
Plastic bottles											
Plastic											

packagin											
Styrofoam											
PPE & clothing											
PVC											
Rubber waste											
Scrap metal											
Tyres											
Used geotextile											
Water filters											
Wood											
Other											

APPENDIX A - WASTE REGISTER FORM

WASTE REGISTER – WASTE DISPOSAL REGISTER
Reporting Period

HAZADOUS WASTE DISPOSAL - (kg)		Waste Recycled at licensed facility			Waste Disposed of at Licenced Landfill			Waste Temporarly stored in Camp		Total Waste Generated (kg)	
Type of Waste:	**Code of Waste**	Name of the Licensed Facility	**Current Month**	**Total to Date**	Name of the Licensed Facility	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**
Aerosol Cans											
Air Filters											
Batteries (Dry)											
Batteries (Wet)											
Chemical Waste											
Coating Waste											
Contaminated Soil											
Fluorescent tubes											
Fuel Filters											
Glue cans											
Glycols											
Grease (tubes/cans)											
Medical waste											
Oil contaminated waste											
Oil filters											
Paint wastes											

Pesticides											
Solvents											
Used catridges & toners											
X-ray papers											
Other:											
Total (kg)											

NON-HAZADOUS WASTE DISPOSAL - (kg)		**Waste Reused by Contractor**		**Waste Recycled at licensed facility**		**Waste Disposed of at Licenced Landfill**		**Waste Temporarly stored in Camp**		**Total Waste Generated (kg)**	
Type of Waste:	**Code of Waste**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**
Aluminium cans											
Bricks and building material											
Cardboard and paper											
Cement bags											
Cement dust/waste											
Cooking oil											
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Glass											
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Lifting straps/belts											
Metal shavings											
Domestic waste											
Plastic bottles											
Plastic											

packagin											
Styrofoam											
PPE & clothing											
PVC											
Rubber waste											
Scrap metal											
Tyres											
Used geotextile											
Water filters											
Wood											
Other											

Appendix B - Waste Transfer Note Form

APPENDIX B - WASTE TRANSFER NOTE FORM

Form Number…. – <u>SAMPLE WASTE TRANSFER NOTE</u>

WASTE TRANSFER NOTE	
Consignment Reference No: **(facility-year-sequential no.)**	
SECTION A -	
DESCRIPTION OF THE WASTE	
1. Type of Waste	1. [enter type of waste here e.g. grease, rags and absorbents]
2. How is the waste contained?	2. [enter number and size of waste containers]
3. What is the quantity of waste?	3. [enter total quantity of waste]
4. Handling/Transport precautions	4. [enter any precautions required for handling and transport e.g. dust suppression/sheeting, spill kit etc]
SECTION B -	
GENERATOR OF THE WASTE	
1. Contractor (S-P = N/A)	1. [enter contractors name]
2.Site	2. [enter facility name e.g. İnönü Camp]
3. Waste Manager	3. [enter name of CONTRACTOR person responsible for waste management at the facility]
SECTION C -	
PERSON TRANSPORTING THE WASTE	
1. Name	1. [enter name of person transporting the waste]
2. Company	2. [enter name of transportation company]
SECTION D – RECEIPT DETAILS	
1. Date and time of receipt	1. [enter the date and time waste departs facility]
2. Name of receiving facility	2. [enter the name of the receiving facility]
3. Signature of Receipt at Receiving Facility	3.. [instruct the transporter to have receiving facility sign here to document waste was received]
SECTIONE - SIGNATURES ***Wate Producer:*** *[CONTRACTOR Representative at Waste Production site Signs Here] For and on Behalf of CONTRACTOR* ***Waste Carrier:*** *[Waste Transporter Signs Here] For and on Behalf of the Transporter* ***Waste Receiver:*** *[3rd Party treatment/disposal facility receiving waste Signs Here] For and on behalf or receiving facility*	

Copy 1:Waste generating site Copy
Copy 2: Treatment/disposal facility
Copy 3: Transporter, after obtaining signature in Section D., Item 3. to return to Sub-contractor Office. Office to return to waste generating site

APPENDIX B - WASTE TRANSFER NOTE FORM

Form Number…. – <u>SAMPLE WASTE TRANSFER NOTE</u>

WASTE TRANSFER NOTE	
Consignment Reference No: **(facility-year-sequential no.)**	
SECTION A -	
DESCRIPTION OF THE WASTE	
1. Type of Waste	1. [enter type of waste here e.g. grease, rags and absorbents]
2. How is the waste contained?	2. [enter number and size of waste containers]
3. What is the quantity of waste?	3. [enter total quantity of waste]
4. Handling/Transport precautions	4. [enter any precautions required for handling and transport e.g. dust suppression/sheeting, spill kit etc]
SECTION B -	
GENERATOR OF THE WASTE	
1. Contractor (S-P = N/A)	1. [enter contractors name]
2.Site	2. [enter facility name e.g. İnönü Camp]
3. Waste Manager	3. [enter name of CONTRACTOR person responsible for waste management at the facility]
SECTION C -	
PERSON TRANSPORTING THE WASTE	
1. Name	1. [enter name of person transporting the waste]
2. Company	2. [enter name of transportation company]
SECTION D – RECEIPT DETAILS	
1. Date and time of receipt	1. [enter the date and time waste departs facility]
2. Name of receiving facility	2. [enter the name of the receiving facility]
3. Signature of Receipt at Receiving Facility	3.. [instruct the transporter to have receiving facility sign here to document waste was received]
SECTIONE - SIGNATURES ***Wate Producer:*** *[CONTRACTOR Representative at Waste Production site Signs Here] For and on Behalf of CONTRACTOR* ***Waste Carrier:*** *[Waste Transporter Signs Here] For and on Behalf of the Transporter* ***Waste Receiver:*** *[3rd Party treatment/disposal facility receiving waste Signs Here] For and on behalf or receiving facility*	

Copy 1:Waste generating site Copy
Copy 2: Treatment/disposal facility
Copy 3: Transporter, after obtaining signature in Section D., Item 3. to return to Sub-contractor Office. Office to return to waste generating site

Appendix C - Categories of Wastes

APPENDIX C - CATEGORIES OF WASTES

CATEGORIES OF WASTE
(Annex I of Regulation on Waste Management, 29314 **)**

Q1 Production or consumption residues not otherwise specified below
Q2 Off-specification products
Q3 Products whose date for appropriate use has expired
Q4 Materials spilled, lost or having under gone other mishap, including any materials, equipment, etc., contaminated as a result of the mishap
Q5 Materials contaminated or soiled as a result of planned actions (e.g. residues from cleaning operations, packing materials, containers, etc.)
Q6 Unusable parts (e.g. reject batteries, exhausted catalysts, etc.)
Q7 Substances which no longer perform satisfactorily (e.g. contaminated acids, contaminated solvents, exhausted tempering salts, etc.)
Q8 Residues of industrial processes (e.g. slags, still bottoms, etc.)
Q9 Residues from pollution abatement processes (e.g. scrubber sludge, bag house dusts, spent filters, etc.)
Q10 Machining / finishing residues (e.g. lathe turnings, mill scales, etc.)
Q11 Residues from raw materials extraction and processing (e.g. mining residues, oilfield slops, etc.)
Q12 Adulterated materials (e.g. oils contaminated with PCBs, etc.)
Q13 Any materials, substances or products the use of which has been banned by law
Q14 Products for which the holder has no further use (e.g. agricultural, household, office, commercial and shop discards, etc.)
Q15 Contaminated materials, substances or products resulting from remedial action with respect to land
Q16 Any materials, substances or products which are not contained in the above mentioned categories

APPENDIX C - CATEGORIES OF WASTES

CATEGORIES OF WASTE
(Annex I of Regulation on Waste Management, 29314 **)**

Q1 Production or consumption residues not otherwise specified below
Q2 Off-specification products
Q3 Products whose date for appropriate use has expired
Q4 Materials spilled, lost or having under gone other mishap, including any materials, equipment, etc., contaminated as a result of the mishap
Q5 Materials contaminated or soiled as a result of planned actions (e.g. residues from cleaning operations, packing materials, containers, etc.)
Q6 Unusable parts (e.g. reject batteries, exhausted catalysts, etc.)
Q7 Substances which no longer perform satisfactorily (e.g. contaminated acids, contaminated solvents, exhausted tempering salts, etc.)
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Appendix D - Disposal Operations

APPENDIX D - DISPOSAL OPERATIONS

DISPOSAL OPERATIONS

(Annex II of Regulation on Waste Management, 29314**)**

D1 Deposit into or onto land, e.g. landfill

D2 Land treatment, e.g. biodegradation of liquid or sludgy discards in soils

D3 Deep injection, e.g. injection of pumpable discards into wells, salt domes or naturally occurring repositories

D4 Surface impoundment, e.g. placement of liquid or sludgy discards into pits, ponds or lagoons

D5 Specially engineered landfill, e.g. placement into lined discrete cells which are capped and isolated from one another and the environment

D6 Release into a water body, except seas/oceans

D7 Release into seas/oceans, including sea-bed insertion

D8 Biological treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12

D9 Physico-chemical treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12, e.g. evaporation, drying, calcination

D10 Incineration on land

D11 Incineration at sea

D12 Permanent storage, e.g. emplacement of containers in a mine

D13 Blending or mixing prior to submission to any of the operations numbered D1 to D12

D14 Repackaging prior to submission to any of the operations numbered D1 to D13

D15 Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)

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D14 Repackaging prior to submission to any of the operations numbered D1 to D13

D15 Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)

Appendix E - Recovery Options

APPENDIX E - RECOVERY OPERATIONS

RECOVERY OPERATIONS

(Annex II.B of Regulation on Waste Management 29314 **)**

R1 Use principally as a fuel or other means to generate energy

R2 Solvent reclamation/regeneration

R3 Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)

R4 Recycling/reclamation of metals and metal compounds

R5 Recycling/reclamation of other inorganic materials

R6 Regeneration of acids or bases

R7 Recovery of components used for pollution abatement

R8 Recovery of components from catalysts

R9 Oil re-refining or other reuses of oil

R10 Land treatment resulting in benefit to agriculture or ecological improvement

R11 Use of wastes obtained from any of the operations numbered R1 to R10

R12 Exchange of wastes for submission to any of the operations numbered R1 to R11

R13 Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)

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Appendix F - Properties of Waste which Render them Hazardous

APPENDIX F - PROPOERTIES OF WASTE WHICH RENDER THEM HAZARDOUS

PROPERTIES OF WASTES WHICH RENDER THEM HAZARDOUS

(Annex III.A of Regulation on Waste Management 29314**)**

H1 'Explosive' substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene.

H2 'Oxidizing` substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances.

H3-A 'Highly flammable`

- liquid substances and preparations having a flash point below 21 °C (including extremely flammable liquids), or

- substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or

- solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or

- gaseous substances and preparations which are flammable in air at normal pressure, or

- substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities.

H3-B 'Flammable` liquid substances and preparations having a flash point equal to or greater than 21 °C and less than or equal to 55 °C.

H4 'Irritant` non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation.

H5 'harmful` substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks.

H6 'Toxic` substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.

H7 'Carcinogenic` substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.

H8 'Corrosive` substances and preparations which may destroy living tissue on contacts.

H9 'Infectious` substances containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.

H10 'Teratogenic` substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence.

H11 'Mutagenic` substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.

H12 Substances and preparations which release toxic or very toxic gases in contact with water, air or an acid.

H13 Substances and preparations capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above.

H14 'Ecotoxic` substances and preparations which present or may present immediate or delayed risks for one or more sectors of the environment.

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Appendix G - Hazardous Waste Threshold Concentrations

APPENDIX G - HAZARDOUS WASTE THRESHOLD CONCENTRATIONS

HAZARDOUS WASTE THRESHOLD CONCENTRATIONS

(Annex III.B of Regulation onWaste Management 29314**)**

a) flash point ≤ 55 ºC,

b) one or more substances classified as very toxic at a total concentration ≥ 0,1 %,

c) one or more substances classified as toxic at a total concentration ≥ 3 %,

d) one or more substances classified as harmful at a total concentration ≥ 25 %,

e) one or more corrosive substances classified as R35 at a total concentration ≥ 1 %,

f) one or more corrosive substances classified as R34 at a total concentration ≥ 5 %,

g) one or more irritant substances classified as R41 at a total concentration ≥ 10 %,

h) one or more irritant substances classified as R36, R37, R38 at a total concentration ≥ 20 %, i) one substance known to be carcinogenic of category 1 or 2 at a concentration ≥ 0,1 %,

j) one substance known to be carcinogenic of category 3 at a concentration ≥ 1 %

k) one substance toxic for reproduction of category 1 or 2 classified as R60, R61 at a concentration ≥ 0,5 %,

l) one substance toxic for reproduction of category 3 classified as R62, R63 at a concentration ≥ 5%,

m) one mutagenic substance of category 1 or 2 classified as R46 at a concentration ≥ 0,1 %,

n) one mutagenic substance of category 3 classified as R40 at a concentration ≥ 1 %

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e) one or more corrosive substances classified as R35 at a total concentration ≥ 1 %,

f) one or more corrosive substances classified as R34 at a total concentration ≥ 5 %,

g) one or more irritant substances classified as R41 at a total concentration ≥ 10 %,

h) one or more irritant substances classified as R36, R37, R38 at a total concentration ≥ 20 %, i) one substance known to be carcinogenic of category 1 or 2 at a concentration ≥ 0,1 %,

j) one substance known to be carcinogenic of category 3 at a concentration ≥ 1 %

k) one substance toxic for reproduction of category 1 or 2 classified as R60, R61 at a concentration ≥ 0,5 %,

l) one substance toxic for reproduction of category 3 classified as R62, R63 at a concentration ≥ 5%,

m) one mutagenic substance of category 1 or 2 classified as R46 at a concentration ≥ 0,1 %,

n) one mutagenic substance of category 3 classified as R40 at a concentration ≥ 1 %

WorleyParsons
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TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc.No.	FRN-PLN-ENV-PL1-012	**Rev**	**Status**
		P4-0	IAA
Document Title :	WASTE MANAGEMENT PLAN		
Tag Nos.			
Contractor:	**FERNAS İNŞAAT A.Ş.**		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAA. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAA. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

FERNAS®	**TANAP** TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT (LOT-1)	TANAP WorleyParsons

WASTE MANAGEMENT PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP APPROVED
P3-A	DIC	02.01.2015	Discipline Internal Check	ALAA	GULA	OZKE	
P3-B	IDC	14.01.2015	Inter-Discipline Check	ALAA	GULA	OZKE	
P4-C	IFR	07.05.2015	Issued for Review	ALAA	GULA	OZKE	
P4-0	IAA	22.05.2015	Issued As Approved for Construction	ALAA	GULA	OZKE	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P3-A	DIC	02.01.2015	Discipline Internal Check
P3-B	IDC	14.01.2015	Inter-Discipline Check
P4-C	IFR	04.05.2015	Issued for Review
P4-0	IAA	22.05.2015	Issued As Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date
1				

TABLE OF CONTENTS

1 INTRODUCTION

1.1. Definitions

Definitions and abbreviations used in this plan are given below.

CLIENT: TANAP Doğalgaz İletim A.Ş.

PROJECT: Trans Anatolian Natural Gas Pipeline Project (TANAP)

EPCM: Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi

CONTRACTOR: FERNAS Insaat A.S.

Waste: Refer to any solid, liquid, gaseous or hazardous materials cause environmental damage or hazard.

Solid Waste: Refers to all solid waste that has the potential to cause pollution.

Solid Waste Management: Refer to manage waste generation and minimization, collection, storage, treatment, transport and final disposal in accordance with environmental legislation and procedures.

Hazardous Waste: Refers to waste classification and waste hazardous properties definitions defined in Hazardous Waste Control Regulation and its appendix

Hazardous Waste Management: Refer to manage and monitor the waste generation, minimization, collection, storage, transport and final disposal in accordance with environmental legislation and procedures.

Medical Waste: Wastes that are produced as a result of health service activities and the use of first aid kit materials. Medical waste defined in the Turkish 'Regulations on the Control of Medical Wastes', for example dressings, swabs, needles etc.

Medical Waste Management: Refer to manage and monitor the medical waste generation, collection, storage, treatment and discharge in accordance with environmental legislation and procedures.

Wastewater: Refers to all liquid wastes that have the potential to cause ground and surface water pollution.

Accident: Refers to any actual Injury and/or Damage (Loss) to Assets, the Environment, Social programs, Reputation or to 3rd Parties

Incident: Refers to any unplanned event or chain of events, which has, or could have caused injury or illness and/or damage [loss] to people, assets, the environment or reputation.

Contamination: Refers to any environmental damage or hazard due to solid, liquid, gaseous and hazardous substances which could cause any detrimental effects on the environment.

Pollution: Refers to the contamination of air, water, or land by the any adverse effects of human activities.

Noise: Refers to excessive noise that may harm the activity or balance of human or animal life.

Noise Management: Refer to manage and monitor the noise generation point and handle it in accordance with the pollution definitions and procedures defined in Noise Pollution Control Regulation.

Dust: Refer fine (small) particles of dry matter resulted from traffic on road.

Dust Management: Refer to manage and monitor the dust generation point and handle it in accordance with the regulation.

Environmental Indicators: Refers to simple measures that tell us what is happening in the environment such as soil, water and air quality, turbidity

MSDS: Safe Handling of Chemicals or Materials Safety Data Sheet

Impact: The consequence of an action or activity on the human or natural environment. Impacts may be positive, negative or neutral.

Risk: The likelihood of occurrence of an adverse project effect.

1.2. Abbreviations and Acronyms

Abbreviations/ Acronyms / Terms	Meaning
WMP	Waste Management Plan
ESIA	Environmental and Social Impact Assessment
WCP	Waste Collection Point
WHA	Waste Handling Area
MoEU	Ministry of Environment and Urbanization
ROW	Right of Way
WWTP	Wastewater Treatment Plan

1.3. References

Reference	Reference Title
ESIA Report Chapter 4	“Legal, Political and Institutional Framework” of ESIA Report
ESIA Report Appendix 5.1	“Construction Impacts Managements Plan ” of ESIA Report
ESIA Report Appendix 5.4	“Employment and Training Plan” of ESIA Report
ESIA Report Appendix 5.10	“Pollution Prevention Plan” of ESIA Report
ESIA Report Appendix 5.11	“Waste Management Plan” of ESIA Report

1.4. Purpose of the Plan

The purpose of this document is to describe the requirements for establishing and conducting proper waste management during the construction works of the TANAP Project 56” Onshore Pipeline Construction for Lot 1. These procedures are designed to demonstrate how the requirements of the Waste Management Plan (WMP) will be implemented and to assure that construction works is

conducted in a manner that minimizes environmental risk in accordance with project standards and Turkish legislations.

1.5. Relationship to other plans

i. Environmental and Social Management Plan (ESMP)
ii. Construction Impact Management Plan (CIMP)
iii. Employment and Training Plan (ETP)
iv. Traffic Management Plan (TMP)
v. Soil Erosion and Sediment Control Plan (ESCP)
vi. Pollution Prevention Plan (PPP)
vii. Emergency Response Plan (ERP)
viii. Camp Management Plan (CMP)
ix. Environmental and Social Monitoring Plan (ESMOP)

1.6. Turkish Legislation

The following Turkish legislative instruments are highly relevant to the management of wastes generated during pipeline construction, camp sites and must be complied with;

- Regulation on Control of Hazardous Wastes (14.03.2005 – 25755)
- Regulation on Waste Management (02.04.2015 – 29314)
- Regulation on Control of Medical Wastes (22.07.2005 – 25883)
- Regulation on Control of Waste Vegetable Oil (19.04.2005 – 25791)
- Regulation on Control of Waste Oil (30.07.2008 – 26952)
- Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources (08.06.2010 – 27605)
- Regulation on Control of Excavation Soil, Construction and Demolition Wastes 18.03.2004 – 25406
- Regulation on Control of Waste Batteries and Accumulators (31.08.2004– 25569)
- Regulation on Wastes Resulted from the Use of Radioactive Materials (02.09.2004 – 25571)
- Regulation on Management of Radioactive Wastes (09.03.2013 – 28582)
- Regulation on the control of End of life Tires (25.11.2006 - 26357)
- Regulation on the control of End of life Vehicles (30.12.2009 - 27448) (in case of heavy traffic accident)
- Regulation on Control of Waste Electrical and Electronical Items (22.05.2012 - 28300)
- Regulation on Waste Incineration (06.10.2010 - 27721)

2 RESPONSIBILITIES

CONTRACTOR's overall responsibilities associated with the management of waste during construction of the pipeline project lot 1 include the followings:

2.1. Project Manager

- Will ensure that the Waste Management Plan reflects any changes during the construction process that may have a significant environmental impact and manage them accordingly,
- Will ensure that there are sufficient resources (such as people, time, consumable chemical and physical material, and equipment) to collect, manage, monitor, and remove all type of wastes.

2.2. Construction Manager

- Will be responsible for ensuring that all site staff, including sub-contractors, and activities comply with the CONTRACTOR Waste Management Plan,
- Will be responsible for ensuring that all site personnel are aware of the requirements of the Waste Management Plan,
- Will coordinate with environmental manager the waste issues according the construction program,
- Will ensure to implement of this plan requirements.

2.3. Environmental Manager

- Will be site based during the construction of the project and will have responsibility for the identification and management of all environmental issues,
- Will ensure that all consents/licenses are in place prior to carrying out the associated works,
- Will ensure that the Project Manager and Construction Manager are fully informed on any waste management issues,
- Will write procedures for site-specific issues,
- Will ensure that Environmental inspector(s) are implementing or overseeing the implementation of WMP requirements,
- Will carry out internal audits in line with the program of audits agreed upon with EPCM,
- Will ensure that all remedial action identified by inspections are closed out,
- Will ensure that all recyclable solid waste are recorded, segregated, recycled according their types,
- Will ensure that all hazardous and medical solid wastes are recorded, segregated, stored in suitable condition and transported to licensed company,
- Will ensure that all wastewater are collected, treated, stored or disposed in suitable condition, and recorded,
- Will be responsible for producing and maintaining the Waste Management Plans,
- Will ensure arrangements for waste and water management training programs,
- Will ensure that all project personnel is trained and are well aware of solid waste management requirements and responsibilities,
- Will ensure that all MSDS are stored in close proximity of the hazardous material.

2.4. Environmental Inspectors

- Will ensure the effective implementation of the waste management plans,
- Will guide and train personnel on waste management issue/requirements,
- Will ensure that all documentation is collected, and recorded a per the ESIA requirements,
- Will investigate accidents and incident and implement all corrective actions,

- Will ensure adequate and appropriate waste containers are available on vehicles and necessary areas on both camp site and construction site,
- Will carry out or supervise all environmental monitoring on the project ensuring that all records are fully completed correctly,
- Will ensure that the Environmental Manager is fully informed on environmental issues.

2.5. All other personnel

- Will comply with waste management requirements and instructions,
- Will comply with pollution and spill prevention requirements and instructions,
- Will clean up their work area at the end of each day,
- Fully trained in dealing with environmental incidents and appropriate response methods,
- Notify others, including Environmental Manager and Project Manager, of all incidents.

3 WASTE DEFINITION AND CLASSFICATION

3.1 Waste Definition

Waste refers to any solid, liquid, gaseous or hazardous materials cause environmental damage or hazard. It includes any substance or objects that the Contractor disposes of, or intends to dispose of, or is required to dispose of.

3.2 Classification

The subsequent management of waste depends upon the initial identification of waste at the point of generation. Adequate segregation of waste types, the storage requirements of the waste and ultimately the treatment/disposal route of the waste all rely on its sufficient classification. CONTRACTOR will diagnose all wastes generated, sampling and checking, testing or analyzing as necessary in order to classify the waste in accordance with legislation.

All waste containers on-site (bins, skips, drums, etc.) will be clearly labeled (Turkish and English) to show which wastes can be disposed into them and which wastes they contain. Any previous labeling will be removed or covered to avoid confusion.

All kind of waste will be segregated into hazardous, non-hazardous, inert wastes and medical waste by applying waste regulations and international standards.

3.2.1 Hazardous waste

Means any substance or object as defined in Turkish legislation (The Hazardous Waste Control Regulation of 14 March 2005) or any waste which is covered by Article 1(4) of Council Directive 91/689/EEC of 12 December 1991 on hazardous waste as amended by Decision 2000/532/EC of 3 May 2000 and further amended by Commission Decisions 2001/118/EC, 2001/119/EC and 2001/573/EC amending list of wastes.

A number of hazardous wastes will be generated during the construction. These include but not limited to;

- fuels;
- lubricants and hydraulic oils;
- chemicals, such as anti-freeze, anti-corrosion products;
- paints and preservatives;
- original containers for all above;
- contaminated soil and contaminated liquid;
- spillage control materials used to absorb oil and chemical spillages;
- machine/engine filter cartridges;
- waste pipe wrappings/coatings, insulation, electrical materials;
- chemical residues from wastewater treatment;
- fluorescent light bulbs;
- vehicle storage battery.

3.2.2 Non-Hazardous waste

'Non-hazardous' waste is waste that is neither inert, nor 'hazardous'; for the purposes of this project, non-hazardous waste includes 'municipal waste' as defined in Article 2 of the Landfill Directive 1999/31/EEC. This includes 'domestic' dry waste, such as paper, packaging, plastics, etc. It also includes: uncured cement; fully digested sewage sludge, preferably dried to 20 wt. % solids.

A number of non-hazardous wastes will be generated during the facility construction and ROW. In summary the main non-hazardous construction wastes will include but not limited to the following:

- Metals (including scrap metal, pipe cuts and wire)
- Timber (removed trees and packaging materials)
- Plastics (packaging materials)
- Containers (steel and plastic)

3.2.3 Inert waste

Inert waste as defined in Article 2 of the Landfill Directive 1999/31/EEC and includes non-degradable, non-leaching and non-reactive material such as stone, gravel, glass, bricks, etc. Inert waste will not dissolve burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health.

These wastes arise from the construction activities. The following types of inert waste are anticipated to be produced from these activities:

- Natural materials (soil and rock);
- Worked stone other than natural stone that has been crushed/screened; and
- Building materials.

The waste material which is occurred from excavation works during the land preparation and construction phase will not be emptied to the rivers that flows or dry, related to "the River Beds and Floods Decree" Numbered 2006/27 from Prime Ministry.

3.2.4 Medical waste

Wastes that are produced as a result of health service activities and the use of first aid kit materials. Medical waste defined in the Turkish 'Regulations on the Control of Medical Wastes' for example dressings, swabs, needles etc.

4 WASTE IDENTIFICATION

The Environmental Manager, or his nominated representative, will ensure that all waste containers are clearly identifiable and accurately describe the type of waste. Full descriptions of the waste are required to assist site and external personnel to handle the waste safely. Any unidentified wastes will be treated initially as hazardous and will be subject to the classification process.

All waste containers on-site (bins, skips, drums, etc.) will be clearly labeled (Turkish and English) to show which wastes can be disposed into them and which wastes they contain. Any previous labeling will be removed or covered to avoid confusion.

5 WASTE MANAGEMENT

As per the national regulation, Industrial Waste Management Plan (including all types of waste, handling, storage and disposal) will be prepared and submitted to the provincial authority of MoEU for approval.

FERNAS will have protocol or contract with licensed Waste Disposal facilities, Recycling Facilities, Medical Waste Collectors, Licensed Transport Company before waste generation starts for all types of wastes (waste oil, vegetable waste oil, hazardous waste transport, and battery collectors). All of them will be licensed and or authorized.

5.1 Waste management hierarchy: Reduce/reuse/recycle

The waste minimization process includes a strategy for managing wastes based on the hierarchical principles of:

- Preventing and/ or reducing the generation of waste at source:
    - Reduce or eliminate hazardous materials that enter the production process;
    - Change the composition of the product to reduce the amount of the waste;
    - Working process modification;
    - Improved housekeeping.
- Improving the quality of the waste generated, such as reducing the hazard.
- Encouraging 3 R (Reuse, Recycling and Recovery):
    - Inventory control and management;
    - Material substitution/elimination;
    - Selection of materials and/or products that are then reusable in their original form, such as drums/containers;
    - Return waste material to original process;
    - Working process modification;
    - Inventory control and management;

The above principles will be adopted, as applicable, throughout all the Construction phases. Reuse, recycling and recovery will be evaluated as the prime choice for waste management, as possible.

Examples of wastes typically subject to reuse / recycling and recovery are listed below:

- Spent lead-acid batteries that are being reclaimed;
- Scrap metal and glass;
- Tires and plastics;
- Waste filter cartridges for air or water which are not contaminated with hazardous
- chemicals;
- Some kinds of packaging and some office waste such as toner cartridges from computer
- printers and photocopiers (the material may be returned to the original vendor).

In case recycling facilities are not available, wastes will be segregated and disposed of as described in the following paragraphs and in compliance with the Turkish Regulations.

5.2 Waste Collection and Storage

There is a waste management area in the camp, as well as waste collection points throughout the camps and construction site. There will also be secondary containment for hazardous liquid wastes (oils, etc.).

The WCP/Waste Handling Area will have separate storage containers for prime recyclables (paper, plastic [excluding bottles], glass and vegetable matter), domestic waste, and scrap metal and separate containers for other hazardous waste requiring segregation including oils, chemicals and batteries. Special care will be taken to ensure that chemicals are kept in separate containers in order to avoid a chemical reaction. The all area will be labeled according to their classification.

The WCP/Waste Handling Area will have concrete hard-standing, a roofed area and be provided with separate drainage and sump for that required section. The hazardous liquid waste resulted from secondary containment areas will be collected and stored in a temporary storage area.

Proper waste segregation will be maintained at all times, separate storage areas and suitable containers, including skips and drums will be provided to ensure continued segregation of waste. A proper scale will be placed, of which will be calibrated regularly.

Regular control and measures for pest and nasty smell will be taken in the Waste Handling Area (WHA). Animal (bird, snake, and rat) repeller will be located in WHA. Entrance of unauthorized people to WHA will be forbidden. Eye wash equipment will be located in WHA.

5.2.1 Non-Hazardous waste collection and storage

- **Collection of Non-hazardous waste**

Non-hazardous waste generated in the camps, ROW, pipe stock yards and ancillary facilities will be collected in accordance with the following requirements;

Collections of non-hazardous waste will be scheduled as frequently as necessary to prevent over-accumulation of the site. The environmental team will monitor the waste bins to ensure they do not overflow.

There will be a camp team (under the responsibility of the camp manager and environmental team) responsible for handling and collecting wastes in suitable containers for both camps.

Due to the pipeline construction project, every crew will be provided with waste collection containers for storing waste; at the end of each day, wastes will be transported to the camp sites for storage and disposal of the waste.

- **Storage of Non-hazardous waste**

Field Environmental personnel will ensure that all waste containers are clearly identified and that they accurately labeled according to the type of waste. There will be separate storage containers for recyclable solid waste such as plastics, glass, ferrous metals and non-ferrous metals. Full descriptions of the waste are required to assist site and external personnel to handle the material safely. Any unidentified wastes will be treated as hazardous. The information to be given on waste labels includes:

- Name of waste,
- Storage date,
- Type of waste, (solid, liquid or sludge)
- Known environmental, health and safety hazards,
- Storage location and contact person name and telephone number.

Any previous labeling will be removed or covered to avoid confusion.

The following requirements include:

- Containers, on-site collection systems and storage areas for municipal waste will be selected and designed to prevent the accumulation of refuse and the creation of health and fire hazards or nuisance.
- Containers for municipal waste will be of adequate size and provided in sufficient numbers to contain all food wastes, rubbish, ashes and municipal solid waste(s) generated in a defined period of time between collections.
- Containers will be selected for the specific service intended, and will be equipped with tightly fitting lids for all municipal wastes except for those used for inert, non-blowing wastes.
- The selected containers will be reusable and be constructed of corrosion resistant metal or other material that shall not absorb water, grease, or oil. The containers will be leak-proof. Lightweight plastic or paper bags will not be used as containers.
- Suitable containers will be provided to hold the municipal waste awaiting collection and disposal.
- The suitable and necessary amount of weighing device will be provided

5.2.2 Hazardous waste collection and storage

- **Collection of hazardous waste**

Hazardous waste generated in the camps, ROW, pipe stock yards will be collected in accordance with the following requirements;

Collections of hazardous waste will be scheduled as frequently as necessary to prevent over-accumulation of the site.

Hazardous waste containers will be permanently and clearly labeled (Turkish and English) with the following information:

- Description of the waste (waste oil, solvents)
- Type of waste (Hazardous waste)
- Type of hazardous (toxic, ignitable)
- Source of waste
- Date of waste being stored
- Known environmental, health and safety hazards,
- Storage location and contact person name and telephone number.

- **Storage of hazardous waste**

Permission of local administrations will be obtained for temporary storage of hazardous wastes within the boundaries and neighboring areas of such municipalities as per the provisions of the Regulation on Control of Hazardous Wastes within the scope of Turkish Legislation on Hazardous Waste.

All hazardous wastes generated in camps, ROW, pipe stock yards will be collected in secured and clearly identified compound for subsequent disposal. The following requirements will be implemented for the storage of hazardous material:

- Hazardous wastes will be clearly labeled and identified with incompatible materials segregated from each other,
- Safe Handling of Chemicals or Materials Safety Data Sheet (MSDS) will be readily available at the storage area to inform the personnel regarding the precautions to be taken when handling, transporting and disposing these hazardous waste materials,
- Hazardous wastes will only be transported and disposed to a licensed hazardous waste site by the hand of licensed company,
- During the transferring the hazardous waste from camp site to licensed company The National Waste Declaration Form will be used,
- Hazardous waste will be temporarily stored on hazardous waste temporary storage area on camp site in suitable conditions up to the date defined in regulation,
- Hazardous waste will only be loaded and unloaded within an hazardous waste compound (for temporary storage) or at the final disposal site,
- Hazardous waste loads will be securely packed on the transport vehicle to ensure that no containers can fall from it. Any hazardous material will be managed in such a manner as to minimize to the fullest extent possible the potential for harm to human health or the environment,
- There will be spill kits in hazardous waste temporary storage area.

5.2.3 Inert waste collection

- **Collection of hazardous waste**

Inert wastes arise from the construction of pipeline. The following types of inert waste are anticipated to be produced from these activities:

- Natural materials (soil and rock);
- Excavated materials
- Worked stone other than natural stone that has been crushed/screened; and
- Building materials.

The most of these wastes will be utilized or will be transferred to third parties for re-use. Any residual materials requiring disposal will be disposed of at locations agreed with the relevant governmental authority.

- **Storage of inert waste**

Inert wastes will be segregated and stored within the waste management area in order to reuse. If not reuse, the material will be either recycled or disposed of according to Turkish regulations.

5.2.4 Medical waste collection

- **Collection of medical waste**

The wastes produced in the Health Service Unit will be collected by a licensed company, transported and removed separately from other wastes including hazardous wastes.
Medical wastes will be collected in specially designated and color-coded containers without mixing with other wastes.

- **Storage of medical waste**

Medical wastes will be stored in red colored and coded containers in a safe place in the Health Service Unit until collected by licensed company.

Medical wastes will be stored separately from other wastes including hazardous wastes. Medical wastes will be collected by properly trained personnel. Medical waste bags and cutting-drilling waste boxes won't be compacted, opened, emptied or recycled after filled up.

The domestic wastes produced in the Health Service Units are collected in the garbage bins, recyclable wastes are collected in the recyclable boxes and medical wastes are collected with red bags in the "Medical Waste Box" at the medical service unit.

Plastic bags will be used in a way to be carried safely and closed tightly. Two bags placed one in another will be used if necessary. Wastes will be also placed in red marked flammable plastic or card board bags. Such bags and other packing materials will not be recycled and reused anyway. During the transferring the medical waste from camp site to licensed company The National Waste Declaration Form will be used.

5.3 Disposal of Waste

Prior to the full commissioning of the camp, and site FERNAS will identify licensed waste disposal facilities for hazardous material and ensure they are suitable for the project.

As per ESIA, specific studies will be done on waste management facilities and landfills to verify to ensure that they are capable of sustaining additional pressure brought by Project (Lot-1) without affecting current waste management services.

For the non-hazardous waste, FERNAS will have a protocol with the municipality or licensed facilities for the recycling/disposal of these wastes.

During the transferring the hazardous waste from camp site to licensed company, the National Waste Declaration Form will be used.

FERNAS will prepare documentation to track the disposal of waste by the municipality.

5.3.1 Domestic Solid Waste

Domestic solid waste from the camp staff will be collected in closed containers located at various points of the camp areas. These solid wastes will be collected in containers and at certain intervals (weekly) will be transported to the solid waste collection system belonging to the nearest municipality and be disposed of.

Domestic solid waste produced in the camp sites will be disposed of according to the "Regulation for the Control of Solid Waste" published on 14.03.1991 with number 20814.

5.3.2 Hazardous Waste

During the storage/disposal of hazardous wastes following provisions indicated in Regulation on Control of Hazardous Wastes (RCHW) and ESIA commitments will be respected:

Hazardous wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the MoEU.

During the storage/disposal of hazardous wastes following provisions indicated in Regulation on Control of Hazardous Wastes (RCHW) will be respected:

- Hazardous solid wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the MoEU,
- A record will be kept on the amount of the waste and packaging and labeling of the waste will be according to the ESIA standards required by the environmentally licensed recycling or disposal facility which will receive the waste,
- The National Waste Declaration Form indicated in the regulation will be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the MoEU and a copy will be stored for five years,
- The waste would be temporarily stored in durable, leak-proof, safe containers placed on a concrete area away from the buildings of the camp,
- There will be hazardous waste labels on the containers,
- Containers will be well ventilated,
- Waste vegetable oils caused from any kitchen activities shall be stored separately and recycled properly. It will not drained to prevent clog up camp drains,
- The quantity and the stored date would be indicated on the container, if the containers are damaged, the waste would be transferred to other containers having the same specifications, containers would always be kept closed, and they would be stored so that the waste does not chemically react.

5.3.3 Packaging Waste and Tires

The packing paper, plastic and glass bottles i.e. packaging wastes will be collected separate from other wastes without considering material used and the source of the material and should be sent to licensed recycling facilities according to Article 23 of the Regulation on Control of Packaging Waste,

All waste containers on-site (bins, skips, drums, etc.) will be clearly labeled (Turkish and English) to show which wastes can be disposed into them and which wastes they contain,

All recyclable solid waste will be separated at source (e.g. glass, paper, metals, and plastics),

All solid waste that can be recycled will be recycled by licensed company. If there is a need to change the tires of these vehicles and machines, the end of life tires that come out will be sent to tire distribution companies or to the authorized transporters indicated in Regulation on the Control of End of Life Tires.

5.3.4 Medical Waste

Medical wastes collected in the camp sites would be disposed of by delivering to the nearest health institution or municipal medical waste collection system by a licensed company.

Medical waste that are produced under the project will be regularly recorded according to the Regulation on Control of Medical Waste, will be sent to the Provincial Directorate of Environment and Urbanization, these information will be kept for at least three years and be kept open to examination of the MoEU upon request.

The National Waste Declaration Form indicated in the regulation will be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the MoEU and a copy will be stored for five years.

5.3.5 Waste Oils

Waste vegetative oil will occur in the cafeterias of the camp sites within the scope of the project. These wastes will be collected separate from other wastes and would be disposed according to the provisions given in the Regulation on Control of Waste Vegetative Oil Published in Official Gazette No: 25791 on 19.04.2005

Lubricating oil and other wasted oil (from maintenance process of the vehicles) will be collected in a closed temporary waste storage area with leak-proof floor and covered with a shelter. The oil collected will be given to a licensed waste oil recovery company according to the Regulation on Control of Waste Oil published in Official Gazette No: 26952 on 30.07.2008.

5.3.6 Waste Batteries and Accumulators

Waste batteries will be stored in a closed containers with a leak-proof floor according to the Regulation on Control of Waste Batteries and Accumulators published in Official Gazette No: 25569 on 31.08.2004 and batteries will be delivered to the collection points established by the municipalities or by the companies distributing or selling batteries and waste accumulators (vehicle batteries) will be delivered to the temporary storage areas established by the companies distributing or selling accumulator products and maintenance companies.

6 WASTE RECORDING / REPORTING

Waste data will be reported in the Waste Register Form (Appendix-A). Waste information will be sent to EPCM on a monthly basis.

Daily records will be kept by FERNAS in daily reports, checklists and registers, documenting the collection, storage and disposal of all project waste on FERNAS lot.

Reporting will be facilitated by regular audits and inspections conducted by the Environmental team, including the Environmental Manager. These cover the following:

- Number of NCRs addressing inappropriate waste management,
- Percentage of waste reused or recycled,
- Percentage of hazardous waste generated as a result of spills or leaks,
- The amount of waste generated.

The amounts and movements of waste from the site to the WHA and other facilities (local community collection points and recycling facilities) will be documented and monitored by the Environmental Manager using the Waste Transfer Note Form (Appendix-B), daily reports, and monthly reports via the waste management register.

Any incidents or non-compliances will be recorded with incidents and non-compliance forms recorded in the incident and non-compliance registers. All information will be recorded and presented on a monthly basis. All records will be kept on site for audit purposes.

Annual amount of hazardous waste and oils disposed and some special types of non-hazardous wastes will be declerated to the Ministry of Environmental and Urbanization via online system of the Ministry till March of every year.

7 TRAINING

All workers will be trained in the waste management procedures discussed above as an essential part of their required environmental training needs. When it is thought necessary, the additional toolbox talk meetings will be provided. FERNAS will provide training to all staff to ensure that they are aware of the relevant aspects of the WMP and are able to fulfill their waste management roles and functions. Specific training will be provided to those employees identified in this WMP and with specific duties associated with waste management.

The waste management training will include some of the following topics, among others:

- Identification of non-hazardous waste, with examples,
- Identification of hazardous waste, with examples,
- Waste segregation and proper disposal,
- Explanation of the reduce/reuse/recycle philosophy,
- National legislation on waste storage, transport and disposal,
- Water and soil management (spill prevention and response)

In addition, specific training will also be required for specific groups of staff, including those with responsibilities as set out in the WMP. This training will include, but not be limited to the following:

- Specific training to personnel and sub-contractors handling hazardous wastes and transporting wastes;
- Technical training to FERNAS waste facility staff;
- Training on reporting and cleanup requirements as outlined in this plan and emergency response plan; and
- Training to staff that will undertake regular monitoring and auditing of FERNAS waste

management and waste facilities to ensure compliance.

This will be conducted by the Environmental Manager or a specialist trainer. An attendance sheet will be distributed and signed by all trainees for the record keeping after the training programme. The information of the time, place, attendance and issues discussed will be recorded also. Training of staff will be recorded in personnel records.

8 MONITORING

Waste management activities will be monitored, some activities being periodically monitored, others being continuously monitored. Daily records will be kept by FERNAS, documenting the collection of wastes across the site. Transfer of wastewater to Kars Camp WWTP will also be recorded. Records of waste management activities will be maintained on a Waste Tracking Spread Sheet.
Waste will be monitored, and recorded according to “Regulation on Waste Management Related General Principles” number 25687 and dated 31.12.2004.

Site inspections will be conducted on a daily basis to ensure compliance with the regulations. All deficiencies will be addressed and corrective actions will be implemented. All findings will be recorded to a check list and /or report. All records will be filled for audit purposes.

All waste management areas, waste collection area, landfill, etc. will be audited for compliance by the environmental manager.

9 APPENDICES

A- Waste Register Form
B- Waste Transfer Note Form
C- Categories of Waste
D- Disposal Operations
E- Recovery Operations
F- Properties of Waste which render them Hazardous
G- Hazardous Waste threshold Concentrations

A- WASTE REGISTER FORM

WASTE REGISTER - CAMP 1
WASTE DISPOSAL REGISTER

Reporting Period:

HAZARDOUS WASTE DISPOSAL - (in Kg)		**Waste Reused by Contractor**		**Waste Recycled at Licenced facility**		**Waste Disposed of at Licenced Landfill**		**Waste Temporarly stored in Camp**		**Total Waste Generated (kg)**	
Type of waste:	**Code of Waste**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**
Aerosol Cans											
Air Filters											
Batteries (Dry)											
Batteries (Wet)											
Chemical Waste											
Coating Waste											
Contaminated soil											
Fluorescent tubes											
Fuel filters											

Glue cans											
Glycols											
Grease (tubes/cans)											
medical waste											
Oil contaminated waste											
Oil filters											
Paint wastes											
Pesticides											
Solvents											
Used catridges & toners											
X-ray papers											
Other: _____											
Total (kg)											

NON-HAZARDOUS WASTE DISPOSAL - (in Kg)	**Waste Reused by Contractor**	**Waste Recycled at Licenced facility**	**Waste Disposed of at Licenced Landfill**	**Waste Temporarly stored in Camp**	**Total Waste Generated (kg)**

Type of waste:	Code of Waste	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date
Aluminium cans											
Bricks and building material											
Cardboard and paper											
Cement bags											
Cement dust/waste											
Cooking oil											
Electrical cables											
End caps											
Foam											
Food waste											
Glass											
Grinding disks											
Grit from blasting											
Lifting straps/belts											

Metal shavings											
Domestic waste											
Plastic bottles											
Plastic packaging											
Styrofoam											
PPE & clothing											
PVC											
Rubber waste											
Scrap metal											
Tyres											
Used geotextile											
Water filters											
Wood											
Other: _____											
Total (kg)											

Waste Disposal								
Date of waste removal	**Code of Waste**	**Haz material: Y/N**	**Non-haz material: Y/N**	**Type of waste**	**Amount of waste**	**Disposal company**	**Location of disposal**	**Document on file: Y/N**

B- Waste Transfer Note Form

Form Number…. - SAMPLE WASTE TRANSFER NOTE

WASTE TRANSFER NOTE	
Consignment Reference No:_____ (facility-year-sequential no.)	
SECTION A -	
DESCRIPTION OF THE WASTE	
1. Type of waste	1. [enter type of waste here e.g. grease, rags and absorbents]
2. How is the waste contained?	2. [enter number and size of waste containers]
3. What is the quantity of waste?	3. [enter total quantity of waste]
4. Handling/Transport precautions	4. [enter any precautions required for handling and transport e.g. dust suppression/sheeting, spill kit etc]
SECTION B -	
GENERATOR OF THE WASTE	
1. Contractor (S-P = N/A)	1. [enter contractors name]
2. Site	2. [enter facility name e.g. Selim Camp]
3. Waste Manager	3. [enter name of *CONTRACTOR* person responsible for waste management at the facility]
SECTION C -	
PERSON TRANSPORTING THE WASTE	
1. Name	1. [enter name of person transporting the waste]
2. Company	2. [enter name of transportation company]
SECTION D – RECEIPT DETAILS	
1. Date and time of receipt	1. [enter the date and time waste departs facility]
2. Name of receiving facility	2. [enter the name of the receiving facility]
3. Signature of Receipt at Receiving Facility	3. [instruct the transporter to have receiving facility sign here to document waste was received]
SECTION E – SIGNATURES ***Waste Producer:*** *[CONTRACTOR Representative at Waste Production site Signs Here] For and on Behalf of CONTRACTOR* ***Waste Carrier:*** *[Waste Transporter Signs Here] For and on Behalf of the Transporter* ***Waste Receiver:****[3rd Party treatment/disposal facility receiving waste Signs Here] For and on behalf or receiving facility*	

Copy 1:Waste generating site Copy
Copy 2: Treatment/disposal facility
Copy 3: Transporter, after obtaining signature in Section D., Item 3. to return to Sub-contractor Office. Office to return to waste generating site

C- Categories of Waste

CATEGORIES OF WASTE

(Annex I of Regulation on General Principles of Waste Management, 26927)

Q1 Production or consumption residues not otherwise specified below

Q2 Off-specification products

Q3 Products whose date for appropriate use has expired

Q4 Materials spilled, lost or having under gone other mishap, including any materials, equipment, etc., contaminated as a result of the mishap.

Q5 Materials contaminated or soiled as a result of planned actions (e.g. residues from cleaning operations, packing materials, containers, etc.)

Q6 Unusable parts (e.g. reject batteries, exhausted catalysts, etc.)

Q7 Substances which no longer perform satisfactorily (e.g. contaminated acids, contaminated solvents, exhausted tempering salts, etc.)

Q8 Residues of industrial processes (e.g. slags, still bottoms, etc.)

Q9 Residues from pollution abatement processes (e.g. scrubber sludge, bag house dusts, spent filters, etc.)

Q10 Machining / finishing residues (e.g. lathe turnings, mill scales, etc.)

Q11 Residues from raw materials extraction and processing (e.g. mining residues, oilfield slops, etc.)

Q12 Adulterated materials (e.g. oils contaminated with PCBs, etc.)

Q13 Any materials, substances or products the use of which has been banned by law

Q14 Products for which the holder has no further use (e.g. agricultural, household, office, commercial and shop discards, etc.)

Q15 Contaminated materials, substances or products resulting from remedial action with respect to land

Q16 Any materials, substances or products which are not contained in the above mentioned categories.

D- Disposal Operations

DISPOSAL OPERATIONS

(Annex II of Regulation on General Principles of Waste Management, 26927)

D1 Deposit into or onto land, e.g. landfill

D2 Land treatment, e.g. biodegradation of liquid or sludgy discards in soils

D3 Deep injection, e.g. injection of pumpable discards into wells, salt domes or naturally occurring repositories

D4 Surface impoundment, e.g. placement of liquid or sludgy discards into pits, ponds or lagoons

D5 Specially engineered landfill, e.g. placement into lined discrete cells which are capped and isolated from one another and the environment

D6 Release into a water body, except seas/oceans

D7 Release into seas/oceans, including sea-bed insertion

D8 Biological treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12

D9 Physico-chemical treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12, e.g. evaporation, drying, calcination

D10 Incineration on land

D11 Incineration at sea

D12 Permanent storage, e.g. emplacement of containers in a mine

D13 Blending or mixing prior to submission to any of the operations numbered D1 to D12

D14 Repackaging prior to submission to any of the operations numbered D1 to D13

D15 Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)

E- Recovery Operations

RECOVERY OPERATIONS

(Annex II.B of Regulation on General Principles of Waste Management, 26927)

R1 Use principally as a fuel or other means to generate energy

R2 Solvent reclamation/regeneration

R3 Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)

R4 Recycling/reclamation of metals and metal compounds

R5 Recycling/reclamation of other inorganic materials

R6 Regeneration of acids or bases

R7 Recovery of components used for pollution abatement

R8 Recovery of components from catalysts

R9 Oil re-refining or other reuses of oil

R10 Land treatment resulting in benefit to agriculture or ecological improvement

R11 Use of wastes obtained from any of the operations numbered R1 to R10

R12 Exchange of wastes for submission to any of the operations numbered R1 to R11

R13 Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)

F- Properties of Waste which render them Hazardous

PROPERTIES OF WASTES WHICH RENDER THEM HAZARDOUS

(Annex III.A of Regulation on General Principles of Waste Management, 26927)

H1 'Explosive' substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene.

H2 'Oxidizing` substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances.

H3-A 'Highly flammable`

- liquid substances and preparations having a flash point below 21 °C (including extremely flammable liquids), or

- substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or

- solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or

- gaseous substances and preparations which are flammable in air at normal pressure, or

- substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities.

H3-B 'Flammable`
liquid substances and preparations having a flash point equal to or greater than 21 °C and less than or equal to 55 °C.

H4 'Irritant` non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation.

H5 'harmful` substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks.

H6 'Toxic` substances and preparations (including very toxic substances and preparations)
which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.

H7 'Carcinogenic` substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.

H8 'Corrosive` substances and preparations which may destroy living tissue on contacts.

H9 'Infectious` substances containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.

H10 'Teratogenic` substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or

increase their incidence.

H11 'Mutagenic` substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.

H12 Substances and preparations which release toxic or very toxic gases in contact with water, air or an acid.

H13 Substances and preparations capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above.

H14 'Ecotoxic` substances and preparations which present or may present immediate or delayed risks for one or more sectors of the environment.

G- Hazardous Waste threshold Concentrations

HAZARDOUS WASTE THRESHOLD CONCENTRATIONS

(Annex III.B of Regulation on General Principles of Waste Management, 26927)

a) flash point ≤ 55 ºC,

b) one or more substances classified as very toxic at a total concentration ≥ 0,1 %,

c) one or more substances classified as toxic at a total concentration ≥ 3 %,

d) one or more substances classified as harmful at a total concentration ≥ 25 %,

e) one or more corrosive substances classified as R35 at a total concentration ≥ 1 %,

f) one or more corrosive substances classified as R34 at a total concentration ≥ 5 %,

g) one or more irritant substances classified as R41 at a total concentration ≥ 10 %,

h) one or more irritant substances classified as R36, R37, R38 at a total concentration ≥ 20 %,
i) one substance known to be carcinogenic of category 1 or 2 at a concentration ≥ 0,1 %,

j) one substance known to be carcinogenic of category 3 at a concentration ≥ 1 %

k) one substance toxic for reproduction of category 1 or 2 classified as R60, R61 at a concentration ≥ 0,5 %,

l) one substance toxic for reproduction of category 3 classified as R62, R63 at a concentration ≥ 5%,

m) one mutagenic substance of category 1 or 2 classified as R46 at a concentration ≥ 0,1 %,

n) one mutagenic substance of category 3 classified as R40 at a concentration ≥ 1 %.

TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

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Document Title :	**WASTE MANAGEMENT PLAN**		
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Contractor :	**SYA - Sicim-Yuksel-Akkord JV**	**REV**	

		Signature	**Date**
	C1- Reviewed & accepted as final & certified. Manufacture may proceed.		
	C2- Reviewed & accepted as marked. Revise & resubmit. Manufacture may proceed.		
	C3- Reviewed & returned. Correct & resubmit. Manufacture shall **NOT** proceed.		
	C4- Review not required. For information only. Manufacture may proceed		
Remarks:			

SICIM-YUKSEL-AKKORD JV	TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT - LOT 2 -	TANAP WorleyParsons

WASTE MANAGEMENT PLAN
SYA-PLN-ENV-GEN-003

Rev.	Status	Date (dd/mm/aa)	Document status Description	Issued by	Checked by	Approved by	TANAP Approval
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P3-C	IFR	02/03/15	First Issue for Review	HEKO	ARAO	TENP	
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DOCUMENT REVISION HISTORY SHEET

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P3-A	DIC	23/02/15	Discipline Internal check
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P3-C	IFR	02/03/15	First Issue for Review
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P3-0	IAA	04/04/2015	Issued as Approved / Comments incorporated

HOLDS

No.	Section	Description	Input From	Planned Date

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1 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Trans Anatolian Natural Gas Pipeline Project (TANAP) will be built to transport natural gas emanating from the South Caucasus Pipeline Company (SCPC) pipeline in Georgia and terminating into the Trans-Adriatic Pipeline (TAP) in Greece. In addition to the mainline termination, dedicated off takes will be provided to BOTAŞ at strategic points in the Republic of Turkey.

The pipeline traverses diverse geographical terrain, other constraints include:

- Over 1000 crossings of Roads, Rivers, Rail, Third Party Pipeline Crossings,
- Steep vertical and Side Slopes,
- Narrow ROW with “Pinch-Points”,
- Varying extreme weather and climatic conditions,
- A large number of geo-hazards of various types and intensity levels,
- Areas of active passive human socio-economic activity.

1.2 CONTRACTOR SCOPE OF WORKS

CONTRACTOR SOW includes procurement of materials, construction, installation, testing, training of CLIENT personnel, pre-commissioning and assistance to commissioning of 2nd Lots of the Pipeline System (KP 375, X: 380983 Y: 4422693) to.KP825 (X: 513417 Y: 4409784).

CONTRACTOR is responsible for the achievement of the required standard of work in accordance with the requirements of the Contract, PROJECT requirements and International Standards. Company/EPCM will monitor and audit CONTRACTOR’s actions and activities, as necessary, to verify that proper controls are implemented and to assure compliance with the specified requirements.

1.3 PURPOSE

The purpose of this Waste Management Plan is to describe requirements to be fulfilled by the CONTRACTOR in order to reduce, reuse, recycle and properly dispose of all types of waste resulting from land preparation and construction activities for the TANAP Project 56'' Onshore Pipeline Construction Lot 2, including relevant identification, segregation, collection, storage and treatment arrangements.

The standards described herein shall be mandatory for all the employees of the CONTRACTOR, all its subcontractors, suppliers and visitors in order to effectively minimize/ mitigate the negative impacts of waste generation resulting from project activities.

1.4 APPLICATION

This Waste Management Plan outlined herewith shall be applicable to the whole of the works within the scope of the TANAP Project 56'' Onshore Pipeline Construction Lot 2.

All site employees, line management, project management, suppliers, subcontractors and visitors will comply with the commitments of Waste Management Plan.

2 REFERENCE DOCUMENTS

- ISO 14001 Environmental Management System - Requirements
- Environmental Social Impact Assessment Report- TANAP
- Turkish Environmental Law and Regulations
- Contractual Documents:
  - 56'' Onshore Pipeline Construction Contract Relating To Trans-Anatolian Natural Gas Pipeline Lot 2.
  - Appendix A: Technical Specification / Scope of Work for 56" Onshore Pipeline Construction Lots 1, 2 and 3 (BCH-AGR-CNT-GEN-040)
  - Appendix K: Health and Safety for 56" Onshore Pipeline Construction Lots 1, 2 and 3 (BCHAGR-CNT-GEN-013)
  - Appendix M: Environmental and Social Management for 56" Onshore Pipeline Construction Lots 1, 2 and 3 (BCH-AGR-CNT-GEN-015)
  - Pipeline Construction Specification (BCH-SPC-PPL-PLG-010)
  - Environmental & Social Monitoring Procedure (ILF-PCD-ENV-GEN-001)
  - Environmental & Social Requirements for Contractors (ILF-SPC-ENV-GEN-001)
  - Environmental & Social Management Plan (ILF-PLN-ENV-GEN-001)
  - Trans-Anatolian Natural Gas Pipeline (TANAP) Project ESIA Report

3 REVIEW, APPROVAL, DISTRIBUTION AND REVISION OF THE WASTE MANAGEMENT PLAN

This Waste Management Plan shall be reviewed by the CONTRACTOR's Environment Department and submitted to the EPCM for approval within 90 days from the Effective Date.

Upon EPCM's approval, one copy of this Waste Management Plan shall be electronically distributed by the Environment Department.

One copy of this Waste Management Plan shall be made available to each subcontractor and supplier.

Each hard-copy distribution of this Waste Management Plan shall be documented against signature and relevant records (Document Distribution Forms/Document Transmittal Forms) shall be maintained.

Waste transfer vehicle licenses, driver licenses, company information should also be monitored and reported.

For updated versions the same procedure shall apply for review, approval and distribution of this Waste Management Plan. Obsolete hard-copies shall be either destroyed or marked as "OBSOLETE COPY"; similar marking shall be implemented for soft-copies in order to prevent any unintended use.

4 WASTE MANAGEMENT SYSTEM

Waste Management System to be implemented for the Tanap Project 56" Onshore Pipeline Construction Lot 2 shall be established as described in the following sections of this Waste Management Plan. This plan shall be strictly adhered as part of the Environmental & Social Management System in order to reduce all negative environmental and social impacts to an "As Low as Reasonably Practicable" level and achieve environmental and social objectives of the project.

4.1 WASTE MANAGEMENT OBJECTIVES

The main objective is to minimize/mitigate negative environmental and social impacts of waste resulting from project activities. In order to meet this main objective, relevant supporting objectives are:

- Prevent/reduce waste generation to the extent possible
- Promote reuse and recycling
- Ensure proper identification, segregation, collection, storage, treatment and disposal
- Reduce/control gas emissions

- Zero environmental release
- Zero reportable environmental accident and incident
- Zero environmental violation
- Optimized use of natural resources
- %100 compliance with training requirements
- %100 compliance with project requirements
- %100 compliance with applicable laws and regulations
- %100 compliance with relevant national and international standards
- Implement industry best practice

4.2 RESPONSIBILITIES

Project Manager, Deputy Project Managers, Spread/Site Coordinators, Site Engineers, Supervisors, Environmental supervisor, Employees, Subcontractors, Suppliers shall be all responsible to ensure the implementation of the waste management principles.

All management and supervisory personnel shall work at all times to develop and support waste management practices and maintain a cooperative attitude among employees regarding waste management issues.

All management and supervisory personnel shall set an example by complying with the waste management policies, procedures, rules, regulations and orders outlined and hereafter set forth in this Waste Management Plan.

Waste collection points will be determinated at appropriate places on the ROW by the environmental supervisor. Organization chart of waste collection is given below at Figure 1.

Waste arising from the ROW will be collected by the waste collection crew and delivered to the closest CWAA "Central Waste Accumulation Area" established at the main camp site.

Environmental supervisor ensures that waste arising from the camp operation will be collected by the waste collection crew and delivered at the closest CWAA established at the main camp site.

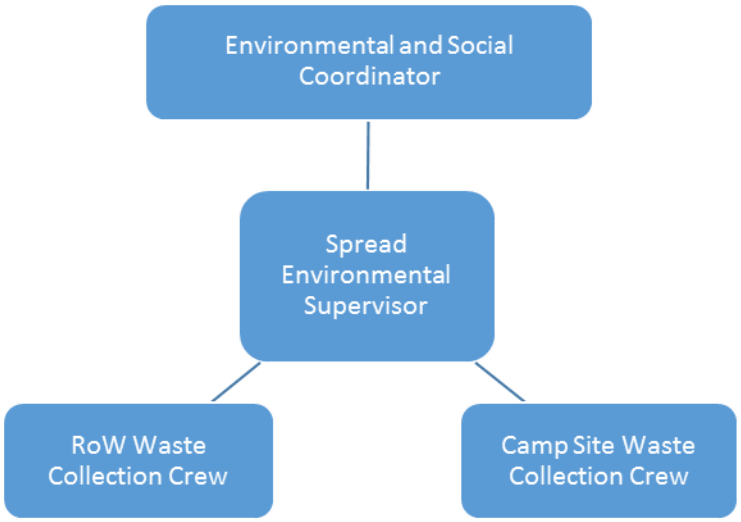

Figure 1: Organization Chart of Waste Collection

4.2.1 Project Manager

- Ensure that Waste Management Plan of the project is effectively implemented
- Ensure that the personnel are well aware of their waste management responsibilities
- Ensure that all waste management non-conformities are investigated and appropriate corrections/corrective actions are implemented
- Ensure that all the project personnel receive waste management training
- Oversee and promote the overall waste management performance and enforce necessary actions
- Conduct frequent site visits and monitor waste management impacts of the project
- Investigate all waste management non-conformities together with the Environmental Manager/Coordinator to determine root causes and establish remedial measures to prevent re-occurrence
- Provide necessary resources for waste management issues
- Ensure arrangements for waste management training programs

4.2.2 Environmental Manager

- Assist the project manager for the below responsibilities
- Ensure that Waste Management Plan of the project is effectively implemented
- Ensure that the personnel are well aware of their waste management responsibilities
- Ensure that all waste management non-conformities are investigated and appropriate corrections/corrective actions are implemented
- Ensure that all the project personnel receive waste management training
- Oversee and promote the overall waste management performance and enforce necessary actions

- Conduct frequent site visits and monitor waste management impacts of the project
- Investigate all waste management non-conformities together with the Environmental Manager/Coordinator to determine root causes and establish remedial measures to prevent re-occurrence
- Provide necessary resources for waste management issues
- Ensure arrangements for waste management training programs
- Coordinate with spread environmental supervisor for below responsibilities

4.2.3 Deputy Project Managers, Spread/Site Coordinators, Engineers, Supervisors, Foremen

- Ensure effective supervision of the work areas and implement all the required standards as per the Waste Management Plan
- Implement good housekeeping practices in their areas of activity
- Arrange pre-task meetings before starting any work
- Ensure that all subordinates are trained on their job and basic waste management requirements
- Report all the waste management incidents to the Environmental Manager/Environmental Coordinator without any delay.
- Ensure that the relevant waste management instructions, signs and symbols are displayed in the prominent areas
- Perform daily/regular inspections of the waste management practices
- Ensure correction of all the waste management non-conformities

4.2.4 Spread Environmental Coordinator

- Organize and coordinate all the waste management activities
- Ensure effective implementation of the Waste Management Plan
- Ensure that policies, plans, procedures, etc. are communicated to all the personnel within the organization as well as subcontractors and suppliers
- Ensure all documentation is collected, completed, recorded and reported as required.
- Conduct frequent site visits and monitor the activities
- Conduct periodical environmental inspections to evaluate the waste management performance
- Oversee and coordinate pre-determined monitoring and measurement activities
- Update respective documents as per the requirements
- Give instructions and guidance to all the personnel on waste management matters
- Participate actively in the relevant meetings
- Conduct waste management training sessions for the personnel before and after the commencement of the site activities
- Prepare periodic and/or on-demand reports
- Investigate near-misses and incidents and implement necessary corrective actions
- Report all the waste management non-conformities and ensure the implementation of the required corrective actions

4.2.5 Workforce

- Observe and obey waste management rules and instructions
- Fulfill waste management control requirements
- Report all near misses/incidents and non-conformities to the superior immediately
- Use the tools, equipment and materials as instructed
- Clean up the work area immediately after finishing the work
- Be alert in case of emergencies and act as per the environmental emergency response procedure

4.3 TRAINING & AWARENESS

The CONTRACTOR shall introduce and/or provide various training programs in order to raise awareness of all construction workers on waste management requirements and practical measures in order to avoid relevant adverse impacts on the environment and the community.

For requirements regarding overall training programs please refer to the Environmental & Social Management System Manual and Environmental & Social Training Matrix.

Environmental & Social Training matrix will be explained in detail in The Environmental Training Plan SYA-PLN-SOC-GEN-005

As a minimum upon completion of the lesson, participants will be able to;

- List of various types of wastes generated on construct site
- Define hazardous & non hazardous wastes & give example of each
- Identify the best means to manage waste in site
- Identify precautions taken while handling wastes on site
- Identify whose role to reduce waste

4.4 GENERAL REQUIREMENTS

The following general requirements shall be fulfilled regarding housekeeping and waste management practices:

- Regular Cleaning-Up and Waste Disposal: Site shall be cleaned-up and kept free from accumulation of waste materials, rubbish and other debris at all times and the foregoing waste shall be disposed of as per the relevant Turkish legislations, project standards and good industry practices. Specifically, the project shall be aligned with the International Finance Corporation (IFC) performance standards for Guidelines for Waste Management Facilities.

- Final Cleaning-Up and Waste Disposal: The CONTRACTOR shall remove all the foregoing waste as mentioned above prior to handover to TANAP.

- Waste disposal practices shall be implemented in full compliance with the outcomes of the Waste Disposal Assessment Report. Waste disposal assessment report is a report prepared for the assessment of the waste management and disposal facilities within the context of TANAP Project for Lot 2 and assess all types of wastes expected to be produced and their proper disposal methods in TANAP Project for Lot 2.

- The RoW, adjacent work areas, stockyard, access roads, camp sites and surroundings shall be kept tidy and clean at all times. Cleaning up and disposal of waste/debris shall be performed on a daily basis by the dedicated workers. All the site employees shall be responsible for proper housekeeping and waste management practices, the supervising staff shall make continuous efforts to support project management's relevant commitments. Special attention shall be given to the proper disposal of hazardous and flammable materials as detailed in the following sub-sections.

- The CONTRACTOR shall dispose of any hazardous waste at licensed waste disposal facilities and in strict compliance with the requirements of the ESIA, Republic of Turkey authorities and applicable project requirements.

- Offices shall be cleaned and regularly maintained. Laboratories and workshops shall be maintained clear of debris, waste and other rubbish which shall be disposed of as required.

- All combustible and flammable waste shall be removed from closed facilities as it is generated and before the end of every shift.

- Environmental Emergency Response Plan shall be implemented in order to ensure appropriate disposal and treatment of spilled contaminated materials.

- Waste shall be stored in segregated containers for disposal (exception: large waste materials, e.g. plywood, steel, concrete)

- All packaging material shall be kept to a minimum and regularly removed to the designated waste storage area.

- Waste generated by one trade must be removed before the next trade enters the area (especially for concrete work, steel fixing and formwork).

- Waste and scrap areas shall be clearly identified and segregated from the place of work. All hazardous waste shall be collected in covered containers displaying the appropriate hazard warning signs*.* Barriers and suitable signs shall be posted identifying controlled access and the secure designated waste areas. Clearly identified individuals shall be assigned for controlling the waste/scrap areas

- All waste containers shall be covered ensuring debris is contained during prevailing weather conditions. Waste containers shall be color-coded or appropriate signs or labels posted adjacent to or on the waste container in order to encourage segregation of waste materials and they shall be labelled in English and Turkish.

- Prohibitions and disciplinary actions shall be identified and communicated to all the employees, in order to prevent dumping of waste, wastewater, concrete waste or excavation material in forest areas and into the waterways (The waste material resulting from excavation works during the land preparation and construction phase shall not be emptied to the rivers that flows or dry, related to “the River Beds and Floods Decree” Numbered 2006/27 from Prime Ministry).

- Necessary precautions shall be taken to avoid accidental dropping of the construction waste into the watercourses

- Methods shall be implemented to prevent soil contamination, water pollution and air pollution by waste generation, handling and disposal, as detailed in the following sub-sections.

- Recycling and disposal procedures shall be implemented; temporary site waste storage areas shall be identified and arranged in compliance with local regulations, licensed organizations shall be contracted for disposal or recycling purposes. Possible waste disposal facilities are explained in detail in Waste Assessment Plan.

- Temporary barriers shall be provided to prevent wildlife from accessing to waste disposal areas

- Stumps and waste vegetation resulting from clearing and grubbing activities shall be disposed in an approved location,

- After completion of trench backfilling and prior to the start of the reinstatement activities the CONTRACTOR shall perform a site clean-up in addition to the regular ROW in strict compliance with the project procedures and legal requirements for waste management and the disposal of excess materials.

- Required permits shall be obtained and maintained regarding waste management as per the Permitting Procedure (Wastewater Discharge Permit, Waste Disposal Agreement/Permit, Temporary Waste Storage Permit, etc.)

- All MSDS forms shall be kept on site to assist with understanding disposal methods.

- Environmental supervisor will be responsible for management of waste, waste collection points will be determinated and delivered at the appropriate places that is established.

- At the construction site, the wastes that are produced during the construction works will initially be collected and stored at Waste Collection Areas till the end of the working hours. At these points, there will be containers that are labelled according to the type of waste and wastes will be collected in the appropriately signed container to support the segregation of the wastes. The wastes will effectively be labelled, encapsulated and cannot be reachable by the vectors.

- Waste Collection Areas will have separate storage containers for prime recyclables (plastics, glass, ferrous metals and non-ferrous metals) and other wastes including oils, chemicals and batteries. Care will be taken to ensure that chemicals are kept in separate containers in order to avoid a chemical reaction.

- The Central Waste Accumulation Area is an area for the centralised accumulation of waste prior to treatment and/or disposal or transportation to third parties for recovery, treatment and/or disposal. These areas are located at the main construction camps.

Central Waste Accumulation Area is the place for environmentally sound storage of the wastes till they are transferred to the licensed companies.

- Waste shall not be landfilled on site.
- Spoil material will be disposed nearest licensed municipality operated dump areas.
- All transport of waste shall follow ESIA requirements.

4.5 GENERIC WASTE DEFINITIONS

The waste codes are define in "Regulation on Waste Management Related General Principles" numbered 25687 and dated 31.12.2004 and the list of waste codes which will be used in scope of Tanap Project, are given at Appendix 1.

The waste transfer forms shall be fill by the supervisor according to the waste codes and kept at the camp site.

4.5.1. Solid Waste

Solid waste is defined as all discarded matter other than clearing slash and excavation overburden. It includes, but is not limited to, dry treated domestic waste, trash, garbage, refuse, tires, oil drums, petroleum products, ashes, and junked equipment.

All solid waste which contains, or at any time contained, oil, grease, solvents, or other petroleum product, or which is a toxic or hazardous substance shall be segregated for handling and disposal as a hazardous waste.

All solid wastes shall be disposed only at facilities that are authorized and licensed to dispose of solid wastes under governmental and local laws and ordinances. Project waste shall not be disposed at such facilities without prior authorization of the person, agency, or entity licensed to operate those facilities.

4.5.2. Liquid Waste

Liquid waste is defined as waste materials in liquid form. It includes, but is not limited to, hydrostatic test water, domestic waste, construction dewatering, equipment wash water, radiator water and antifreeze draining, methanol, oils, additives, fuels, solvents, acids, paints, coatings, adhesives, or other chemicals and petroleum products.

All liquid waste which is classified as hazardous shall be segregated for handling and disposal as hazardous waste. Domestic sewage shall be handled and disposed exclusively by means of compact treatment plants during all construction operations.

Nonhazardous liquid will be discharged to receiving environment such as Trench dewatering, measures will be taken to avoid silt and turbid discharges receiving environmental such as silt fences, straw bales etc.

The CONTRACTOR shall be responsible for regular collection of these wastes by a licensed contractor for disposal only at licensed and approved facilities.

4.5.3. Hazardous Waste

The CONTRACTOR shall comply with the requirements and procedures and all applicable governmental, provincial, and local regulations and ordinances governing the generation, storage, handling, and disposal of oils, fuels, and any other hazardous waste associated with construction works.

Hazardous waste includes oil, toxic substances, or hazardous substances are defined by MSDS and/or by Client. This hazardous waste include, but are not limited to, fuel oil, sludge, oil refuse, oil mixed with waste, grease, solvents, radiator water and antifreeze mixtures, methanol, additives, acids, paints, cleaning agents, coatings, adhesives, or any other substances which are ignitable, corrosive, reactive, or toxic as defined in the regulations (Regular items contaminated with hazardous substances shall be treated as hazardous waste as well).

Hazardous wastes can be collected and disposed only by the facilities which are licensed by MoEU. Temporary storage of hazardous waste shall be handled at its source.

According to the provisions of the “Regulation on Control of Hazardous Wastes” published in the Official Gazette dated 14.03.2005 and numbered 25755, the hazardous wastes will be stored temporarily at the camp site separate from other wastes in a closed environment preventing any chemical reaction. After that, these wastes will be transported via licensed transportation vehicles to hazardous waste disposal companies licensed by MoEU.

A register shall be produced and maintained on site that includes a list of all hazardous substances. Material Data Sheets for each substance shall be attached to this register and shall be also kept available at all locations where hazardous waste is stored.

The CONTRACTOR shall conduct all fueling and lubrication of equipment and vehicles in designated areas only, away from water bodies. A refueling procedure shall be developed and provided to refueling crew. The CONTRACTOR shall not conduct refueling activities or store hazardous materials within any designated well protection area or within 100 meters of any private, municipal, or community water supply well. The contractor shall not be refueled or stored hazardous substances within 30 m of a watercourse crossing for preventing pollution. In no instance shall the CONTRACTOR drain equipment, spill, pour, abandon, bury or dispose in any manner within the right-of-way or on adjacent property, any oil, lubricant, solvent, fuel or any other material or waste.

If any such spills or disposals do occur either by accident or deliberately, the CONTRACTOR shall implement the Environmental Emergency Response Plan and remove all contaminated soil and replace that removed soil with clean topsoil and dispose of the contaminated soil in accordance with the recommendations of the appropriate governmental agencies.

If any grass or other vegetation is damaged or destroyed by any of the above acts by the CONTRACTOR, then that grass or vegetation shall be replaced by the CONTRACTOR.

The CONTRACTOR shall not repair or overhaul any equipment on the right-of-way or temporary work space except for emergency type repair of a short duration.

Any lubricants, fuel or oil drained or removed from vehicles or equipment shall be collected in suitable containers and disposed of as per legal and project requirements. Any equipment or vehicles requiring overhaul or repair shall be removed to the CONTRACTOR's maintenance yard as soon as practicable.

The CONTRACTOR shall provide each construction crew with sufficient supplies of absorbent and barrier materials to allow rapid recovery of any spills and shall develop standing procedures for excavation and off-site disposal of any soil materials contaminated by spillage.

Small parts can be cleaned with degreasing solvents, which can then be reused or recycled.

All waste oil and fuel oil (hydrolic fluid, engine, transmission and lubrication oils, etc) shall be collected and stored in clearly marked closed drums in the designated stock yard and shall be forwarded for recycling through approved contractors. Stock yard shall be secured to prevent spill hazards.

All the liquid hazardous waste or containing liquid will be stored at with Secondary containments.

Rags or absorbent material used for cleaning shall be considered hazardous waste and shall be disposed of in compliance with legal/contractual requirements.

Containers of hazardous chemical or waste shall be labeled with:

- The words “Hazardous Waste”
- The date that the container commenced storage of chemical or HazMat waste
- The name of the material and its physical state (solid, liquid, etc.)
- The hazard characteristics of the waste (ignitable, corrosive, toxic, reactive, etc.)
- Main danger for user (poison, burning, danger for eyes, skin, lungs, etc.)

According to the provisions in the Regulation on Control of Hazardous Waste published in Official Gazette No: 25755 on 14.03.2005, the hazardous waste like waste oil, empty containers, incandescent lamps, electrical and electronic equipment waste shall be stored temporarily within the camp site separate from other waste, after obtaining Temporary storage permit from the legal authorities to store hazardous waste temporarily (180 days) in a closed environment preventing any chemical reaction in line with the regulation.. Afterwards, such waste shall be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the Ministry of Environment and Urbanization. All legal disposal procedure for transportation and disposal of hazardous waste will be through licensed operator by The Ministry of Environmental And Urbanization.

During the storage of hazardous waste following provisions indicated in Regulation on Control of Hazardous Waste shall be respected:

- A record shall be kept on the amount of the waste and packaging and labeling of the waste shall be according to the internationally accepted standards required by the environmentally licensed recycling or disposal facility which will receive the waste.
- The Waste Declaration Form indicated in the regulation shall be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the Ministry of Environment and Urbanization and a copy shall be stored for five years.
- Waste shall be temporarily stored in durable, leak-proof, safe containers at international standards placed on a concrete area away from the buildings of the camp, there shall be hazardous waste labels on the containers, the quantity and the stored date shall be indicated on the container, if the containers are damaged, the waste shall be transferred to other containers having the same specifications, containers shall always be kept closed, and they shall be stored so that waste does not chemically react.
- All the measures shall be taken for the health and safety of the employees responsible for the collection, transportation and temporary storage of the waste within the facility.
- If a spill occurs, all contaminated soil shall be removed and replaced with clean soil if necessary.
- In order to prevent pollution that happens as a result of accidental spill or by deliberate actions, depending on the type of the waste, location of the incident shall be brought to its original condition by latest within a month from the time of the incident and all the expenses for this shall be borne.

On the other hand, when hazardous waste are spilled by accident or deliberately and in other similar cases, office of the governor shall be informed and a report detailing the accident date, accident location, type and quantity of the waste, cause of the accident, the waste disposal action and rehabilitation of the accident location shall be submitted to the office of the governor.

4.6 SPECIFIC CONSIDERATIONS

4.6.1. Wastewater

General mitigation measures for the management of the impacts on watercourses and groundwater during land preparation and construction phase are summarized as follows:

- Discharge of wastewater to surface water resources after treatment in compliance with the applicable regulatory requirements
- Separate domestic wastewater from hazardous, oily water discharges
- Water discharge permits and approvals shall be obtained from relevant Authorities for all kind of wastewater discharge, including the water used in the hydro-test

4.6.1.1. Domestic Wastewater

The domestic wastewater to be produced during land preparation and construction phase of the project shall be treated at the compact waste water treatment plant and after complying with the " Average Discharge Standards to Receiving Environment for Domestic Waste Water" given in

"Regulation on Water Pollution Control (RWPC)" numbered 25687 and dated 31.12.2004, it shall be discharged to the nearest receiving environment.

In addition to the limit values given in the Regulation on Water Pollution Control (RWPC), the limits indicated in IFC General Environmental, Health and Safety Guidelines and EU Guidelines shall be respected.

For the compact treatment plants established in main camp sites for construction period of the project, an approval shall be obtained as per “Regulation on Wastewater Treatment/Deep Sea Discharge Plant Project Approval Circular” dated 15.03.2012 and numbered 2012/9. That permit will be obtained by the client.

Additionally, Environmental Permission Certificate shall be obtained from the relevant Provincial Directorate of Environment and Urbanization for the discharge of the treated wastewater according to the provisions of the "Regulation for The Permissions and Licenses to be Obtained According to the Environment Law" numbered 27214 and dated 29.04.2009 and provisions indicated in the amendments of this regulation.

4.6.1.2. Water Collected in the Trenches

During the pipeline construction works, water is usually collected in the trenches excavated for the pipeline. Since this water is blurry and full of sediment, before discharging this to an unpolluted location, a sedimentation process shall be applied.

The ditch water shall be discharged by pumps and after sedimentation of the sediments in sedimentation ponds to be established along the project route, the water shall be discharged to the closest receiving environment, provided that the water characteristics are in conformity with the discharge limits.

All pumps will be in secondary containment at all times. Environmental baseline condition shall be monitored before established and monitoring studies shall be carried on during and after dewatering.

The sediment material collected from the sedimentation ponds shall be disposed of in nearest disposal facilities.

4.6.1.3. Hydrostatic Test Waste Water

After the completion of construction phase of the project a complete hydrostatic test of the entire pipeline shall be implemented in order to confirm its integrity, as per the Hydrotesting Plan.

For discharge of hydrotest water, a hydrotest water disposal plan shall be prepared that considers points of discharge, rate of discharge, chemical use and dispersion, environmental

risk and monitoring. The Chemicals considered to be used hydrotesting will be submitted within the Hydrotesting Plan.

Water may need to be transferred from one test section to another along the pipeline due to conservation or supply difficulties. In such cases, necessary consideration shall be given to complete the installation program taking full account of water supply and disposal requirements.

The transfer of test water from one section to another shall be accomplished through metal pipework provided no water is lost or spilled. As the water is transferred from one section to the next, it shall be filtered and its chemical composition shall be checked and adjusted as necessary.

If there are doubts as to the water quality, and if the water is kept for a long period of time in the pipeline, it may be necessary to treat the water chemically to prevent biological growth in the water. The introduction of oxidation/corrosion inhibitors may also be necessary in order to protect the internal pipe surface. The addition of the chemicals shall be subject to close scrutiny and control. The water shall be checked periodically to ensure that it remains within the specified compositional limits and shall be tested prior to disposal.

Waste water arising from hydro test studies shall be monitored as per parameter that is given at Table 1 hydro test water discharge standards in IFC;

Table 1 : Hydrotest Water Discharge Standards in IFC

Parameter	***Unit***	***Limits***
Total Hydrocarbon Content	***mg/L***	***10***
pH	***-***	***6.0-9.0***
Biological Oxygen Demand (BOD)	***mg/L***	***25***
Chemical Oxygen Demand (COD)	***mg/L***	***125***
Total Suspended Solids	***mg/L***	***35***
Total Phenols	***mg/L***	***0,5***
Sulphides	***mg/L***	***1***
Heavy Metals (total) (Pb, Cd, Cr, Ni, Hg)	***mg/L***	***5***
Chlorides	***mg/L***	***600 (Average), 1200 (Maximum)***

Wastewater produced after the hydrostatic test shall be treated with appropriate methods in order to satisfy the standards indicated in the “Regulation on Water Pollution Control (RWPC)" numbered 25687 and date 31.12.2004. In addition to the limits defined in RWPC, limit values determined by IFC (Environmental, Health, and Safety Guidelines for Onshore Oil and Gas Development) shall also be respected.

4.6.2. Solid Domestic Waste

Solid domestic waste produced under the project shall be disposed of according to the "Regulation for the Control of Solid Waste" published on 14.03.1991 with number 20814 and its amendments.

Solid domestic waste from the personnel shall be collected in closed containers located at various points of the camp areas. The solid waste shall be collected in containers and at certain intervals shall be transported to the solid waste collection system belonging to the nearest municipality and be disposed of.

4.6.3. Solid Construction Waste

The waste codes for the hazardous wastes are given below in accordance with Annex-4 of Regulation on General Principles of Waste Management (published in the Official Gazette dated 05.07.2008 and numbered 26927).

Solid construction waste produced under the project shall be disposed of according to the "Regulation for the Control of Solid Waste" published on 14.03.1991 with number 20814 and its amendments.

Waste type needs to be determinated according to regulation; the waste analyses will be performed in licensed facilities and appropriate disposal methods will be defined according to analysis results.

4.6.3.1. Steel

Use of reinforcement steel shall be optimized and cut-offs shall be re-used as far as practicable.

All steel scraps shall be collected in designated areas and delivered to scrap dealers.

4.6.3.2. Concrete Waste

Surplus concrete shall be used in landscaping activities or dumped into the approved disposal area.

Rubble concrete waste shall be used for site roads, depending on their size. Unsuitable or surplus concrete shall be collected in the designated storage area and forwarded to the nearest municipal rubble disposal area at the end of the project.

4.6.3.3. Wood Waste

Wood waste shall be collected in the designated wood waste storage areas and reused to the extent possible.

As far as practicable, pallets and other wooden packaging material shall be returned to the supplier for reuse.

Wood that is unsuitable for reuse (for example broken wooden pieces) shall be separated and stored on site and delivered to licensed contractors.

4.6.3.4. Excavation Waste

During the excavation works, activities shall be performed in accordance with the Regulation on the Control of Excavation Soil, Construction and Demolition Waste that came into force by being published in Official Gazette dated 18.03.2004 and numbered 25406, and the Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources (dated 08.06.2010 and numbered 27605).

Excavation waste and excavation residual materials that are not qualified to be used shall be transported to the recycling/landfill areas that the relevant authority will suggest.

4.6.4. Recyclable Packaging Waste

The packing paper, plastic and glass bottles i.e. packaging waste shall be collected separate from other waste without considering material used and the source of the material and shall be sent to licensed recycling facilities according to Article 23 of the Regulation on Control of Packaging Waste.

The collection of these packaging materials within the camp sites and their disposal shall be done in compliance with the provisions of the "Regulation on Control of Packaging Waste" which was published in Official Gazette No: 28035 on 24.08.2011.

4.6.4.1. Paper & Cardboard

All waste paper and cardboard shall be collected in segregated containers and disposed to the designated Waste Storage Area and periodically delivered to licensed contractors.

4.6.4.2. Plastic

All recyclable plastics and non-contaminated plastic packaging material shall be collected in segregated containers.

Plastics and plastic packaging material that do not carry recyclable symbol (♻) shall not be collected in the containers designated for recyclable plastics but in domestic waste containers.

Recyclable plastics and non-contaminated plastic packaging material shall be disposed to the designated Waste Storage Area and periodically delivered to licensed contractors.

4.6.4.3. Metal

All metals shall be collected in segregated containers and disposed to the designated Waste Storage Area and periodically delivered to licensed contractors.

4.6.4.4. Glass

All waste glass shall be collected in segregated containers and disposed to the designated Waste Storage Area and periodically delivered to licensed contractors.

4.6.5. Hazardous Waste

4.6.5.1. Waste Accumulators

Within the scope of the project, provisions of the Regulation on Control of Waste Batteries and Accumulators and amendments of this regulation shall be complied with.

Waste accumulators that come out shall be stored in closed containers with a leak-proof floor according to the Regulation on Control of Waste Batteries and Accumulators published in Official Gazette No: 25569 on 31.08.2004 and accumulators shall be delivered to the collection points established by the municipalities or by the companies distributing or selling waste accumulators (vehicle batteries) or to the licensed contractors.

4.6.5.2. Waste Engine Oil

The waste engine oil shall be collected in a closed temporary waste storage area with leak-proof floor and covered with a shelter. The oil collected shall be given to a licensed waste oil recovery company according to the Regulation on Control of Waste Oil published in Official Gazette No: 26952 on 30.07.2008 and the amendments made in the regulation and published in Official Gazette No: 27305 on 31.07.2009, in Official Gazette No: 27537 on 30.03.2011 and in Official Gazette No: 28812 on 05.11.2013.

The following regulations shall be also complied with:

- "Regulation on Control of Polychlorinated Biphenyls and Polychlorinated Terphenyls" published in Official Gazette No: 26739 on 27.12.2007 and the amendment published in Official Gazette No: 27537 on 30.03.2010,
- "Regulation on Soil Pollution Control and Point Sourced Polluted Areas" published in Official Gazette No: 27605 on 08.06.2010 and the amendments made in the regulation and published in Official Gazette No: 28323 on 14.06.2012 and in Official Gazette No: 28704 on 11.07.2013.

Waste oil storage area shall be designed as a covered area with concrete floor and shall be located away from flammable materials.

Absorbent cleaning materials such as cloths, rags, sawdust used for cleaning of spills shall be collected in the designated contaminated solid waste bins.

Waste oil filters shall be separately collected in the hazardous waste storage area.

After waste delivery to licensed companies, Waste Oil Declaration Form in Appendix-2 of the Regulation shall be filled and sent to the Relevant Provincial Directorate of Environment and Urbanization until the end of February of the following year.

4.6.5.3. Waste Vegetable Oil

Waste vegetable oil shall be collected separate from other waste and shall be disposed according to the provisions given in the Regulation on Control of Waste Vegetable Oil Published in Official Gazette No: 25791 on 19.04.2005 and the amendments made in the regulation and published in Official Gazette No: 27305 on 31.07.2009, in Official Gazette No: 27537 on 30.03.2011 and in Official Gazette No: 28812 on 05.11.2013.

Waste vegetable oil resulting from food preparation shall be collected in the identified vegetable oil waste bins located in the storage area in the kitchen compartment.

Absorbent cleaning materials such as cloths, rags, sawdust used for cleaning of oil spills shall be collected in the designated contaminated solid waste bins.

Waste vegetable oil and contaminated absorbent materials shall be delivered to licensed contractors.

4.6.5.4. Contaminated Soil and Materials

Soil, packaging materials, clothes, etc. contaminated with mineral oil, paint etc. shall be separately collected in the designated contaminated solid waste bins and stored in designated hazardous waste storage area.

Contaminated containers shall be disposed in accordance with regulations.

Contaminated waste shall be delivered to licensed disposal facilities at regular intervals.

All contaminated metal packaging shall be sent to licensed recycling facilities.

Any metal packaging that is unsuitable for reuse shall be collected in segregated containers/areas and periodically delivered to licensed contractors.

4.6.5.5. Rubber Waste Tires

All provisions in the Regulation on the Control of End of Life Tires published in Official Gazette No: 26357 on 25.11.2006 and the amendments published in Official Gazette No: 27537 on 30.03.2010 and in Official Gazette No: 28817 on 10.11.2013 shall be respected.

The end-of-life tires that come out in the project shall be sent to tire distribution companies or to the authorized transporters indicated in the regulation.

4.6.5.6. Cartridge & Toners

Waste cartridges and toners shall be collected in designated containers and stored in a suitable location in the storehouse.

As far as practicable, waste cartridges and toners shall be returned to the manufacturer for reuse. Otherwise, they shall be delivered to licensed contractors.

4.6.5.7. Fluorescent

Waste fluorescent tubes collected by housekeepers in the offices and by electricians on site, shall be stored in such as package to prevent breaking of the tube in designated hazardous waste storage area and delivered to licensed contractors.

4.6.5.8. Waste Batteries

Waste batteries shall be collected in the designated waste battery boxes in the offices, stored in the designated hazardous waste storage area, and then delivered to TAP (Portable Battery Manufacturers and Importers Association).

4.6.5.9. Medical Waste

Within the scope of the project, provisions of the Regulation for Medical Waste Control and amendments that were published in Official Gazette No: 27537 on 30.03.2010, in Official Gazette No: 28131 on 03.12.2011, in Official Gazette No: 28812 on 05.11.2013 and in Official Gazette No: 28948 on 21.03.2014 shall be complied with.

The medical waste shall be placed inside red plastic bags which are resistant to tearing, piercing, bursting and carrying; originally from moderate density polyethylene material, with double bottom seam and without pleats, with double ply thickness of 100 microns, with at least 10 kg holding capacity, carrying on both sides the warning symbol of "International Biohazard" and "ATTENTION! MEDICAL WASTE" with at an easily readable size. The bags shall be filled to a maximum of 3/4 capacity and shall be tightly closed and when necessary double bagging shall be done having the same specifications in order to ensure absolute leak-proofing.

Medical waste that have cutting and piercing properties shall be collected separately from the other waste in a plastic or laminated cardboard having the same specification as piercing, tearing, breaking and bursting resistant, waterproof and leak-proof, shall not be opened or tampered with, having the warning symbol of "International Biohazard" and warning of "ATTENTION! CUTTING AND PIERCING MEDICAL WASTE". These collection containers shall be filled a maximum of 3/4, shall be tightly closed and put into red plastic bags and once the waste boxes are filled, they shall absolutely not be compressed, opened, emptied or recycled.

Medical waste collected in the camp sites according to the points indicated in the regulations, shall be disposed of by delivering to the nearest health institution or municipal medical waste collection system or through licensed contractor. Medical waste that are produced under the project shall be regularly recorded according to the Regulation on Control of Medical Waste, shall be sent to the Provincial Directorate of Environment and Urbanization, these information

shall be kept for at least three years and be kept open to examination of the Ministry upon request.

4.7 MANAGEMENT OF IMPACTS ON INFRASTRUCTURES //*WASTE FACILITIES*

Assessment studies on waste management facilities and landfills used during construction activities shall be performed to ensure that they are capable of sustaining additional pressure brought by Project without affecting current waste management services.

Studies are explained in detail in The Waste Disposal Assessment Report.

4.8 COMPLAINT MANAGEMENT

The complaints which might be raised by the local community with regards to the waste management activities shall be handled as per the Grievance Management Plan.

4.9 DISCIPLINARY PROCEDURE

Compliance with the waste management plan shall be mandatory at all levels. Any relevant violations shall be handled as described in the Environmental & Social Management System Manual.

4.10 KPIs SUBCONTRACTOR & SUPPLIER ALIGNMENT

One copy of this Waste Management Plan shall be distributed to all the subcontractors and on-site suppliers against signature, and their employees shall be trained within the scope of standard programs as detailed in the Item 4.3 of this Waste Management Plan.

Subcontractors and suppliers shall be legally responsible for their own labour force and for ensuring execution of their activities in accordance with the waste management requirements, under the supervision of the CONTRACTOR.

Kpi for the Waste Management will be later discussed and agreed and reported separately.

In case of non-conformities, subcontractors and suppliers shall be notified in written. According to Management of Non Conformity, Corrective & Preventive Actions numbered SYA-PCD-QAC-GEN-001 necessary corrective and preventive actions will be taken.

4.11 MONITORING PROGRAM

The monitoring and measurement activities shall be scheduled and performed as per the Environmental Monitoring and Measurement Plan.

Environmental Monitoring and Measurement Plan shall be prepared at a later stage, taking into consideration all the legal and/or contractual requirements and shall be separately submitted.

Activity, location, method, frequency and time span, records to be kept, etc. shall be described in the Environmental Monitoring and Measurement Plan.

Wastes shall be monitored, recorded, reported according to “Regulation on Waste Management Related General Principles” numbered 25687 and dated 31.12.2004. All procedures will be explained and specified at The Monitoring and Measuring Plan.

Monitoring shall be either performed by the CONTRACTOR or by an accredited 3rd party organization, depending on the item to be monitored.

4.12 SITE INSPECTIONS

An environmental inspection plan shall be established in order to ensure an environmental-friendly worksite with the Contract and this Waste Management Plan and in compliance with rules and regulations. Participants and frequencies shall be identified in the Environmental Inspection Plan.

Site environmental inspections shall be carried out on a daily basis. Topics to be inspected and inspection findings shall be documented through respective forms and proper follow-up of inspection findings shall be ensured.

Weekly inspection will be conducted by the spread environmental supervisor and inspection findings will be recorded to check list.

Records of inspections will be maintained and made available for inspection by Turkish regulatory authorities and TANAP.

4.13 AUDITS

The implementation and effectiveness of this Waste Management Plan shall be monitored through audits as described in the Environmental & Social Management System Manual.

The Waste Collection Area, Central Waste Accumulation Area, dedicated landfill areas and any other facilities provided by Contractor for waste management will be annually audited for compliance with agreed operating procedures, regulatory requirements and project requirements by the environmental manager.

Audit reports will be developed for this purpose. Reports of the audits will be maintained and made available for inspection by Turkish regulatory authorities and TANAP.

4.14 CONTROL OF NON-CONFORMITIES

4.14.1. Corrective & Preventive Actions

All the non-conformities related with waste management activities shall be treated as described in the Environmental & Social Management System Manual.

Nonconformities will be managed according to Management of Non-Conformity and Corrective & Preventive Actions Plan numbered SYA-PCD-QAC-GEN-001.

4.15 REPORTING

Key performance indicators including incidents and all the relevant monitoring and measurement results shall be reported as described in the Environmental & Social Management System Manual.

The waste register tables are provided to contractors and they are given to Appendix 2.

APPENDIX 1: HAZARDOUS WASTE CODES

The waste codes are define in "Regulation on Waste Management Related General Principles" numbered 25687 and dated 31.12.2004 and the list of waste codes which will be used in scope of Tanap Project

07 02 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Plastics,Synthetic Rubber and Synthetic Fiber

07 02 16	Wastes containing harmful silicon	(M)*

*** (M)** Whether waste is hazardous or not is determined by looking threshold concentration that is given in Waste Management Regulation (Appendix 6)

- Waste originated from materials used for insulation

07 04 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Organic Plant Protection Products (excluding 02 01 08 and 02 01 09), Materials (Agents) used for Wood Preservative (excluding 03 02) and Other Biosids

07 04 13	Wastes containing hazardous material	(M)

- These wastes will be generated as a result of shaping, scission, maintenance of lubricated and preservative-treated materials such as wood, 5/10 lumber, playwood etc

08 WASTES RESULTING FROM MANUFACTURING, FORMULATION, SUPPLY AND USAGE OF LINING (DYES, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, PUTTY AND PRINTING INKS)

08 01 Wastes Resulting From Manufacturing, Formulation, Supply and Usage and Detachment of Dye and Varnish

08 01 11	Waste dyes and varnish containing organic solvent or other hazardous materials	(M)
08 01 13	Sludges with dye and varnish,containing organic solvents and other hazardous materials	(M)
08 01 21	Wastes of dye and varnish remover	(A)*

*** (A) Definitely hazardous waste regardless of properties**

- These wastes will be generated as a result of usage of dye,varnish,hardening agents etc.

08 03 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Printing Inks

08 03 17	Waste printing toners containing hazardous materials	(M)

- These wastes include cartridges and toners used in offices.

08 04 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Adhesives and Insulators

08 04 09	Adhesive and filling compound waste containing organic solvents or other hazardous materials	(M)

- These wastes will be generated as a result of processes like agglutination, puttying etc.

09 WASTES RESULTING FROM PHOTOGRAPHY INDUSTRY
09 01 Wastes of Photograph Industry

09 01 01	Water-based bath and activator solution	(A)

10 WASTES RESULTING FROM HEAT TREATMENT
10 01 Wastes Resulting From Power Plants and Other Combustion Plants

10 01 22	Slurry containing hazardous materials resulting from boiler cleaning process	(M)

13 WASTE OIL AND FUEL OIL (EDIBLE OILS, EXCLUDING O5 AND 12)
13 01 Waste Hydraulic Fluid

13 01 10	Mineral based hydraulic fluid	
13 01 11	Synthetic hydraulic fluid	
13 01 12	Biodegradable hydraulic fluid	

13 02 Waste Engine, Transmission and Lubrication Oils

13 02 06	Synthetic oils related to engine,transmission and lubrication	
13 02 07	Easily biodegradable engine,transmission and lubrication oils	

- These wastes classified in groups 13 01 and 13 02 include oils originated from instantaneous and periodic maintenance of vehicles and heavy machinery

13 03 Waste Insulating and Heat Transfer Oils

13 03 08	Synthetic insulating and heat transfer oils	

- These wastes include waste oils originated from energy equipment such as transformers, capacitors ,generators

13 05 Oil/Water Separator Contents

13 05 02	Sludges generated from oil/water separator	(A)
13 05 06	Oil generated from oil/water separator	(A)

- These wastes include kitchen waste, wastes from storage areas, oils from upper part of Oil/ Water separators, bottom sediments (settleable oily matters) etc.

13 07 Waste Liquid Fuels

13 07 01	Fuel oil and diesel fuel	(A)
13 07 02	Gasoline	(A)

- These wastes consist of residual fuel from pouring tray accumulating during fuel delivery and residual fuel during cleaning of fuel tank

14 06 Waste Organic Solvents, Refrigerators and Foam/Aerosol Propellant Gases

14 06 01	Chloroflorocarbons, HCFC, HFC	(A)

- These wastes contain packaged waste gas to be generated during repair and maintenance of cooling elements

15 WASTE PACKAGES; UNSPECIFIED ABSORBERS,MOPS, FILTER MATERİALS AND PROTECTIVE SUITS
15 01 Package (including waste packages collected separately by municipality)

15 01 10	Packages including residuals of hazardous materials or contaminated with of hazardous materials	(M)

- These wastes contain contaminated packages, packaging waste,container having hazardous materials.

15 02 Absorbers, Filter Material, Swabs and Protective Suits

15 02 02	Absorbers contaminated with hazardous materials, filter materials(oil filter provided that not defined differently),swabs, protective suits	(M)

- These wastes contain spill kit contaminated with hazardous materials, clothing and textile wastes such as workers' suit, shoe, glove etc. and also wastes coming from air and oil filters

16 WASTES NOT PREDEFINED IN THE LIST
16 01 Scrap Vehicles (including heavy machinery) and Wastes Resulting From Detachment of Pieces and Vehicle Maintanence(excluding 13,14, 16 06 and 16 08)

16 01 07	Oil filters	(A)
16 01 14	Antifreeze liquid containing hazardous materials	(M)

- These wastes contain oils resulting from periodic and instant maintenance of vehicles and heavy machinery.

16 02 Waste Electrical and Electronical Equipment

16 02 11	Waste equipments containing chloroflorocarbon,HCFC,HFC	(M)

- These wastes are originated from periodic and instant maintenance and change of electrical and electronic equipment. Capacitors and transformers are so important to be collected very dangerous PCB(polychlorinated biphenyl) and PCT (polychlorinated terphenyls)

16 04 Waste Explosives

16 04 01	Waste ammunition	(A)
16 04 03	Other waste explosives	(A)

- These wastes result from blasting operations during pipeline excavation.

16 05 Gasses in Pressure Tank and Waste Chemicals

16 05 06	Laboratory chemicals consisting of hazardous matters or containing hazardous materials	(M)

- These wastes contain chemical wastes from laboratory such as concrete, quality control etc. that will establish in camps and stations

16 06 Batteries and Accumulators

16 06 01	Lead batteries	
16 06 02	Nicad batteries	(A)
16 06 03	Mercury cell	
16 06 06	Electrolytes collected separately from batteries and acumulators	(A)

- These wastes include all kinds of electrolytes from batteries and accumulators in camps and stations.

17 CONSTRUCTION AND DESTRUCTION WASTES(INCLUDING EXCAVATION FROM POLLUTED AREAS)

17 01 Concrete, Brick, Roof Tile and Ceramic

17 01 06	Concrete, brick,roof tile and ceramic mixture or separate groups containing hazardous materials	(M)

17 02 Wood, Glass and Plastics

17 02 04	Wood, glass or plastic including or contaminated with hazardous materials	(M)

17 03 Bituminous Mixtures, Coal Tar and Tarred Products

17 03 01	Bituminous mixtures including coal tar	(M)

17 04 Metals (Including alloys)

17 04 09	Scrap metal contaminated with hazardous materials	(M)
17 04 10	Cables containing oil,tar and other hazardous materials	(M)

17 05 Soil (Including Excavation From Polluted Areas), Rocks and Dredging Sludge

17 05 03	Soil and rocks containing hazardous materials	(M)

17 08 Gypsum-Based Construction Materials

17 08 01	Gypsum-based construction materials contaminated with hazardous materials	(M)

17 09 Other Construction and Demolition Wastes

17 09 03	Other construction and demolition wastes containing hazardous wastes(including mixed waste)	(M)

- All wastes in this section cover all excavation soil, ruins, construction wastes contaminated with hazardous materials that are not included in the “Regulation on Control of Excavation Soil, Construction and Demolition Wastes”.

18 WASTES RESULTING FROM STUDIES ON HUMAN AND ANIMAL HEALTH AND/OR SIMILAR (EXCLUDING KITCHEN AND RESTAURANT WASTES THAT ARE NOT DIRECTLY RELATED TO HEALTH)

18 01 Wastes Resulting From Birth, Diagnosis, Cure or Disease Prevention Studies For Humans

18 01 03	Wastes which are collected and disposed according to specific procedures in order to prevent infections	(A)
18 01 08	Cytotoxic and cytostatic medicine	(A)

- These wastes contain contaminated MEDICAL WASTES formed after medical attention and cutting,drilling and infectious wastes from infirmary,health cabinet and first aid center. They are disposed according to Regulation on Control of Medical Wastes. These medical wastes could be removed by municipalities that are licensed for medical waste collection.

20 MUNICIPAL WASTES INCLUDING FRACTIONS COLLECTED SEPARATELY (DOMESTIC WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES)

20 01 Fractions Collected Separately (Excluding 15 01)

20 01 21	Fluorescent lamps and other wastes containing mercury	(A)
20 01 29	Detergents containing hazardous substances	(M)

APPENDIX 2: WASTE REGISTER PLAN

WASTE REGISTER - CAMP 4
WASTE DISPOSAL REGISTER

Reporting Period:

HAZARDOUS WASTE DISPOSAL - (in Kg)	Waste Reused by Contractor		Waste Recycled at Licensed facility		Waste Disposed of at Licensed Landfill		Waste Temporarily stored in Camp		Total Waste Generated (kg)		Waste Transfer		
Type of waste:	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Vehicle License	Driver License	Company Name
Aerosol Cans													
Air Filters													
Batteries (Dry)													
Batteries (Wet)													
Chemical Waste													
Coating Waste													
Contaminated soil													
Fluorescent tubes													
Fuel filters													
Glue cans													
Glycols													
Grease (tubes/cans)													
medical waste													
Oil contaminated waste													
Oil filters													
Paint wastes													
Pesticides													
Solvents													
Used catridges & toners													

X-ray papers													
Other: _____													
Total (kg)													

NON-HAZARDOUS WASTE DISPOSAL - (in Kg)	**Waste Reused by Contractor**		**Waste Recycled at Licensed facility**		**Waste Disposed of at Licensed Landfill**		**Waste Temporarily stored in Camp**		**Total Waste Generated (kg)**	
Type of waste:	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**
Aluminium cans										
Bricks and building material										
Cardboard and paper										
Cement bags										
Cement dust/waste										
Cooking oil										
Electrical cables										
End caps										
Foam										
Food waste										
Glass										
Grinding disks										
Grit from blasting										
Lifting straps/belts										
Metal shavings										
Domestic waste										
Plastic bottles										
Plastic packaging										
Styrofoam										
PPE & clothing										

PVC										
Rubber waste										
Scrap metal										
Tyres										
Used geotextile										
Water filters										
Wood										
Other: _____										
Total (kg)										

Waste Disposal							
Date of waste removal	**Haz material: Y/N**	**Non-haz material: Y/N**	**Type of waste**	**Amount of waste**	**Disposal company**	**Location of disposal**	**Document on file: Y/N**

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	**TKF-PLN-ENV-PL3-009**	**Rev**	**Status**
		P4-0	**IAAC**
Document Title :	**Waste Management Plan**		
Tag Nos.			
Contractor:	**Tekfen Construction and Installation Co., Inc.**		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

TEKFEN CONSTRUCTION

TEKFEN WASTE MANAGEMENT PLAN

TANAP

TEKFEN WASTE MANAGEMENT PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP Approval
P3-A	DIC	13.03.2015	Discipline Internal Check	ZDEM	ASON	MKOP	
P3-B	IDC	20.02.2015	Inter-Discipline Check	ZDEM	ASON	MKOP	
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P4-0	IAAC	15.04.2015	Issued As Approved for Construction

7HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1. INTRODUCTION

1.1. PURPOSE & SCOPE

The effects of improper management and disposal of waste can be devastating to the health of nearby communities and the environment. Because many countries have limited resources for waste disposal, the current focus is on waste minimization and appropriate techniques to prevent migration of the hazardous components of waste to the air, water, and soil.

TEKFEN will take actions as outlined in this waste management plan to meet the legal and other requirements. This plan will be followed by all project personnel and is applicable to all wastes generated at camps, RoW, construction activities, ancillary facilities (e.g., construction lay down areas), and by subsidiary operations (e.g., equipment maintenance, road construction) during the construction of the TANAP Pipeline Project.

This plan addresses the handling, storage, and management of wastes. All wastes will be classified as inert, non-hazardous, or hazardous (including sanitary) wastes.

This plan sets the ground rules for waste management to ensure the responsible and safe handling, storage, and disposal of wastes generated by project activities.

The purpose of the waste management plan is to describe the procedures to meet, to the greatest extent practical, the environmental goals:

- No un-controlled waste disposal
- No pollution of land, water or air
- No fugitive emissions or odours
- Sustainable use of material

1.2. RELATIONSHIP TO OTHER PLANS AND DOCUMENTS

This plan is part of the Environmental and Social Management Plan (TKF-PLN-ENV-PL3-001) and it's related with Pollution Prevention Plan (TKF-PLN-ENV-PL3-010), Reinstatement Plan (TKF-PLN-ENV-PL3-006), Erosion Control and Stabilization Plan (TKF-PLN-ENV-PL3-007).

Specifically, the waste covered by this WMP includes the following sources;

- Construction and commissioning of all facilities
- Temporary and permanent accommodation (used during construction)
- Subsidiary operations, such as equipment maintenance, road construction, etc;
- Transport infrastructure.

1.3. ABBREVIATIONS

MoEU	Ministry of Environment and Urbanization
MSDS	Material Safety Data Sheet
PPP	Pollution Prevention Plan
ROW	Right Of Way

WAA Waste Accumulation Area
WCP Waste Collection Point
WMP Waste Management Plan

1.4. REFERENCES

- Integrated ESIA Report Appendix 5.11 – Waste Management Plan (CIN-REP-ENV-GEN-010-45)
- Integrated ESIA Report Appendix 5.10 – Pollution Prevention Plan (CIN-REP-ENV-GEN-010-45)
- Integrated ESIA Report Appendix 5.10 – Employment and Training Plan (CIN-REP-ENV-GEN-010-45)
- Chapter 4 and Appendix 4.6 (Legislation Register) of ESIA

1.5. DEFINITIONS

Waste: Any scrap material, effluent or unwanted substance that needs to be disposed off.

Ground pollution: Any spillage on or contamination of the ground in the work area.

Water pollution: Caused by allowing poisonous, noxious or polluting matter into waterways or ground water

Recycling: Reusing the products often after appropriate treatment in a different application or safely disposing to third parties for reuse with clear details.

Treatment: Processing to enable safer by-products or more effective safe handling.

Disposal: Segregating, storing, labeling and disposing of hazardous chemicals and materials safely following the Plans.

Hazardous Waste: Waste materials that exhibit dangerous characteristics such as high flammability, corrosivity, reactivity and toxicity.

Non-Hazardous Waste: Waste that is neither hazardous, nor inert, nor wastewater.

Inert Waste: Waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.

2. METHOD

All wastes from TEKFEN activities must be controlled, handled and disposed of in an environmentally acceptable manner.

Measures to minimize the production of waste in general will be developed and implemented. Waste material and consumables produced by the activities being carried out in various areas will be collected and stored without creating a threat to the health and if possible be recycled at the stage of disposal or reused on site and if not be disposed without causing any harm to the environment.

2.1. BASIC PRINCIPLES FOR WASTE MANAGEMENT

TEKFEN will follow the Basic Principles for Waste Management:

1. Follow-up of wastes with cradle to grave approach (explained in below paragraph)
2. Segregation of wastes at source and waste categorization.
3. Reuse, recovery and recycling have the priority.
4. All wastes should be handled throughout the route and will not be left at site.
5. Dumping and burning of wastes are strictly forbidden.
6. Waste transportation and disposal should be done via licenced facilities
7. Mixing different waste types is strictly forbidden.
8. Waste transportation to the nearest licensed facility to a possible extent.

TEKFEN will manage the waste using a cradle-to-grave approach, identifying all potential waste streams at their point of generation, their nature (classification) and quantity to be generated during construction. TEKFEN will keep the waste identification study data up to date, including new waste streams, or waste streams that have not yet been classified, and/or approved disposal locations in accordance with EPCM requirements. Approval of the final destination for all waste streams ensuring that a “cradle to grave” solution will be applied and that disposal sites comply with appropriate requirements such as possessing permits licenses.

2.2. WASTE CLASSIFICATION

TEKFEN will identify and segregate waste streams in accordance with the nature of the waste.

Waste will be segregated into hazardous, non-hazardous and inert wastes by applying the principles described below:

2.2.1. Hazardous Waste

Hazardous wastes pose potential risks to public health and environmental quality because they exhibit one or more of the following inherent characteristics:

- Ignitability
  - Flammable, Highly Flammable or explosive.

- Reactivity
  - Corrosive
  - Oxidising.

- Biologically harmful
  - Toxic or eco-toxic
  - Infectious, irritant, Carcinogenic, Mutagenic, Teratogenic.

Medical waste (including sharps, syringes, needles, dressings and surplus medicines) is a sub-category of hazardous waste that is associated with causing biological harm.

Radioactive waste is a sub-category of hazardous waste that is associated with causing Carcinogenic, Mutagenic or Teratogenic harm to organisms.

2.2.2. Non-hazardous Waste

Non-hazardous waste is waste that is neither hazardous, nor inert, nor wastewater.

Types of waste that do not have inherently harmful properties are categorised as non-hazardous.

Examples of non-hazardous wastes include paper, card, glass, plastic, food, clean scrap metal, timber etc.

2.2.3. Inert Waste

Inert Waste is any waste includes non-degradable, non-leaching and non-reactive material such as stone, gravel, concrete, bricks, etc.

TEKFEN will re-use inert waste for Project construction to the fullest extent practicable; for example, for erosion protection measures, road construction, site fill material.

2.3. WASTE MINIMISATION

2.3.1. Waste Management Hierarchy

TEKFEN will ensure that the waste disposal strategy developed for the project through the plan will follow the following handling hierarchy:

1. Waste avoidance is the most preferable option;
2. Minimisation of quantities and hazards of waste generated is the second preferred option;.
3. Reuse, recovery and recycling shall be preferred over treatment of waste;
4. Disposal shall be considered as a last resort;

2.3.2. Reduction at source

TEKFEN will undertake a Waste Study which will identify Waste Minimisation options by means such as selecting materials for use that avoid waste generation (e.g. purchasing in bulk) and contracts to be established to allow return of excess product to vendor.

2.3.3. Re-use and recycling of materials

TEKFEN will identify any of its waste streams that include waste materials that could be segregated for re-use or recycling (e.g. packaging wood for reuse in construction and plastic bottles, cardboard/paper or metal for recycling).

TEKFEN will identify organisations in the region that carry out processes to re-use and recycle waste materials. TEKFEN will not release waste materials to individuals or non-commercial entities.

2.4. WASTE COLLECTION AND STORAGE

TEKFEN will provide waste collection areas to allow the collection of waste at source (Waste Collection Points, or WCPs) as well as secure transfer/ storage locations (Waste Accumulation Area or WAAs).

2.4.1. Non-Hazardous Waste

2.4.1.1. Non-Hazardous Waste Collection

Non-hazardous waste will be collected in camps and ancillary facilities in accordance with the following requirements:

- Each camp will have a crew responsible for picking up litter and collecting garbage in suitable waste containers; all containers will be provided with lids that are securely attached when not in use and distributed in locations where they can easily be seen and accessed; garbage containers will be emptied at the end of the day into the main garbage collection containers, which will be located inside the camp.
- Due to the continuous movement of activities, each crew will be provided with waste collection containers for storing waste; at the end of each day, wastes will be transported to the camp for storage and disposal
- A TEKFEN environmental inspector will ensure that adequate numbers of empty containers are available with crews for the collection of waste materials; waste containers will move with the crew (e.g., attached to equipment or equipment sled)
- A dedicated truck and collection crew will be arranged for collection of domestic waste and other waste material; the collection crew will provide adequate number of containers (e.g., bags), brushes, brooms, and other cleaning equipment required for collection and housekeeping
- In some locations, separate arrangements may have to be made according to the situation and condition of work
- TEKFEN environmental inspectors will document, in their daily report, the adherence to measures outlined in this plan

2.4.1.2.Non-Hazardous Waste Labelling and Storage

- **Domestic** waste will be segregated from other camp waste materials; the main collection container for these wastes will be emptied at least once a day in the interests of health and hygiene
- Packaging paper, plastic and glass bottles will be collected separate from other waste.
- All wastes will be segregated upon receipt at the non-hazardous waste storage area
- Scrap metal will be collected separately and stockpiled within the designated non-hazardous waste storage area for reuse, if practical, or transfer to the nearest recycling centre
- Non-hazardous waste storage areas will comply with relevant requirements of MoEU and be:
  - Located away from accommodation areas, wetlands, streams, and drainage
  - Signed to ensure/promote proper wastes segregation

- Signed to show wastes that are not allowed to be stored in the area (e.g., batteries)
- Designed to contain spills and leaks
- Covered to prevent rainwater from entering the area
- Secured with gates that are locked when TEKFEN personnel are not working in the area to prevent unauthorised personnel from entering, misuse, or theft prior to disposal
- Kept free of any windblown garbage
- Managed to ensure waste containers are kept covered at all times when not in use
- Environmental Inspector will be responsible for ensuring the waste log accurately records the movements of wastes entering and leaving the camp

- All waste containers, including segregated wastes, will be labelled in English and Turkish.

2.4.1.3. Non-Hazardous Waste Disposal

Non-hazardous waste will be disposed of through reuse, transfer to a third party for reuse, transfer to local municipalities, or dispose to authorised waste disposal contractor

Certain types of non-hazardous wastes will be segregated and processed separately:

- Felled trees and large branches will be removed to local compounds and put under the control of the local authority
- Foliage and small trees will be cut up or shredded and windrow at suitable locations; the dried material should be transferred to community representatives for use as firewood; any residual quantities that obstruct operations should be removed for disposal with other non-hazardous waste.
- Domestic solid wastes will be disposed of at licensed solid waste disposal sites operated by the municipalities. Agreements will be made with the municipalities before dumping is permitted. Accordingly, wastes will be transported to the licensed municipality waste disposal sites with MoEU licensed vehicles.

2.4.2. Hazardous Waste

2.4.2.1.Hazardous Waste Collection

Hazardous waste containers will be permanently and clearly labelled with the following information, in English and Turkish at all times:

- Hazardous waste
- Name of the waste (e.g., waste oil, solvents)
- Type of hazard (e.g., toxic, ignitable)

2.4.2.2. Hazardous Waste Storage

Hazardous waste storage areas will be designed, constructed, and maintained in accordance with the following requirements.

- Hazardous wastes will only be stored in areas designed to ensure non-compatible wastes are segregated and located in designated areas to optimise control; storage areas will:
  - Be sized properly
  - Be signed to ensure proper segregation
  - Be securely fenced and locked to keep unauthorised personnel or animals out of the area
  - Have barriers or other means to keep equipment and vehicles from entering
  - Be covered to keep out rainwater/snow
  - Be sized appropriately to store anticipated waste with sufficient space between drums to permit the required visual inspection
  - Be signed to identify the hazard (e.g., Flammable - No Smoking or Open Flame Within 15 meters, Hazardous Waste); signs will write in English and Turkish.
  - Be provided with secondary containment (designed to contain 110 percent of volume and equipped with a manual valve (or equivalent means as necessary) to allow for the release of clean, uncontaminated, storm water (oil or petroleum residue in rainfall contained in the storage area must be separated from the water prior to disposal of the water)
  - Be equipped with fire extinguisher(s)
  - Be located away from existing drainage paths to offsite areas to prevent accidental spills from reaching sensitive areas
- Maintenance waste (e.g., batteries, waste oils, oily rags) generated will be temporarily stored in maintenance trucks in appropriate hazardous waste storage containers until the waste can be transported to the camps hazardous waste storage area.
- Areas will be managed to ensure:
  - Only authorised personnel access the area
  - MSDSs are available at the storage area
  - Sufficient space is maintained between drums/containers to allow access during emergency response situations (1 m.)
  - Incompatible materials are segregated from each other
  - Containers will be in good condition with no visible defects that could result in leaking or spilling of wastes
  - Liquid wastes will be stored in leak-proof sealed containers (e.g., steel drums with fixed lids)
  - Non-liquid wastes may be stored in containers with removable tops (e.g., steel drums with removable heads secured with a steel-band and gasket)
  - Be kept upright and closed at all times unless adding or removing contents
- An environmental inspector will conduct visual inspections of all waste containers in the storage area at least weekly to monitor the type and volumes of waste contained in the area and to ensure there are no releases of hazardous wastes to the environment in accordance the Pollution Prevention Plan. (TKF-PLN-ENV-PL3-010). Environmental Advisor will keep log of hazardous waste weekly inspections, deficiencies and corrective actions.
- An appropriate licensed company will be used for transportation of hazardous wastes.

2.4.2.3. Hazardous Waste Disposal

Hazardous wastes will be disposed to the licensed hazardous waste facilities mentioned in the Appendix 5.11- Waste Management Plan of ESIA Report.

- A hazardous waste consignment note will be completed for disposal of hazardous wastes
- Hazardous waste will be either recycled/reused, or disposed at a licensed hazardous waste disposal facility
- Hazardous waste will be securely packed and labelled to ensure the waste can be transported safely to the approved disposal site without risk to those handling the waste or to the environment
- Hazardous waste loads will be securely packed on the transport vehicle to ensure that no containers will be lost during transport
- Hazardous waste will only be loaded within a hazardous waste storage area or unloaded at the final waste disposal location
- A TEKFEN environmental inspector will be responsible for ensuring an accurate record of hazardous wastes dispatched from the camp is maintained
- Used oil that cannot be recycled will be disposed of in accordance with the requirements mentioned in the ESIA Report and its appendices.
- It is also possible to make an agreement with the licensed recycling facilities and waste trading companies.

2.4.3. Inert Wastes

2.4.3.1. Inert Waste Collection

It is anticipated that there will be very large quantities of excavated materials and that most of these wastes will be utilised by the Project or will be transferred to third parties for re-use. Any residual materials requiring disposal will be disposed of at locations agreed with the relevant authorities. Such wastes can be disposed of to inert waste landfills.

2.4.3.2. Inert Waste Storage

Inert wastes will be segregated and stored to promote reuse. It will not be stored where it can be easily moved into a wetland or water body. Topsoil and subsoil storage will be made according to the Reinstatement Plan (TKF-PLN-ENV-PL3-006)

2.4.3.3. Inert Waste Disposal

The inert wastes to be originated during the construction of the Project will be disposed as follows:

- Where practical, inert wastes will be processed and/or reused for construction and reinstatement purposes
- Where reuse is impractical, inert waste will be transferred to a third party for reuse (e.g., housing or industrial development)
- Only waste that cannot be reused or recycled will be transferred to local municipalities for disposal

- Soil stockpiles will have appropriate sediment control measures installed and maintained in accordance with the project Reinstatement Plan (TKF-PLN-ENV-PL3-010)
- Topsoil will not be sold or transferred to a third party and replaced after the construction according to the requirements mentioned in the Reinstatement Plan.
- TEKFEN will take measures to ensure that no waste soil and/or rock, including those transferred to local municipalities for disposal, are used in a manner that will impact environmental or sensitive resources. To prevent this kind of action, trainings will be given to all truck drivers. In addition, Construction Supervisors and Environmental Inspector will check **all off RoW** against unauthorised dumps.

2.4.4. Medical Wastes

2.4.4.1. Medical Waste Collection

All medical wastes will be treated as hazardous waste, collected, transported and removed separately from domestic wastes. Medical wastes will be collected in specially designated and colour-coded containers made of a combustible material (e.g. plastic). All medical waste will be collected in red plastic bags which are resistant to tearing, piercing, bursting and carrying. Bags should be labeled "Attention Medical Waste"

2.4.4.2. Medical Waste Storage

Medical wastes will be stored in red coloured and coded containers in a safe place in the clinic until collected by licensed vehicle.

Medical waste shall be disposed of and delivered to the nearest health institution or municipal medical waste collection system.

2.4.5. Waste Accumulation Area (WAA)

TEKFEN will establish a waste storage and segregation area at EPCM approved area. The size of the Waste Accumulation Area (WAA) will be determined by the number of Project personnel and the anticipated volume of waste.

Safety areas (muster point, eye-wash station, etc.) will be established and equipped with fire extinguishers and spill response equipment.

The WAA facilities will comply with the following requirements:

- WAA will be constructed on a concrete pad
- The area will be fenced and access controlled
- No drums or containers will be stored directly on the soil
- Facilities will be designed to prevent any contamination of the adjacent ground
- Liquid wastes will be stored within a bund that will contain 110 percent of the volume of the largest container or 25% of the inventory, whichever is greatest.
- Vehicle / equipment access will be maintained
- Areas will be ventilated
- Dedicated areas for segregated hazardous and non-hazardous wastes will be provided

- Dedicated areas for the segregation of recyclable and reusable materials from those items intended for disposal
- Signage will be installed informing employees about the hazard and PPE requirements within the WAA.

2.5. WASTE STREAMS AND DISPOSAL REQUIREMENTS

- Wastes will only be disposed by an approved waste disposal subcontractor. These subcontractors will be selected among the ones possessing necessary permit and licenses. The licensed facilities will be identified thru MoEU database and they will be contacted by the permits department first and then agreements will be made by the contracts department.
- No waste will be burned on the site.
- An approved third party company will receive and transport our non-hazardous waste from site.
- TEKFEN will track the waste till its final disposal. Waste transfer notes will be filled for every consignment of hazardous waste leaving the site.
- Wastes will not be allowed to leave the facility in containers or vehicles that are unfit for purpose.

The waste streams and disposal requirements in the below sections are given for the land preparation and construction phase.
Waste streams during the preparating and construction activities are given below:
TEKFEN's contract does not cover commissioning phase.
As per Construction Camp Handover Procedure - WRP-PCD-CST -GEN-002 TEKFEN will have no liability for the wastes generated by the early work construction contractor during camp opening phase.

Waste Type	Source	Requirements
Construction debris	Earthworks, excavation	Reuse during construction, dispose in accordance with legislation, check for contamination and dispose accordingly
Hazardous wastes (such as empty containers of chemicals, waste oil, light bulbs grease, welding material, electrical/electronic wastes and similar)	Earthworks, workshops, vehicle cleaning areas	Store separately at site, dispose in accordance with legislation, incinerate at licenced facilities
Excavated soil	Earthworks, excavation	Reuse during construction, dispose in accordance with legislation, check for contamination and dispose accordingly, use during reinstatement.

Paper, cards, plastic, glass, packaging waste	Offices, Workshops	Recycle
Domestic waste	Canteen, workers accommodation	Dispose in accordance with legislation
Scrap metal and similar	Construction areas, workshop	Recycle
Waste pipe/piping material	Construction areas, workshops	Recycle if not hazardous
Waste sludge	Wastewater treatment plant	Dispose in accordance with legislation, dispose to wastewater treatment facilities in the vicinity
Medical	First aid rooms	Dispose through licenced contractors in accordance with legislation
Waste tyres	Workshops, vehicle cleaning areas	Dispose in accordance with legislation
Domestic wastewater	Canteen, sanitary network	Treat at Wastewater Treatment Plant
Hydrotest wastewater	Hydrotesting	Tested prior to discharge at a controlled rate to a site or sea agreed with MoEU.
Oily water	Workshops, spills, vehicle cleaning areas	Collect separately and dispose in accordance with legislation

In the following section a categorization of the wastes is presented referring to the categorization by Turkish Legislation.

2.5.1. Excavation Waste

In all areas (including wetlands, marshes, areas with steep slopes, agricultural fields, etc.), included in the Right of Way, the topsoil (if present), which is the most important element to be used during bio-restoration, will be stripped and stored appropriately for future re-use. During the excavation works, for the laying of the pipes and construction of the above ground installations necessary amount of bottom cover soil would be excavated and would be stored at the construction site.

The top soil will be stored separately from the excavation materials and after the construction work is completed, it will be used in the land clearance and rehabilitation works again. Topsoil and subsoil will not be stored where it can be easily moved into a wetland or water body. Topsoil and subsoil storage will be made according to the Reinstatement Plan (TKF-PLN-ENV-PL3-006). Topsoil and subsoil will be preserved from erosion and sedimentation according to the Erosion Control and Stabilization Plan (TKF-PLN-ENV-PL3-007).

During these operations, the following provisions indicated in the "Regulation on Control of Excavation Soil and Construction Debris" regarding the storage of the top soil would be respected;

- The top soil shall be stored in an appropriate area to prevent from being scattered by wind or water streams or other factors, from being mixed with foreign materials and from being deteriorating with respect to original characteristics and necessary protection measures shall be taken (see paragraph below). The area where the top soil would be stored shall not have more than 5% inclination.
- During the storage of the top soil, possible losses shall be prevented and the quality of the soil shall be maintained.
- If the top soil shall be kept exposed for a long time, it will be ensured that surface is covered with fast growing plants.

If required due to excessively windy conditions, topsoil piles shall be tackified using water. The silt fence may be placed at the base of the topsoil pile (between the pile and the ditch bank) to help retain soil. The topsoil pile will be placed behind a bench or berm to prevent erosion especially at steep slopes.Vegetation of topsoil will also help topsoil preservation.

The excavation soil that will be taken out during the pipeline construction will at first be accumulated throughout the route in order to be used for bedding, padding and backfilling. In cases where excavation soil is not appropriate for bedding, padding and backfilling, material will be supplied from off-site after obtaining the necessary permissions and licenses. Imported material used for bedding, padding and backfilling will be sand and will be clean and salt-free; and shall not contain clay, roots, stones or other material which is likely to cause damage to the pipe coating. The excavation material remaining after bedding, padding and backfilling process will be used for reinstatement of roads and land preparation. Remaining excavation soil will be stored on permitted sites.

The waste material which is occurred from excavation works during the land preparation and construction phase will not be emptied to the rivers that flows or dry, related to "the River Beds and Floods Decree".

During all excavation works under the scope of the project, provisions of Regulation on Control of Excavation Soil and Construction Debris and also provisions of the Regulation on Control of Soil Pollution and Contaminated Lands by Point Sources would be complied with.

2.5.2. Domestic Solid Wastes

The camps that will provide accommodation, messing, and other basic needs for the workers throughout the construction.

Domestic solid waste from the personnel would be collected in closed containers located at various points of the camp areas. These solid waste would be collected in containers and at certain intervals

would be transported to the solid waste collection system belonging to the nearest municipality and be disposed of.

Domestic solid waste produced under the project would be disposed of according to the "Regulation for the Control of Solid Waste".

2.5.3. Packaging Waste

There would be packaging waste from the packaging materials used in the transport of equipment, from the packaging of the materials used and from the personnel in land preparation and construction phase of the project.

The packing paper, plastic and glass bottles i.e. packaging wastes will be collected separate from other wastes without considering material used and the source of the material and should be sent to licensed recycling facilities according to the "Regulation on Control of Packaging Waste".

The collection of these packaging materials within the camp sites and their disposal would be done in compliance with the provisions of the "Regulation on Control of Packaging Waste".

2.5.4. Waste Batteries and Accumulators

The maintenance process of the vehicles to be used in land preparation and construction period of the project would be done in authorized services. However, when it is not possible, the maintenance Plan will be carried within the facility. In cases where the maintenance process of the vehicles used in the project are carried out within the facility, possible waste batteries that come out would be stored in a closed containers with a leak-proof floor according to the "Regulation on Control of Waste Batteries and Accumulators" and batteries shall be delivered to the collection points established by the municipalities or by the companies distributing or selling batteries and waste accumulators (vehicle batteries) shall be delivered to the temporary storage areas established by the companies distributing or selling accumulator products and maintenance companies.

Within the scope of the project, provisions of the "Regulation on Control of Waste Batteries and Accumulators" and amendments of this regulation shall be complied with.

2.5.5. Medical Wastes

All medical wastes occurred in the infirmary units of the camps sites during land preparation and construction period of the project shall be disposed of according to the provisions of "Regulation on Control of Medical Wastes".

The medical wastes should be placed inside red plastic bags which are resistant to tearing, piercing, bursting and carrying; originally from moderate density polyethylene material, with double bottom seam and without pleats, with double ply thickness of 100 microns, with at least 10 kg holding capacity, carrying on both sides the warning symbol of "International Biohazard" and "ATTENTION! MEDICAL WASTE" with at an easily readable size. The bags would be filled to a maximum of 3/4 capacity and would be tightly closed and when necessary double bagging would be done having the same specifications in order to ensure absolute leak-proofing.

Medical wastes that have cutting and piercing properties would be collected separately from the other waste in a plastic or laminated cardboard having the same specification as piercing, tearing, breaking and bursting resistant, waterproof and leak-proof, could not be opened or tampered with, having the warning symbol of "International Biohazard" and warning of "ATTENTION!

CUTTING AND PIERCING MEDICAL WASTE". These collection containers would be filled a maximum of 3/4, would be tightly closed and put into red plastic bags and once the waste boxes are filled, they would absolutely not be compressed, opened, emptied or recycled.

Medical wastes collected in the camp sites according to the points indicated in the regulations, would be disposed of by delivering to the nearest health institution or municipal medical waste collection system. Medical waste that are produced under the project shall be regularly recorded according to the "Regulation on Control of Medical Waste".

2.5.6. Waste Oils

The maintenance process of the vehicles to be used in land preparation and construction period of the project would be done in authorized services. However, when it is not possible, the maintenance Plan will be carried within the facility. If any waste oil is produced, the waste oil shall be collected in a closed temporary waste storage area with leak-proof floor and covered with a shelter. The oil collected would be given to a licensed waste oil recovery company according to the "Regulation on Control of Waste Oil".

Additionally, waste vegetative oil will occur in the cafeterias of the camp sites within the scope of the project. These wastes will be collected separate from other wastes and would be disposed according to the provisions given in the "Regulation on Control of Waste Vegetative Oil".

After the delivering of the waste oils to licensed companies, "Waste Oil Declaration Form" given in the Regulation should be filled and sent to the Relevant Provincial Directorate of Environment and Urbanization until the end of February of the following year.

Besides, provisions of the following would be complied with;

- Regulation on Control of Waste Oil
- Regulation on Control of Waste Vegetative Oils
- Regulation on Control of Polychlorinated Biphenyls and Polychlorinated Terphenyls
- Regulation on Soil Pollution Control and Point Sourced Polluted Areas

2.5.7. Waste Tyre

During land preparation and construction phase of the project, the maintenance activities of the vehicles and construction machines will be done in authorized services. If there is a need to change the tyres of these vehicles and machines, the end of life tyres that come out would be sent to tyre distribution companies or to the authorized transporters indicated in the regulation.

All provisions in the "Regulation on the Control of End of Life Tyres" will be complied.

2.5.8. Hazardous Wastes

The hazardous wastes to be possibly generated during land preparation and construction phases of the project are fluorescent tubes, cartridges, print toners, filter materials, transformers, paints/varnishes, waste lubricants. These wastes are occurred as a result of machine and equipment usage and hazardous waste produced by domestic usage and other wastes contaminated with these kinds of wastes.

Hazardous wastes will be disposed according to the provisions in the "Regulation on Control of Hazardous Wastes". The hazardous wastes would be stored temporarily within the camp site

separate from other wastes in a closed environment preventing any chemical reaction. After that, these wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the Ministry of Environment and Urbanization (MoEU).

During the storage of hazardous wastes in land preparation and construction period of the project following provisions indicated in "Regulation on Control of Hazardous Wastes" will be complied:

- A record shall be kept on the amount of the waste and packaging and labelling of the waste shall be according to the internationally accepted standards required by the environmentally licensed recycling or disposal facility which will receive the waste.
- The Waste Declaration Form indicated in the regulation shall be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the Ministry of Environment and Urbanization and a copy shall be stored for five years.
- The waste would be temporarily stored in durable, leak-proof, safe containers at international standards placed on a concrete area away from the buildings of the camp, there will be hazardous waste labels on the containers, the quantity and the stored date would be indicated on the container, if the containers are damaged, the waste would be transferred to other containers having the same specifications, containers would always be kept closed, and they would be stored so that the waste does not chemically react.
- All the measures shall be taken for the health and safety of the employees responsible for the collection, transportation and temporary storage of the waste within the facility.
- In order to prevent pollution that happens as a result of accidental spill or by deliberate actions, depending on the type of the waste, location of the incident would be brought to its original condition by latest within a month from the time of the incident and all the expenses for this shall be borne.

2.5.9. Wastes to be generated from Welding Activities

Welding wastes to be generated as a result of pipe welding activities will be temporarily stored at sites with impermeable grounds for a maximum duration of one year until recovery and given to companies licensed by Ministry of Environment and Urbanization.

2.5.10. Kitchen Waste

Waste produced during food preparation shall be collected and stored without creating a threat to the health of personnel or damage to the environment. Options about compacting the waste are being evaluated.

The following will be performed in respect of the disposal of kitchen waste:

- Measures to minimize the production of waste will be developed and implemented through the training of personnel.
- Waste containers shall have covers, which will be kept firmly closed.
- Waste shall be collected and disposed of on a certain basis via an approved transporter.
- Waste storage areas shall be cleaned and disinfected in order to prevent attracting flies and insects.

2.5.11. Wastewater

Wastewater will be minimized by efficient use of raw water –water management schemes will be devised for both construction and camp operations. Wastewater will be managed in accordance with the following requirements.

- The wastewater treatment plants at main camps will be used to treat domestic wastewater. The discharge from those plants will be in accordance with the ESIA Table 4.4 20: Project Domestic Wastewater Discharge Standards.
- All wastewater, except for uncontaminated rainwater, will be treated; run-off and pump-out from construction-sites will be filtered via filter bags or straw bales retention ponds lined with geotextile fabric to remove suspended solids (e.g., silt). Pumps and fuel will be in secondary containments at all time. TEKFEN will specify, procure, build, operate, and de-commission of all treatment facilities required to support construction activities. Wastewater will be treated to the standards set out in ESIA Table 4.4 20: Project Domestic Wastewater Discharge Standards or ESIA Table 4.4 22: Non-Domestic Wastewater Discharge standards. For the sediment control measures, please refer to "Erosion Control and Stabilization Plan (TKF-PLN-ENV-PL3-007)".
    - Hydrostatic test will be sampled prior to discharge to verify this; in the unlikely event that the water becomes contaminated, it will be treated and or processed to remove the contamination prior to discharge
    - Other contaminated wastewater such as wash water (car, equipment) will be treated to the standards set out in the ESIA Table 4.4 22: Non-Domestic Wastewater Discharge standards.
    - The wastewater produced in the fly camps will be collected and temporarily stored in tank(s) until it is transported to the wastewater treatment facility; sewage collection tanks will be located far away from the residential units in a fenced area to prevent unauthorised personnel or livestock from entering the area.
    - Licensed and certified mobile sewage tankers will be arranged to collect and transport sewage from portable bathrooms and temporary storage tanks to the nearest approved sewage treatment facility
    - Camp service personnel will record sewage tanker movement and disposal in separate log.
    - Mobile sewage tankers will be signed, Danger SEWAGE in English and Turkish.
    - Environmental inspector will monitor sewage collection tanks and take appropriate actions to prevent overspill (e.g., increase sewage transport frequency or the number of mobile sewage tankers)

Depending on its content, sewage sludge may be considered as non-hazardous or hazardous waste. Sludges that are non-hazardous (i.e. fall within the limits specified in the "Regulation on Control of Solid Waste") may be disposed of in accordance with the requirements of this regulation. Sludges, which exceed these limits, will be classed as hazardous wastes and will be transported to hazardous waste landfill or incineration. Treated (digested) sewage sludge may be used for agricultural purposes if the sludge meets the requirements of the Regulation on Use of Domestic and Urban Treatment Sludges on Soil (dated 03.08.2010 numbered 27661).

TEKFEN will make sure the wastewater treatment plant discharge standards are in compliance with these parameters through routine monitoring of the discharge water quality minimum monthly basis.

The domestic wastewater to be produced during land preparation and construction phase of the project shall be treated at the package waste water treatment facility and after complying with the " Average Discharge Standards to Receiving Environment for Domestic Waste Water" given in "Regulation on Water Pollution Control (RWPC)", it will be discharged to the nearest receiving

environment. In addition to the limit values given in the Regulation on Water Pollution Control (RWPC), the limits indicated in IFC General Environmental, Health and Safety Guidelines and EU Guidelines will be respected. (Ref. "Legal, Political and Institutional Framework" of ESIA Report Chapter 4). Please refer to Annex -1 for wastewater discharge standards.

2.6. WASTE RECYCLING PROGRAMS

In order to comply with the requirements of Turkish legislation and the Waste Management Hierarchy, the following recycling programs will be implemented.

2.6.1. Paper and card recycling

Paper and card wastes from offices and domestic type sources at the main construction camps will be segregated and sent for recycling by third party contractor if practicable (particularly with respect to transportation). Separately collected waste paper and cardboard may be taken to the WAA s and be baled for transfer to recyclers.

2.6.2. Plastics recycling

Plastic wastes will be segregated and for return to suppliers or for recycling by third parties. In order to facilitate this Waste Collection Points (WCP) will have separate containers for storage of different plastic wastes for transfer to the WAA where the wastes may be baled for transfer to recyclers.

2.6.3. Metals recycling

Metal wastes will be segregated for recycling. Separate containers will be provided at WCP s for interim storage of waste pending transfer to the WAAs. Waste may be sent to recyclers from the WAA s.

2.6.4. Oil wastes

Oil wastes may send for recycling to suitably licensed third parties.

2.7. USE OF APPROVED FACILITIES

Wastes may be transferred for utilization, treatment and/or disposal to third parties. Wastes will only be transferred to third parties with appropriately permitted/licensed facilities capable of handling, utilizing, recovering, recycling, treating and/or disposing of the waste in a safe and environmentally sound manner.

Licence and protocols signed with transport companies and disposal facilities will be obtained prior to any disposal and will be kept on site.

Transfer of wastes to third parties must be fully documented on Waste Transfer Forms (Ref: Regulation on Control of Hazardous Waste, Annex 9-A). The required information from the "Waste Manufacturer" on the form will be filled up by Environmental Inspector.

3. TRAINING

All project personnel will receive an overview of project environmental requirements, waste management requirements and soil management, and personnel that routinely work with hazardous

wastes will receive additional specialized training detailing handling, segregation, labeling, storage, cleanup of spills, and disposal requirements.

Project construction supervisors and foremen will receive additional training to emphasize that they are responsible for ensuring waste management practices are employed. They will also be trained on reporting and cleanup requirements as outlined in this document and the oil spill response plan. Records of trained staff will be kept in tracking system or personnel records.

Course Title	Waste Management
Duration	TBD
Key Objective(s)	To make attendees aware of their individual and company responsibilities regarding the management of construction related waste
Issues to be covered	Basic Principles of Waste Management Waste Classification Waste Minimisation, Waste management Hierarchy Waste Collection and Storage Non-hazardous Waste Management Hazardous Waste Management Inert Waste Management Waste Disposal Requirements Waste Recycling
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All employees

4. MONITORING AND REPORTING

TEKFEN will submit Weekly and Monthly reports to the EPCM.

Weekly and Monthly reports will include;

- NCR Register
- Incident Register
- Waste register/Waste disposal register
- Water Quality Register
- Water Abstraction Register
- Surface Water Quality Register
- Hydrotest Water Discharge Register
- Noise Register
- Air Register

given in the Annex 2 as per the formats provided by EPCM.

All non-hazardous waste disposals will be documented in the Waste Register/Waste Disposal Register in Annex 2.

Hazardous waste disposal will be documented using Waste Transfer Forms (Ref: Regulation on Control of Hazardous Waste, Annex 9-A) as provided in Annex 3.

Waste register will be kept to record the movements of all non-hazardous and hazardous wastes in in a waste register in a format approved by EPCM as given in Annex 2.

The official multi-copy three colour consignment note (as enforced by the Regulation on Regulation on Control of Hazardous Waste, Annex 9-A) will be completed to accompany the movement of all hazardous waste transferred to a third party or transferred via a public road will be recorded using a consignment note. The consignment note will:

- State the volume or mass of the consignment, including a maximum limit
- Provide a description of the materials (physical and chemical) and their relative proportions on a volume or mass basis
- Provide details of any precautions to be taken during transport and on delivery (e.g., dust suppression)
- Camp name, date, Environmental Inspector signature releasing the waste.

A numbered and dated copy of the consignment note will accompany each transfer of the type of waste involved and a copy will be kept by:

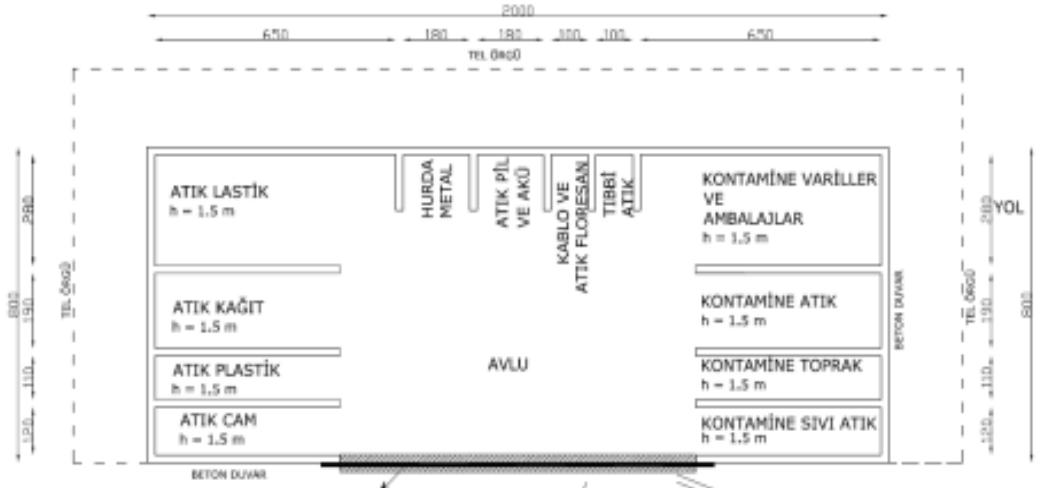
- TEKFEN
- Transport Company
- Disposal facility

Daily records will be kept by TEKFEN, documenting the treatment and disposal of wastes at the WAAs and any other of the TEKFEN's facilities.

4.1. INSPECTION AND AUDITING

The WAAs and any other facilities provided by TEKFEN for waste management will be **weekly** inspected and audited for compliance with this procedure, regulatory requirements and ESIA commitments.

A generic WAA diagram is shown below. This is a nonspecific layout and will differ from location to location according to the physical conditions and amount and type of the wastes generated at that location.



How the domestic and hazardous wastes will be stored are described in Section 2.4.1.2 and 2.4.2.2, respectively.

In addition, facilities provided and/or operated by third parties which are utilized for management of project wastes will also be periodically inspected and audited to ensure these wastes are being/have been managed appropriately.

Inspection and Audit forms will be developed for the purpose. Records of inspections and audits will be maintained and made available for inspection by Turkish regulatory authorities and TANAP.

Waste Monitoring Period:

WASTE ACTIVITY	MONITORING PERIOD	RESPONSIBLE PERSON
Non-hazardous waste	Weekly	Environmental Inspector
Inert waste	Weekly	Environmental Inspector
Hazardous waste	Weekly	Environmental Inspector
Medical/pathogenic waste	Weekly	Nurse/Environmental Inspector

5. RESPONSIBILITIES

Project Manager

- To provide necessary resources for the waste management.

Project HS&ES Manager

- To challenge the need for all chemicals in an effort to eliminate, minimise, or substitute with a less hazardous material in an effort to minimise the quantity of hazardous waste generated.

Environmental Manager

- To ensure that first appropriate permitted/licensed subcontractors are selected for waste disposal

- To be responsible for the proper identification; characterization, containerization, labelling, storage, manifesting, treating and transport of any and all hazardous materials used, and regulated wastes generated.
- To monitor their activities to ensure correct handling, treatment and disposal of waste.
- To be responsible for all required documentation to be on site and available for auditing at any time.

Environmental Advisor

- To ensure that adequate numbers of empty containers are available with crews for the collection of waste materials; waste containers will move with the crew
- To ensure the waste log accurately records the movements of wastes entering and leaving the camp
- To keep log of hazardous waste weekly inspections, deficiencies and corrective actions.

Environmental Inspector

- To conduct visual inspections of all waste containers in the storage area at a minimum weekly to monitor the type and volumes of waste contained in the area and to ensure there are no releases of hazardous wastes to the environment
- To monitor sewage collection tanks and take appropriate actions to prevent overspill

Construction Manager

- To follow-up actions associated with the implementation of this Plan each in his work area.

Supervisors and Foremen

- To ensure that their work areas are clean and tidy and that wastes are collected, segregated, and transported to waste storage locations for reuse or disposal.

Doctor/Nurse

- To provide an accurate record of all medical / pathogenic waste dispatched from the clinic for incineration.

6. RECORDS

- Waste Register
- Waste disposal records (amount, date, disposal authority, disposing party)
- Records of recycled waste (type, amount)
- Site inspection/ audit records
- Consignment notes,
- Licenses of disposal facilities
- Protocols with disposal facilities

.

ANNEX 1- PROJECT DOMESTIC WASTEWATER DISCHARGE STANDARDS

ESIA Table 4.1-1: Project Domestic Wastewater Discharge Standards

Project Domestic Wastewater Discharge Standards				
Parameter	**Unit**	**Concentration (mg/L)**	**Minimum Treatment Efficiency (%)**	**Reference regulatory requirements**
Biochemical Oxygen Demand (BOD5)	mg/L	25	70-90 40	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Chemical Oxygen Demand (COD)	mg/L	125	75	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
Suspended Solids (SS)	mg/L	35 35 (more than 10,000 p.e.) 60 (2,000-10,000 p.e.)	90 90 (more than 10,000 p.e.) 70 (2,000-10,000 p.e.)	Turkish Urban Wastewater Treatment Regulation (08.01.2006 dated and 26047 numbered) Council Directive 91/271/EEC of 21 May 1991 Concerning Urban Wastewater Treatment
pH	-	6-9		IFC General EHS Guidelines
Total Nitrogen	mg/L	10		IFC General EHS Guidelines
Total Phosphorus	mg/L	2		IFC General EHS Guidelines
Oil and Grease	mg/L	10		IFC General EHS Guidelines
Total Coliform Bacteria	MPN**/100mL	400*		IFC General EHS Guidelines

* Not applicable to centralized, municipal wastewater treatment systems which are included in EHS Guidelines for Water and Sanitation.

** MPN = Most Probable Number

The provisions set in Turkish Urban Wastewater Treatment Regulation, of which the discharge quality standards will be valid by 31.12.2014, are exactly the same with the provisions set in EU Directive 91/271/EEC on Urban Wastewater Treatment. The EU Directive 91/271/EEC sets the general rule of; secondary treatment in all areas, and tertiary treatment with enhanced removal of nutrient is required for sensitive areas.

ANNEX 2 – REGISTER TEMPLATES

NCR REGISTER - LOT 3
Reporting Period:

Total of NCR	
To date	**This reporting Period**

Total of NCR to date	
Open	**Closed**

Date	Doc Control Registration Number	Summary	Date Part A completed and form submitted to assignee	Date Part B Completed	Date Part C completed	Date Part D completed	NCR closed out (green/red)	Comments

WASTE REGISTER
WASTE DISPOSAL REGISTER

Reporting Period:

HAZARDOUS WASTE DISPOSAL - (in Kg)	Waste Reused by Contractor		Waste Recycled at Licenced facility		Waste Disposed of at Licenced Landfill		Waste Temporarly stored in Camp		Total Waste Generated (kg)	
Type of waste:	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date	Current Month	Total to Date
Aerosol Cans										
Air Filters										
Batteries (Dry)										
Batteries (Wet)										
Chemical Waste										
Coating Waste										
Contaminated soil										
Fluorescent tubes										
Fuel filters										
Glue cans										
Glycols										

Grease (tubes/cans)										
medical waste										
Oil contaminated waste										
Oil filters										
Paint wastes										
Pesticides										
Solvents										
Used catridges & toners										
X-ray papers										
Other: _____										
Total (kg)										

NON-HAZARDOUS WASTE DISPOSAL - (in Kg)	**Waste Reused by Contractor**		**Waste Recycled at Licenced facility**		**Waste Disposed of at Licenced Landfill**		**Waste Temporarly stored in Camp**		**Total Waste Generated (kg)**	
Type of waste:	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**	**Current Month**	**Total to Date**
Aluminium cans										
Bricks and building material										
Cardboard and paper										

Cement bags										
Cement dust/waste										
Cooking oil										
Electrical cables										
End caps										
Foam										
Food waste										
Glass										
Grinding disks										
Grit from blasting										
Lifting straps/belts										
Metal shavings										
Domestic waste										
Plastic bottles										
Plastic packaging										
Styrofoam										
PPE & clothing										
PVC										

Rubber waste										
Scrap metal										
Tyres										
Used geotextile										
Water filters										
Wood										
Other: _____										
Total (kg)										

Waste Disposal							
Date of waste removal	**Haz material: Y/N**	**Non-haz material: Y/N**	**Type of waste**	**Amount of waste**	**Disposal company**	**Location of disposal**	**Document on file: Y/N**

HYDROTEST WATER DISCHARGE REGISTER

Location	Date Sample Taken	Sampled by	Parameters								
			Total Hydrocarbon Content	pH	BOD	COD	Total Supspended Solids	Total Phenols	Sulfides	Heavy Metals (total)	Chlorides
			Limits								
			10 mg/l	6-9	25 mg/l	125mg/l	35 mg/l	0,5 mg/l	1 mg/l	5 mg/l	600 mg/l (average) 1.200 mg/l(Max)

ANNEX 3 – NATIONAL WASTE TRANSFER FORMS

FORM-9 A **T.C.**

A **ÇEVRE ve ORMAN BAKANLIĞI**

ULUSAL ATIK TAŞIMA FORMU

Form Seri Numarası

(A) Kopyası Bertarafçıda kalır.Bertarafçı Formun A kopyasının bir suretini Bakanlığa göndermekle yükümlüdür.

Form Ulusal Atık Taşıma Kılavuzundaki bilgilere uygun olarak doldurulacaktır.

1) ÜRETİCİ

1) Firmanın Unvanı:	12) Atık Kodu[1]
2) Firmanın sahip veya sahiplerinin adı, soyadı:	13) Atık Adı[2]
	14) 20 ^{0}C 'de fiziksel özellikleri[4]
Firmanın Adresi:	
3) İlin Adı ve Kodu:	15) Renk[5]
5) Mahalle/Semt	
	16) Ağırlık[6]
6) Cadde/Sk:	ton kg
	17) Ambalaj ve Konteynır Türü[7]
7) Kapı No:	
8) İşyerinin Vergi Numarası:	18) Ambalaj ve konteynır sayısı[8]
9) Telefon Numarası	19) Atık Çıkış Tarihi:
10) Fax Numarası:	20) Sorumlu Kişinin Adı ve Soyadı
11) H Numarası[3]	21) Sorumlu kişinin imzası

2) TAŞIYICI

1) Firmanın Unvanı:	.
2) Firmanın sahip veya sahiplerinin adı, soyadı:	11) Lisans No
	12) Taşıt Plaka No:
Firmanın Adresi:	
3) İlin Adı ve Kodu:	13) Taşıma Şekli[9]
4) İlçenin Adı:.	
5) Mahalle/Semt	14) Teslim Tarihi
6) Cadde/Sk:	
7) Kapı No	15) Sorumlu Kişinin Adı ve Soyadı
8) İşyerinin Vergi Numarası:	
9) Telefon Numarası	16) Sorumlu Kişinin İmzası
10) Fax Numarası:	

3).ALICI

1) Firmanın Unvanı:	
2) Firmanın sahip veya sahiplerinin adı, soyadı:	11)Lisans No
	12) Atığın Ağırlığı
Firmanın Adresi:	ton kg
3) İlin Adı ve Kodu:	13) Atık Bertaraf Yöntemi/Geri Kazanım Yöntemi
4) İlçenin Adı:	
5) Mahalle/Semt:	14) Lisanslı Ara Depolama tesisinden Atık Transferi (Kutuya X işareti koyunuz)
6) Cadde/Sk:	a) Arıtılmadan bertaraf/ geri kazanım tesisine gönderilen atıklar
7) Kapı No:	b) Arıtılarak bertaraf/ geri kazanım tesisine gönderilen atıklar (başka atık üreterek)
8) İşyerinin Vergi Numarası:	c) Arıtılarak bertaraf/ geri kazanım tesisine gönderilen atıklar (başka atık üretmeden)

	d) Diğer (belirtiniz)
9) Telefon Numarası	**14. soru işaretlendiğinde (a, b, c, d) işlemleri için Ara depolama tesisi tarafından yeni bir EK-9-A formu düzenlenmesi zorunludur.**
	15) Atık Kabul Tarihi
10) Fax Numarası	
	16)Sorumlu Kişinin Adı , Soyadı ve İmzası:

FORM-9A **T.C.**

B **ÇEVRE ve ORMAN BAKANLIĞI**

ULUSAL ATIK TAŞIMA FORMU

Form Seri Numarası

(B) kopyası Bertarafçı tarafından üreticiye gönderilir. Atık Üreticisi tarafından muhafaza edilecektir.

Form Ulusal Atık Taşıma Kılavuzundaki bilgilere uygun olarak doldurulacaktır.

1) ÜRETİCİ

1) Firmanın Unvanı:	12) Atık Kodu[1]
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	14) 20 ^{0}C 'de fiziksel özellikleri[4]
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3) İlin Adı ve Kodu:	15) Renk[5]
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8) İşyerinin Vergi Numarası:	18) Ambalaj ve konteynır sayısı[8]
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10) Fax Numarası:	20) Sorumlu Kişinin Adı ve Soyadı
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	12) Taşıt Plaka No:
Firmanın Adresi:	
3) İlin Adı ve Kodu:	13) Taşıma Şekli[9]
4) İlçenin Adı:.	
5) Mahalle/Semt	14) Teslim Tarihi
6) Cadde/Sk:	
7) Kapı No	15) Sorumlu Kişinin Adı ve Soyadı
8) İşyerinin Vergi Numarası:	
9) Telefon Numarası	16) Sorumlu Kişinin İmzası
10) Fax Numarası:	

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7) Kapı No:	b) Arıtılarak bertaraf/ geri kazanım tesisine gönderilen atıklar (başka atık üreterek)
8) İşyerinin Vergi Numarası:	c) Arıtılarak bertaraf/ geri kazanım tesisine gönderilen atıklar (başka atık üretmeden)
	d) Diğer (belirtiniz)
9) Telefon Numarası	**14. soru işaretlendiğinde (a, b, c, d) işlemleri için Ara depolama tesisi tarafından yeni bir EK-9-A formu düzenlenmesi zorunludur.**
	15) Atık Kabul Tarihi
10) Fax Numarası	

16)Sorumlu Kişinin Adı , Soyadı ve İmzası:	

FORM -9A **T.C.**

C **ÇEVRE ve ORMAN BAKANLIĞI**

ULUSAL ATIK TAŞIMA FORMU

Form Seri Numarası

(C) kopyası Taşıyıcı tarafından muhafaza edilir. Bir nüshası Taşıyıcı tarafından Üreticiye gönderilecektir.

Form Ulusal Atık Taşıma Kılavuzundaki bilgilere uygun olarak doldurulacaktır.

1) ÜRETİCİ

1) Firmanın Unvanı:	12) Atık Kodu[1]
2) Firmanın sahip veya sahiplerinin adı, soyadı:	13) Atık Adı[2]
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	d) Diğer (belirtiniz)
9) Telefon Numarası	**14. soru işaretlendiğinde (a, b, c, d) işlemleri için Ara depolama tesisi tarafından yeni bir EK-9-A formu düzenlenmesi zorunludur.**
	15) Atık Kabul Tarihi
10) Fax Numarası	

16)Sorumlu Kişinin Adı , Soyadı ve İmzası:	

ENVIRONMENTAL ACTION PLAN
ANNEX 4 ENVIRONMENTAL MANAGEMENT GUIDELINES FOR CONTRACTORS

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P3-A	DIC	24.11.2014	Discipline Internal Check
P3-B	IDC	24.12.2014	Interdisciplinary Check
P3-0	IFA	15.01.2015	Issued for Approval
P3-1	Re-IAA	25.11.2015	Re-Issued As Approved
P3-2	Re-IAA	20.07.2016	Re-Issued As Approved

HOLDS

No.	Section	Description	Input From	Planned Date

CONTENTS

LIST OF TABLES

1 CONSTRUCTION IMPACTS MANAGEMENT PLAN

1.1 Abbreviations

AoI	Area of Influence
AGI	Above Ground Installation
CR	Critically Endangered
CST	Compressor Station
DD	Data Deficient
E&S	Environment and Social
EIA	Environmental Impact Assessment
EN	Endangered
EPC	Engineering Procurement Construction
EPCM	Engineering Procurement Construction Management
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
HR	Human Resources
HSSE	Health, Safety, Security and Environment
IFC	International Finance Cooperation
IUCN	International Union for Conservation of Nature
KPI	Key Performance Indicator
LC	Least Concern
LSA	Local Study Area
NE	Not Evaluated
NT	Near Threatened
PS	Performance Standards
R	Rare

RBBT	Red Data Book of Turkish Plants
RoW	Right of Way
SCC	Species of Conservation Concern
TANAP	Key Performance Indicator
US-EPA	US-Environment Protection Agency
USLE	Universal Soil Loss Equation
VU	Vulnerable
W	Endemic Species

1.2 Purpose and Scope

The management of impacts on environment and social components during construction will include the following two groups of mitigation measures defined in relation to the potential impacts of the project during land preparation and construction phase of the project.

The mitigation measures can be grouped in:

- Standard mitigation measures that are applicable throughout the project Area of Influence (AoI);
- Specific mitigation measures to be applied at specific locations or a specific component of the environment and affected community in the project AoI.

This management plan includes both types of mitigation measures to eliminate if possible or minimise the residual impacts of the project to acceptable levels if elimination of the impact is not possible.

Project developed other management plans for the management of specific project activities and associated environmental and social impacts. This management plan refers to these management plans for further details when required.

TANAP describes the requirements for the management of environmental and social impact with this management plan serving as the guideline and the framework for the contractors to develop their management plans specific to their project activities.

TANAP may change the content of this management plan through the project change management procedure in case of

Changes in the regulatory requirements;

Requirements and conditions imposed by relevant authorities during the approval on the ESIA;

Availability of new information on the baseline conditions of the project area;

Induced changes in the project system as a result of detailed engineering findings.

1.3 Roles and Responsibilities

As detailed in Chapter 11 of the ESIA Report, Contractors are expected to comply with National Laws and shall also conform to international standards and practices generally prevailing in the Natural Gas pipeline industry, including relevant

Performance Standards of the International Finance Corporation (IFC 2012 PS). Such requirements are detailed in Chapter 4 and Appendix 4 of the ESIA report and Contractors are required to ensure that their activities comply with all relevant Turkish legislation and international requirements listed in Annex 1 of Environmental Monitoring Plan and Appendix 4 (Legislation Register) of the ESIA.

According to TANAP's Health, Safety, Social and Environmental (HSSE) policies, Contractors shall act in line with TANAP policies and standards. Contractors will be evaluated and selected in part in consideration of their HSSE performance and their ability to conform to TANAP HSSE policy. Their HSSE obligations and responsibilities are clearly defined in the contracts and TANAP will lead contractors and suppliers in achieving the HSSE principles and meet the performance objectives of TANAP.

The Contractors (including their contractors and sub-contractors) will be responsible for implementation of, and adherence to, all relevant mitigation measures and requirements outlined in TANAP's ESIA and Environmental and Social Management Plans (ESMPs). The Contractors will be required to demonstrate to the satisfaction of TANAP that the relevant mitigation measures identified in the ESIA and ESMPs are being properly considered, implemented and monitored during execution of the works.

The Contractors will establish their own Environmental and Social Management System (ESMS) in compliance with the requirements of ISO 14001:2004 Environmental Management System and shall ensure that ESIA and ESMP requirements are addressed and met.

The ESMS will comprise ESMPs and Procedures which will be submitted to TANAP for review and approval and will:

- Include the "Outline of the Applicable ESIA Requirements and Commitments" and get approval from TANAP;
- Describe how applicable ESIA requirements, commitments and contractual requirements will be met;
- Describe the procedures according to which the project changes (e.g. design changes, additional land areas) will be managed in terms of environmental and social aspects;
- Describe how Contractor will ensure the commitments and contractual/legal requirements are complied with in line with project standards (monitoring, auditing and inspection programme);
- Describe the procedures to ensure that the project related concerns and grievances will be managed in terms of TANAP Stakeholder Engagement Plan;

- Provide a set of E&S Key Performance Indicators (KPIs) to cover at least (but not be limited to) the following areas based on the outline of the applicable commitments and contractual requirements:
    1. Compliance with the ESMS;
    2. E&S Incidents;
    3. Environmental Emissions;
    4. Waste Management;
    5. Water and Wastewater Management;
    6. Local Employment;
    7. Local Procurement;
    8. Project Related Complaints;
    9. Reinstatement.
- Describe how Contractor will record and report their compliance;
- Describe how appropriately experienced and qualified personnel will be employed in the role of Contractor's E&S representative(s) and on-site inspectors subject to the approval of TANAP;
- Describe the responsibilities of the dedicated E&S team clearly.
- Describe workforce training to ensure that all personnel are aware of their E&S responsibilities with reference to Contractor E&S Management Plan(s);
- Describe how the performance of all contractors and subcontractors with respect to the E&S requirements will be met;
- Describe E&S records including based on the outline of the applicable commitments and contractual requirements. These records include but are not limited to (Refer to Chapter 11.3 for Monitoring) :
    1. E&S Incident Register;
    2. E&S Non-compliance Register;
    3. E&S Action Tracker;
    4. E&S Training Records;
    5. Air and water monitoring records;
    6. Waste register (refer to ESIA Chapter 11, Waste Management Plan and Commitments Register App 4.)

7. Greenhouse gas emissions register tables;
8. E&S monthly reports (template will be provided by TANAP);
9. Project complaints register and complaint close out forms signed by complainants;
10. Project consultation/community meetings and stakeholder interactions register
11. Land entry and exit protocols signed by landowners/users
12. Compensation payments register and relevant documentation
13. Employment records (refer to ESIA Chapter 11 and relevant sections of 8.3 and 8.6 Employment and Training Management Plan);
14. Local procurement statistics (Refer to ESIA Chapter 11 and relevant sections of 8.3 and 8.6 and Employment and Training Management Plan for details)

Contractor will be required to ensure that:

- Reports on E&S incidents are provided to TANAP immediately;
- A programme of regular environmental and social self-inspection and audits is developed and implemented and the results are reported to TANAP on a monthly basis as part of E&S monthly reports;
- An Action Tracking System is implemented to provide a mechanism to record and track E&S related actions derived from incidents, non-compliances, complaints, E&S meetings, sub-contractor activities, etc.

The following sections and the Management Plans set out relevant details from the ESIA (refer to ESIA relevant section) and ESMPs which the Contractor shall comply with and address through their ESMS. This Statement of E&S Requirements provides Contractor with a concise overview of requirements, however ***Contractor is responsible for ensuring that all relevant principles and mitigation measures set out in ESIA (refer to ESIA relevant section)*** are met while undertaking the project activities and the ESIA should be referred to in this regard.

1.4 Organizational and Capacity Requirements

Construction contractors and sub-contractors shall have the primary responsibility to fulfil all project requirements with adequate and qualified personnel working under an appropriate organizational structure and further to ensure that their sub-contractors also comply with the project requirements. Adequate and qualified

personnel will be employed by the Contractor to allow the proper management of environment, community relations and natural resources within the scope of its operations. Within this context, the organizational structure shall include units which manage environmental and social matters, and promote the implementation of its operations to support the project in harmony with its scope and national and international standards.

In order to provide smooth application of E&S requirements on site, Contractor will be responsible for ensuring that all of its personnel (including contractor and sub-contractor personnel) are aware of their E&S responsibilities. To this aim, the Contractor will develop and implement an E&S training programme to ensure that all site personnel fully understand all the aspects of E&S requirements of the project particularly in terms of potential impacts of activities, mitigation measures, sensitivities in study area, plans/procedures other project documents to be followed, action required in case of unforeseen incidents and roles and responsibilities of Contractor staff and TANAP representatives with respect to E&S issues.

The E&S training programme should be submitted to TANAP for review and approval within periods defined in related tender documents. Records of the trainings will be kept by the Contractor and will be submitted to TANAP when required for auditing purposes.

The Contractor will ensure that all Contractor personnel participate in all training programme including regular site-specific training sessions on E&S issues throughout the course of their contract.

The contractors will ensure that the following competencies are included in their teams as relevant to their scope of work:

1. Cultural heritage
2. Ecological
3. Biological
4. Soil/reinstatement
5. Social/Community Relations
6. E&S Trainers
7. Environmental Inspectors

1.5 Requirements

1.5.1 Pre-construction Surveys and Further Studies

To ensure the effective application of the mitigation measures defined by this and other management plans developed by the project and to be developed by the contractors, the studies as described in Appendix 3 of TANAP "Environmental Action Plan" (TNP-PLN-ENV-GEN-002) should be conducted to complement the ESIA.

1.6 Mitigation measures

The mitigation measures are defined in relation to the standard engineering and specific measures and the findings of the ESIA studies and summarized below. Commitment Register Annex 2 of Environmental Monitoring Plan shall be referred to, for full details of the mitigation measures, monitoring requirements and responsibilities.

1.6.1 Management of Impacts on Soil and Landscape

The findings of the assessment of impacts on soil (Ref.Chapter 8.1.2 of ESIA Report) for the construction phase above presented can be summarized as follow:

- the high impacts on Soil agricultural potential and on are mainly related to the removal of natural vegetation related to the works for the pipeline laying and the construction of the AGIs. The project has developed Erosion, Reinstatement and Landscaping Plan to mitigate these impacts (Ref. Section 5)
- the high impacts on Soil erosion potential are mainly related to the removal of natural vegetation related to the works for the pipeline laying and/or the construction of the AGIs. The project has developed Erosion, Reinstatement and Landscaping Plan to mitigate these impacts (Ref. Section 5)
- the high impacts on Soil contamination during the construction phase, are mainly related to the interaction between the works needed for the pipeline laying and the crossings of infrastructures (e.g. roads), or the interaction between the activities for the construction of the pipeline and other project components (e.g. block valve/pigging/metering stations or camp sites). Project has developed Pollution Prevent Plan that will include the mitigation measures for the construction phase will address the prevention of soil contamination.(Ref. Section 6)

The following management plans include mitigation measures for the management of the impacts on soil:

- Pollution Prevention Plan
- Erosion, Reinstatement and Landscaping Plan
- Waste Management Plan

The following table summarizes the mitigation actions for the management of the impacts on soil during land preparation and construction phase.

Potential Impacts	Loss of soil structure, quality, and capability
	Slope instability
	Soil erosion
	Changes in soil chemistry
	Changes to local natural drainage patterns
	Loss of unique soil and terrain units or that potentially support rare plants or plants of ethno-botanical importance
	Soil contamination due to spills
	Soil contamination due to the generation and / or mishandling of waste
	Indirect sedimentation into surface water bodies and watercourses due to erosion
	Changes in local flora due to changes in soil capability
Performance Objectives	Maintain soil structure, quality and capability
	Maintain slope stability
	Prevent soil erosion
	Maintain natural drainage patterns
	Preserve unique soil and terrain units or units that potentially support rare plants or plants of ethno-botanical importance
	Prevent soil contamination by spills
	Prevent soil contamination due to generation and / or mishandling of waste. (Contractors are expected to prepare Waste Management Plan in line with the TANAP Waste Management Plan presented with the project ESIA.)

	Preserve the local flora
Standard Mitigation Measures	Disturb soils only within the designated right of way (ROW) working strip and additional work areas, and new access roads
	Minimize the development of new access roads
	Reduce construction work areas where practical for site conditions, particularly in areas which are unique or which support rare habitats/species.
	Strip and salvage topsoil during construction in accordance with typical drawings
	Minimise double handling of top soil
	Incorporate organic material into topsoil which is deficient of organic matter at the time of stripping, clearing and stockpiling to limit wind erosion and compaction and to improve water-holding capacity
	Prevent vehicle travel on the pipeline ROW as much as practical during reclamation and operation to allow vegetation to establish
	See Project Pollution Prevent Management Plan and Emergency Response Plan in ESIA for methods to prevent soil contamination by spills
	See Waste Management Plan of ESIA for methods to prevent soil contamination by waste production. Wastes to be handled as a minimum to Turkish legislation project standards
	Plan construction to limit the time required from topsoil stripping until reinstatement
	Use measures to prevent mixing of topsoil with subsoil (including use of geotextile where required e.g. at restricted spaces)
	A Reinstatement and Erosion Control Management Plan will include the details of the mitigation measures against impacts on soils with agricultural potential
	Apply temporary erosion control methods (e.g. slope breakers) and establish proper drainage channels.
	Conduct grading, contouring and the maintenance of slope lengths and slope gradient to reduce water and wind erosion during construction
	Regulate surface water drainage to prevent erosion and sedimentation during construction by using and maintaining erosion and sediment control structures
	Monitor any trench dewatering efforts to ensure that soil erosion is not occurring at the pump outlet. Mitigate by installing energy dissipation works at pump outlet.

	Maintain surface water drainage patterns using appropriately designed, installed and maintained drainage structures (e.g., culverts, ditches)
	Minimize soil handling activities during high wind conditions to limit soil loss from wind erosion. If soil handling must occur during high wind conditions limit the time between stripping and replacement and consider slightly compacted stockpiles to prevent wind erosion
	Recontour the trench and graded areas to match natural contours, and replace topsoil evenly over disturbed areas
	In areas where subsoil has been excessively compacted, de-compact the soil mechanically (e.g., “rip” the subsoil) prior to recontouring
	Apply bio-restoration procedures to establish the original vegetative cover
	Revegetate disturbed areas and/or use and maintain surface treatments (e.g., erosion and sediment control structures) to limit water and wind erosion of soil
	Re-use of excess soil and materials along the ROW/minimize material/aggregate resourcing from quarries/borrow pits (e.g. by using padding machines)
	Apply special soil handling procedures under frozen conditions
	Once the construction works are completed the stripped topsoil should be spread back homogeneous over the area and revegetated. For the draining of the groundwater and surface water closed and open drainage systems will be applied at the areas with drainage problems in order to prevent and/or minimize the risk of erosion. After then, erosion control measures such as the examples given below will be taken; •Diversion Channels, •Slope Breakers, •Jute Matting, •Hydro-seeding, •Gabion wall applications, •Podium terrace applications
	A Reinstatement and Erosion Control Management Plan will include the details of the mitigation measures against impacts on soils with erosion potential
	Fuels, greases and chemicals will be stored in tightly sealed containers that are clearly labelled;

	There will containment bunds or spill trays for the storage of the hazardous material
	All the fuel, grease and chemical storages will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir
	All vehicles, equipment and installations will be checked for any fuel and grease leakage before use and will be regularly monitored for leaks
	Maintenance procedures in line with available manufacturing requirements will be in place for all machinery and equipment
	Maintenance activities (including fuelling and re-fuelling) will be at designated areas selected to be away from environmentally sensitive areas (i.e. water courses, high groundwater table and such)
	Adequate amount of appropriate absorbents be in place in “designated maintenance area” in order to handle with minor leakages
	Vehicles will be never left unattended in case of a jammed valve during maintenance or fuelling activities
	Taps and valves will be checked regularly for signs of wearing; and be securely closed and locked when they are not in use
	All the equipment and storage areas will be secured properly with safety fences; and gateways will be locked in order to prevent pollution which may arise from violent acts and theft
	Site personnel will be trained related to dissemination response and use of dissemination response equipment and also carry absorbents in their vehicles
	The good housekeeping at camps, construction areas and at locations where construction related activities take place will be in in place
	A Pollution Prevention Plan will be produced including the mitigation measures against soil pollution.
Specific Mitigation Measures	Performing full soil characterisation study at the locations given above in Appendix 2 of Environmental Action Plan. Implement the requirements of the bio-restoration typicals (i.e. BCH-DID-PPL-PLG-092 Typical River Crossing Reinstatement - Type I Bio-Restoration BCH-DID-PPL-PLG-093Typical River Crossing Reinstatement - Type II Riprap)
Performance Indicators	Construction monitoring reports indicate appropriate soil handling was conducted
	Records of excessive slope instability or soil erosion

	Records of flooding or altered drainage patterns by the ROW or access roads
	Records of soil contamination remaining after construction
	Amount of removed or replaced soil
	Record of deviations from the delineated ROW and additional work areas
Further Planning and Monitoring	Delineate unique or sensitive areas that require specific soil handling or mitigation prior to construction
	Monitor specific soil handling and mitigation during construction in unique or sensitive areas
	Regularly inspect the stability of slopes and any soil and terrain units that are considered to be unique
	Inspect and maintain erosion and sediment control structures during and after construction; remove structures that are no longer required
	Implement a post-construction monitoring programme to assess soil structure and quality that can affect its capability for revegetation by locally native species
	Assess the revegetation and stability of slopes and any soil and terrain units that are considered to be unique
	Implement further mitigation and corrective actions as required

Table 1 Summary of Management of Impacts on Soil and Erosion Capability during Construction

1.6.2 Management of Impacts on Water Courses

The selected crossing method for the individual water crossing should be verified to be functional to reduce the temporary detrimental effects on the watercourses like reduction of the water quality (e.g. due to the sediment suspension) and negative ecological consequences (e.g. due to removal of riparian vegetation, decrease/changes of stream flow, alteration of natural morphology).

The project produced typical drawings for the water course crossings. These drawings will be adhered to during the construction phase.

The goal should be reducing/avoiding the activities into the streambed and on the river banks (e.g. by means a trenchless river crossing method, where technically feasible).

A hydrotesting plan will be prepared by the EPCM Contractor. With regard to the water demand for the hydrotesting the possibility of water re-use should be evaluated the possibility. (Ref. 1.3.1)

The following management plans include mitigation measures for the management of the impacts on watercourses:

- Pollution Prevention Plan
- Waste Management Plan

The following table summarizes the mitigation actions for the management of the impacts on water courses during land preparation and construction phase.

Potential impacts	Changes in turbidity
	Changes in sediment loading
	Introduction of contaminants through mobilization of sediments
	Introduction of contaminants due to stormwater runoff
	Introduction of contaminants due to direct discharge
	Introduction of contaminants due to fuel/oil leaks from equipment
	Introduction of contaminants due to spills while refuelling/oiling equipment
	Altered hydrological regime
	Increased bank erosion
	Increased water consumption
	Changes in flow amount
	Loss or destruction of aquatic habitat during crossing construction
	Disruption of important biological processes (e.g., spawning)
	Direct disturbances to aquatic species, particularly to special status species, due to operations
	Increase fish egg mortality due to smothering (sediment loading)
	Decreased productivity (e.g., aquatic macro invertebrates) due to sediment loading and substrate infilling
	Construction of facilities and roads associated with the pipeline

	Increased fishing pressure due to increased access and workforce
Performance Objectives	Minimization of erosion and sediment loading – sediment and erosion control
	Minimization of uncontrolled runoff – sediment and erosion control
	Prevent water contamination using best practices
	Minimization of disturbance to watercourse bed and banks
	Restoration of aquatic and riparian habitat at watercourse crossing locations
	Minimization of site disturbance by using existing disturbed/cleared sites
	Minimization of water use for project related activities
	Minimization of water crossings
	Minimization of area disturbances
	Minimization of access opportunities for anglers per local community consultation
Standard Mitigation Measures	Discharge of wastewater to surface water resources after treatment in compliance with the applicable regulatory requirements (Ref. Annex 1 and Annex 2 of Environmental Monitoring Plan, Chapter 8.1.9 andChapter 11 of ESIA Report)
	Avoid vehicle crossings across the watercourse to the extent practicable
	Limit construction activities to periods of low flow to the extent practicable, when sediments are minimal
	Design and install buried pipeline and road crossings in accordance with applicable best practices
	Use either trenchless or isolation methods as required by ESIA and engineering specifications
	Ensure all equipment working in or near watercourses is clean and free of fluid leaks
	Use appropriate sediment and erosion control techniques (e.g., silt fences) during construction
	Restore and stabilize channel banks immediately after backfilling to prevent bank erosion
	Use clean, native materials during bed and bank restoration works

	Use only existing roads, designated access roads and previously disturbed/cleared sites for Project facilities
	Use common corridors for both pipelines and roads in order to minimize area disturbances
	Monitor watercourse turbidity during construction and take corrective actions where required
	Prevent turbid water from re-entering the watercourse using natural or mechanized filtration processes
	Plan hydrostatic testing so that the opportunities for water re-use are maximized
	Separate domestic wastewater from hazardous, oily water discharges
	Avoid construction of facilities in a manner that avoids natural channel features
	Minimize gravel entering streams during road maintenances
	Install and maintain appropriate erosion control measures such as silt fences around all riparian disturbance areas and watercourse crossings
	Implement a re-growth of riparian vegetation programme
	Record all volumes of water withdrawal from natural resources for project related activities for demonstration of no exceedance of the allowance
	Obtain applicable water abstraction permits
	Install temporary vehicle crossings/bridges
	Restrict fuelling/refilling, chemical handling activities in close vicinity of the watercourses
	Plan construction to consider seasonal sensitivities
	Strictly prohibit fishing by project personnel at watercourses
	Implement special construction mitigations to protect sensitive species
	Apply Waste Management Plan and Pollution Prevention Plan

	Measures to minimise scour and reduce sediment load will be implemented at locations where hydrotest water is discharged to watercourses and discharge velocities have the potential to create erosion (e.g. controlled rate of discharge and use of energy dissipaters, displacement of geotextile mats or other physical erosion prevention measures). However, at locations where hydrotest water discharge causes erosion, eroded areas will be reinstated
	With regard to the water demand for the hydrotesting it should be evaluated the possibility of water re-use where practicable
	Water conservation initiatives will also be undertaken with the aim to limit the water consumption during the construction activities, like the water use for mitigation of dust suspension (e.g. by means of specific staff training to a rational use of water, commensurate with the actual needs)
	The construction traffic will cross watercourses possibly via a culvert, which will be sized so as not to restrict the flow in the watercourse and allow fish and other aquatic organisms to pass through
	Construction of the surface water crossings will seek to ensure minimal impacts from interrupting river flow by identifying downstream users and determining their river water supply needs and by using measures such as channel diversions to ensure minimal interruption to flow.
	Visual monitoring of turbidity will be undertaken at river crossings while works are being undertaken at that river
	Implement measures against sedimentation
Specific Mitigation Measures	Consider trenchless design for Posof River, Bas River, Karasu River, Yenice River, Koca Cayı -Manyas (fish species *Cobitis puncticulata* which is a species critical endangered according to IUCN living only here in the world) Implement the special crossing techniques as given in typical drawings for water crossing (Typical Drawings i.e. BCH-DXG-PPL-PLG-001, BCH-DXG-PPL-PLG-012, BCH-DXG-PPL-PLG-014, BCH-DXG-PPL-PLG-015, BCH-DXG-PPL-PLG-019, BCH-DXG-PPL-PLG-020, BCH-DXG-PPL-PLG-'005, BCH-DXG-PPL-PLG-'001, BCH-DXG-PPL-PLG-'002, 'BCH-DXG-PPL-PLG-004, BCH-DID-PPL-PLG-092, BCH-DID-PPL-PLG-093,
Performance Indicators	Results of monitoring programme for changes to water quality or quantity
	Results of monitoring programme for fisheries and aquatic resources loss
	Recorded sediment loading due to project related activities

	Amount of water consumption records during hydrostatic testing
	Results of education programmes in increasing awareness and minimizing negative effects
	Records of public access and use of watercourse crossing locations
Monitoring and further Work	Implement monitoring programmes to assess the water quality (including sediment quality, turbidity, benthos, and fish)
	Conduct regular inspection of watercourse bed and banks to assess, and if needed, correct, restoration efforts

Table 2 Summary of Management of Impacts on Water Courses during Construction

1.6.3 Management of Impacts on Groundwater

As the excavation operation could modify groundwater flow patterns, an understanding of hydrogeology settings and groundwater flows in the aquifer with shallow groundwater to be crossed should be addressed. In alleviating drainage problems, proper considerations should be taken of the placement of drainage systems and where the cuts and fills have the least detrimental effects.

With regard to the groundwater resources useful for the potable water supply, an accurate hydrogeological study for the assessment of the most effective means for meeting the water demand, in terms of potential yield of the aquifer and the deployable output of the source as constrained by, e.g.: water quality, water treatment system capacity will be necessary.

The following management plans include mitigation measures for the management of the impacts on groundwater:

- Pollution Prevention Plan
- Waste Management Plan

The following table summarizes the mitigation actions for the management of the impacts on groundwater during land preparation and construction phase.

Potential impacts	Loss of groundwater quantity due to groundwater withdrawal
	Groundwater contamination due to spills or releases
	Groundwater contamination due to the generation and /or mishandling of waste

Performance Objectives	Minimize the withdrawal of groundwater
	Prevent groundwater contamination by spills or leakages
	Prevent groundwater contamination by the generation and / or mishandling of waste
	Prevent groundwater contamination by the utilization of sub-standard well drilling practices
Standard Mitigation Measures	Water conservation initiatives will be undertaken with the aim to limit the potable water consumption (e.g. by means of specific staff training to a rational use of water resource).
	Water quality and sustainability will be monitored periodically to confirm that the supply meets the needs of the project and does not impact adversely on other known users.
	Develop Spill Response Procedures for strategies to prevent spills or releases
	Develop Waste Management Plan for strategies to prevent the generation and / or mishandling of waste
	Use best practices for well drilling, well completion, and well abandonment
	Plan hydrostatic testing so that the opportunities for water re-use are maximized: First priority is to use surface water for hydrotesting, if this is not possible groundwater resources can be used with permission and ensuring no impact on public use and environmental sensitivities
	Obtain all required permits to use groundwater resources
	Maintain natural drainage patterns during construction
	Record all project related groundwater withdrawal
	Implement well drilling best practice training programme for all project well drillers
Specific Mitigation Measures	With regard to the areas in which high impacts have been individuated, as the excavation and excavation could modify groundwater flow patterns, an understanding of hydrogeology settings and groundwater flows in the aquifer with shallow groundwater to be crossed should be addressed. In alleviating drainage problems, proper considerations should be taken of the placement of drainage systems and where the cuts and fills have the least detrimental effects.

	With regard to the groundwater resources useful for the potable water supply, an accurate hydrogeological study should be carried out for the assessment of the most effective means for meeting the water demand, in terms of potential yield of the aquifer and the deployable output of the source as constrained by, e.g.: water quality, water treatment system capacity, limitations of pumping plan. The hydrogeological study will address the choices to undertake for a sustainable water use to avoiding over exploitation with detrimental consequences by the removal of water from long term storage in the aquifer or decrease in natural discharge from the aquifer (e.g. depletion/cut off of the discharge from springs, and taking into account the potential interference with any existing groundwater supply wells, e.g. for irrigation or potable use
Management Actions & Strategies	Develop Spill Response Procedures for strategies to prevent spills or releases
	Develop Waste Management Plan for strategies to prevent the generation and / or mishandling of waste
	Use best practices for well drilling, well completion, and well abandonment
	Plan hydrostatic testing so that the opportunities for water re-use are maximized: First priority is to use surface water for hydrotesting, if this is not possible groundwater resources can be used with permission and ensuring no impact on public use and environmental sensitivities
	Obtain all required permits to use groundwater resources
	Maintain natural drainage patterns during construction
	Record all project related groundwater withdrawal
	Implement well drilling best practice training programme for all project well drillers
Performance Indicators	Groundwater withdrawal volumes
	Results of groundwater monitoring programmes for groundwater quality decrease
	Results of groundwater monitoring programme for groundwater quantity
	Water volume used during hydrotesting
Monitoring and further Work	Implement Monitoring programme to record groundwater withdrawal during construction and to monitor groundwater quantity and quality following construction

Table 3 Summary of Management of Impacts on Groundwater Resources during Construction

1.6.4 Management of Impacts on Flora and Fauna

The project has defined seasonal sensitivities for the construction activities to be performed at ecologically sensitive areas. The contractor will strictly follow the defined seasonal constraints. The defined seasonal sensitivities are given in the following table:

Construction windows												
		J	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**
Mammals SCC													
Capra aegagrus	Wild Goat (Bezoar)												
Myomimus roachi	Roach's Mouse-tailed Dormouse												
Prometheomys shaposchnikowi	Long-clawed Mole Vole												
Spermophilus citellus	European Ground Squirrel												
Dryomys laniger	Woolly Dormouse												
Birds SCC													
Aquila clanga	Greater Spotted Eagle												
Branta ruficollis	Red-breasted Goose												
Circus pygargus	Montagu's Harrier												
Falco cherrug	Saker Falcon												
Melanitta fusca	Velvet Scoter												
Neophron percnopterus	Egyptian Vulture												
Otis tarda	Great Bustard												
Perdix perdix	Grey Partridge												
Tetraogallus caspius	Caspian Snowcock												
Tetrax tetrax	Little Bustard												
Vanellus gregarius	Sociable Lapwing												

Reptiles SCC

Montivipera wagneri	Wagner's viper												
Darevskia uzzelli	Uzzell's lizard												
Darevskia unisexualis	Unisexual lizard												

Amphibian SCC

Mertensiella caucasica	Caucasian salamander												

Invertebrates SCC

Polyommatus dama	Mesopotamian Blue												
Phengaris nausithous	Dusky Large Blue												
Polyommatus actis	Actis Blue												
Lycaena euphratica	Anatolian Turan Copper												
Aricia hyacinthus	Anatolian False Argus												
Aricia teberdina	Georgian False Argus, Caucasian Silvery Argus												
Polyommatus artvinensis	Artvin Blue												
Polyommatus diana	Diana Blue												
Polyommatus merhaba	Hi Blue												
Polyommatus tankeri	Tanker's Blue												
Boloria graeca	Balkan Fritillary												
Hyponephele urartua	Urartuan Steppe Brown												
Zygaena armena	-												
Cryptocephalus paphlagonius	-												
Pimelia testudo	-												
Eulasia chrysopyga	-												
Pygopleurus kareli	-												
Muzimes caucasicus	-												
Zonitis nigriventris	-												

Agrypnus crenicollis	-
Dorcadion ardahense	-
Osmoderma lassallei	-
Dysmachus safranboluticus	-
Empis angorae	-
Hilara truva	-
Chrysolina n. sp.	
Muzimes n. sp.	
Dioctria n. sp. 1	
Dioctria n. sp. 2	
Hilara n. sp. 1	
Hilara n. sp. 2	
Hilara n. sp. 3	
Hextoma n. sp.	
Tipula n. sp. 1	

Fish SCCs

Anguilla anguilla	European eel
Oxynoemacheilus simavicus	-
Cobitis fahireae	Aegean spined loach
Cobitis puncticulata	-
Cobitis simplicispina	-
Alburnus escherischii	-
Alburnus istanbulensis	Thracian shemaya
Barbus oligolepis	Checkered Barb
Capoeta tinca	Anatolian khramulya
Chondrostoma angorae	-
Salmo macrostigma	Macrostigma trut

Macroinvertebrate SCC

Unio crassus	Thick Shelled River Mussel													

Flora SCCs														
Allium pseudoalbidum	-													
Cyathobasis fruticulosa	-													
Ferulago silaifolia	-													
Eryngium wanaturi	-													
Bellevalia crassa	-													
Achillea gypsicola	-													
Achillea ketenoglui	-													
Achillea sintenisii	-													
Achillea sipikorensis	-													
Anthemis calcarea var. discoidea	-													
Anthemis kotschyana var. gypsicola	-													
Centaurea hedgei	-													
Centaurea macrocephala	-													
Centaurea nivea	-													
Centaurea sivasica	-													
Centaurea taochia	-													
Centaurea tchihatcheffii	-													
Cirsium eliasianum	-													
Cousinia bicolor	-													
Cousinia halysensis	-													
Cousinia sivasica	-													

Hieracium sarykamyschense	-												
Scorzonera aucherana	-												
Tanacetum albipannosum	-												
Tanacetum coccineum ssp. chamaemelifolium	-												
Tanacetum densum subsp. sivasicum	-												
Tripleurospermum corymbosum	-												
Onosma briquetii	-												
Onosma sintenisii	-												
Onosma sorgerae var. sorgarae	-												
Paracaryum lithospermifolium var. erectum	-												
Aethionema lepidioides	-												
Aethionema sintenisii	-												
Alyssum dudleyi	-												
Alyssum niveum	-												
Alyssum thymops	-												
Barbarea auriculata var. paludosa	-												
Chrysocamela noeana	-												
Cochlearia sintenisii	-												
Isatis glauca subsp. sivasica	-												
Isatis undulate	-												
Lepidium caespitosum	-												
Physoptychis haussknechtii	-												
Cephalaria aytachii	-												

Cephalaria sparsipilosa	-
Dianthus goekayi	-
Gypsophila aucheri	-
Gypsophila heteropoda subsp. minutiflora	-
Gypsophila osmangaziensis	-
Minuartia corymbulosa var. gypsophiloides	-
Scabiosa hololeuca	-
Astragalus aytatchii	-
Astragalus demirizii	-
Astragalus densifolius subsp. ayashensis	-
Astragalus eliasianus	-
Astragalus kochakii	-
Astragalus physodes subsp. acikirensis	-
Astragalus ulaschensis	-
Astragalus zaraensis	-
Lathyrus karsianus	-
Onobrychis paucijuga	-
Onobrychis stenostachya subsp. krausei	-
Erodium sibthorpianum subsp. sibthorpianum	-
Hypericum pumilio	-
Hypericum sorgerae	-
Salvia aytachii	-
Salvia huberi	-

Salvia tchihatcheffii	-												
Scutellaria yildirimli	-												
Sideritis gulendamiae	-												
Thymus canoviridis	-												
Thymus cappadocicus var. pruinosus	-												
Thymus leucostomus	-												
Lilium kesselringianum	-												
Corydalis wendelboi subsp. congesta	-												
Elymus sosnowskyi	-												
Delphinium iris	-												
Ranunculus vermirrhizus	-												
Reseda armena var. armena	-												
Reseda armena var. scabridula	-												
Asperula capitellata	-												
Thesium stelleroides	-												
Verbascum sp. nov.	-												
Verbascum trichostylum	-												
Scrophularia gypsicola	-												
Scrophularia lepidota	-												
Scrophularia libanotica subsp. libanotica var. sivasica	-												

Table 4 Seasonal Constraints

NOTE: The construction windows here reported represent the suggested critical periods (orange cells) for the identified Species of Conservation Concern (SCCs). These periods to be confirmed through the preconstructions surveys, if necessary, to be confirmed as the seasonal constraints. It has to be highlighted that site-specific conditions (e.g. light, humidity) may conduct to time variations.

Furthermore the following tables summarize the requirements of the management of impacts on the flora and fauna elements during construction.

Potential impacts	Loss or alteration of ecologically sensitive areas and wetlands due to direct or indirect impacts from land clearing or project construction
	Loss or alteration of rare plants and rare plant communities due to direct or indirect impacts from land clearing or project construction
	Loss or alteration of old growth forests due to direct or indirect impacts from land clearing or project construction
	Negative effects (pathogen or contaminant introduction, reduction of photosynthetic capacity, or light availability) on plant species adjacent to roads due to increased road dust from project traffic
	Soil erosion or change in quality affecting vegetation communities
	Alteration of vegetation communities due to indirect impacts of changes to surface water or groundwater quality or quantity
	Altered community structure due to the proliferation of weed species.
	Fragmentation of natural vegetation patterns by linear disturbances
Performance Objectives	Prevent water quality and quantity changes in order not to affect vegetation directly and indirectly (introduction of invasive plants)
	Prevent soil chemistry or quality changes in order not to affect vegetation directly and indirectly (introduction of invasive plants)
	Minimize effects from project activities to rare plants or rare plant communities
	Minimize effects from project activities on environmentally sensitive areas
	Minimize effects from project activities in old growth forests
	Minimize changes in natural vegetation patterns by linear fragmentation
Mitigation Measures	Implement strategies for soil protection
	Implement strategies for surface water and groundwater protection
	Transport Project workforce by bus to reduce traffic volumes
	Implement dust control measures on access roads
	Locate project components on previously disturbed areas rather than new areas where

	possible
	Locate project components away from wetlands
	Maximize the use of existing corridors/roads
	Prepare and implement an Integrated Weed Management Plan
	Avoid using sensitive areas if extra land is required for project activities (See requirements for preconstruction surveys if necessary will be conducted for the verification of the sensitive areas. See Chapter 7.3.2.2)
	Plan construction to complete works in shorter periods at sensitive areas
	Reduce construction width at sensitive areas (30 m)
	Implement Special Method statements for construction and reinstatement at special/sensitive areas
	Implement strategies to minimize impacts to soil structure, quality and capability
Specific Mitigation Measures	Considering the impacts and the sensitivity of the component if necessary, a pre-construction survey of the Project footprint is performed by expert botanists in suitable habitats within the identified selected species range in order to identify the presence of populations or individuals of terrestrial flora SCC. **Group 2 (vulnerable species, not predominantly of steppe/grassland habitats)** High impacts are identified only for Group 2 (vulnerable species, not predominantly of steppe/grassland habitats) and are limited to two areas within the provinces of Ardahan and Kütahya for a total area of 4.8 hectares. The SCC species potentially present in these areas are *Centaurea hedgei, Reseda armena var. armena, Centaurea macrocephala*, *Lathyrus karsianus* and *Tanacetum coccineum ssp. chamaemelifolium* in the province of Ardahan and *Astragalus densifolius* subsp. *ayashensis* and *Onosma briquetii* in Kütahya. In case individuals of perennial species are found within the Project footprint, mitigation by transplant to a similar habitat/microhabitat outside the route is recommended. The translocation should take place preferably during dormancy period of the vegetation. Nevertheless translocation is a high risk option with high rates of failure (Godefroid et al. 2011[1]). Therefore, in order to ensure the long term survival of the species, whenever a SCC population is identified along the Project route, a sufficient amount of seeds should be collected, if present. The seeds will be donated to a local gene bank for long term conservation and scientific research.

[1] Godefroid S, Piazza C, Rossi G, Buord S, Stevens A-D, Aguraiuja R, Cowell C, Weekley CW, Vogg C, Iriondo JM. 2011. How successful are plant species reintroductions? Biological Conservation 144: 672–682.

SCC species ranked as critically endangered (CR)

In case the presence of populations of SCC species ranked as critically endangered (CR) is confirmed within the footprint of the Project, if necessary with preconstruction surveys, additional conservation measures are:

Structured reintroduction projects on selected CR species particularly impacted by the project should be considered. These projects should be based on current best practice (e.g. IUCN, 1998[2], IUCN-SSC, 2002[3], Guerrant et al., 2004[4], Vallee et al., 2004[5], Seddon, 2007[6]).

Part of the seeds temporarily stored in seed banks and vegetative propagules collected during the preconstruction survey could be used in order to start an ex situ cultivation for the reintroduction of populations in suitable habitats within the species range. The reintroduction plan should include the following phase: research on ecological requirements of the species, ex situ cultivation, evaluation of potential translocation site, reintroduction and monitoring.

The selection of suitable reintroduction sites is a crucial point (IUCN, 1998[7]). Sites for reintroduction should be identified on the basis of the ecological requirements of a species (Clewell et al., 2000[8]).

New species

Particular consideration is needed for the new species found along the pipeline route, *Verbascum* sp. *nov*. This species still needs to be confirmed by the scientific community. At present there is only one location known and its real distribution needs to be assessed. A survey of the suitable habitats surrounding the location should be made in the appropriate season in order to identify at least other 10 populations outside the pipeline route and map the range of the species.

If at least 10 populations are found outside the project area, the same general mitigation measure proposed for the other SCC species can be applied. If this condition is not satisfied and the species is confirmed by the scientific community, additional offset and mitigation

[2] IUCN, 1998. IUCN Guidelines for Re-introductions. IUCN Species Survival Commission Re-introduction Specialist Group. IUCN, Gland, Switzerland e Cambridge, UK

[3] IUCN-SSC, 2002. Technical Guidelines on the management of ex situ population for conservation. Re-introduction Specialist Group of the IUCN's Species Survival Commission. Gland, Svizzera.

[4] Guerrant E. O. Jr., Havens K. & Maunder M. (Eds.), 2004. Ex situ Plant Conservation. Supporting species survival in the wild. Island Press, London

[5] Vallee L., T. Hogbin, L. Monks, B. Makinson, M. Matthes and M. Rossetto (2004). Guidelines for the Translocation of Threatened Plants in Australia Second Edition. Australian Network for Plant Conservation, Canberra.

[6] Seddon P.J., Armstrong D.P. & Maloney R. F., 2007. Developing the Science of Reintroduction Biology. Conservation Biology 21(2): 303-312

[7] IUCN, 1998. IUCN Guidelines for Re-introductions. IUCN Species Survival Commission Re-introduction Specialist Group. IUCN, Gland, Switzerland e Cambridge, UK

[8] Clewell A, Rieger J, Munro J. 2000. Guidelines for Developing and Managing Ecological Restoration Projects. Society for Ecological Restoration. http://www.ser.org/ [May 2011]

	measures will be indicated in detail in the Biodiversity Action Plan (BAP).
Performance Indicators	Results of vegetation monitoring programmes for loss or alteration of rare plants or rare plant communities
	Results of vegetation monitoring programmes for increase of dust deposition on vegetation along roads being utilized for project activities
	Results of vegetation monitoring programmes for alteration of natural vegetation patterns
	Results of vegetation monitoring programmes for introduction of non-native species
	Results of wetland monitoring programmes for loss or alteration to wetland conditions.
	Results of vegetation monitoring programmes for loss of old growth forests
Monitoring and further Work	Implement monitoring programmes to assess changes in vegetation, non- native species, wetlands and forest resources

Table 5 Summary of Management of impacts on Flora and Habitats

Potential impacts	Increased mortality risk for wildlife due to vehicle-wildlife collisions
	Increased wildlife mortality resulting from increased access for recreational land users, including hunters
	Disturbance to wildlife due to human activity in the development area, particularly noise from machinery
	Habitat degradation due to dust and air emissions from vehicles
	Habitat loss and decreased habitat effectiveness, particularly of roosting, nesting and foraging areas
	Habitat fragmentation
Performance Objectives	Minimize habitat loss
	Minimize habitat fragmentation
	Minimize habitat alteration
Mitigation Measures	Facilitate wildlife crossing of ROW during construction by providing trench and windrow breaks, particularly at identified intersections with wildlife movement corridors
	Minimize traffic and speed of traffic to prevent vehicle-wildlife collisions as well as dust and air emissions
	Minimize habitat loss

	Minimize habitat fragmentation
	Minimize habitat alteration
	Prevent disturbances due to noise from machinery
	Minimize habitat loss and decreased habitat effectiveness, particularly of roosting, nesting and foraging areas
	Provide temporary barriers to prevent wildlife from crossing heavily used working areas and from accessing to waste disposal areas
	Indicate high wildlife use areas with signage along main access roads where potential exists for vehicle/wildlife collision
	Enforce speed limits along main access roads and along the ROW
	Transport Project workforce by bus to reduce traffic volumes and ease enforcement on speed limits
	Minimize corridor widths to be used for access.
	Use existing corridors for main access roads and ROW
	Implement a no weapons/no hunting policy for Project personnel, including subcontractors, both on site and while travelling to and from Project work areas
	Implement wildlife protection education for construction and operation personnel
	Maintain vegetated buffers wherever possible along known wildlife travel corridors (i.e., watercourses)
	Provide temporary noise barriers near sensitive areas
	Implement dust control measures on access roads and the ROW
	Avoid construction during nesting and reproduction seasons of sensitive wildlife
	Suspend vegetation clearing and construction activities if an occupied denning or nesting site of a keystone species is encountered until authorisation is granted by environmental staff.
	Implement Fauna Observation Programme
Specific Mitigation Measures(refer to Table 1.4.4 1)	**Mammals** In order to minimise the habitat loss and nuisances, temporary working areas should be minimized as much as possible especially during the construction of the compressor station in Ardahan province and during the camp site activities and the Block valve,

pigging, metering stations construction in Ardahan, Kars, Erzurum, Gümüşhane, Erzincan, Edirne and Çanakkale provinces.

It is recommended to check for mammals species track presence prior to vegetation clearance (especially for rodent species) and also to make workers aware of the ecological sensitivities of the areas. In case species of concern are found, it is recommended to stop the work and consult an expert ecologist.

A particular attention should be paid in the construction work of compressor station of Ardahan and Sivas to prevent any potential disturbance to the bezoar goat (*Capra aegragus*) and minimise the nuisances of the temporary working areas by taken the minimum measures as follows:

- equipment will be selected with lower sound power levels;
- engine cover will be kept closed when the equipment is in operation in order to minimize the noise;
- engines will not be left in operating mode when they are not used;
- fencing of decommissioning areas is recommended.

Birds

Particular attention should be paid to the Montagu's harrier (*Circus pygargus*) in Ankara and Ardahan regions because it nests in tall vegetation on the ground. Apart from avoiding construction works to the extent practicable during the nesting period (April - June), key management practices include moving nestlings to safe places during construction works, and leaving areas unharvested around the vicinity of nests to prevent chick mortality.

In order to minimise the habitat loss and nuisances, temporary working areas should be minimized as much as possible and construction activities should be timed to the extent practicable to avoid the peak breeding and migratory periods for birds to reduce the chances of disturbances and chick mortalities especially in the following areas:

Ardahan province where velvet scoter breeds (May-June);

Erzurum Marshlands during sociable lapwing spring and autumn migration periods (March-April and September-November).

Reptiles

Construction activities should be carried out in Erzurum and Kars minimising the habitat loss and disturbance, minimizing the temporary working area and checking for the SCC species (**Wagner's viper, Uzzell's lizard, Unisexual lizard or white-bellied lizard)** prior to vegetation clearance in the habitats E4.4 (Calciophilus alpine and subalpine grasslands) and E1.2E (Irano-Anatolian Steppes). Construction activities should be also

timed to avoid the peak reproductive periods and the wintering time **(March-August and November-January)** to reduce the chances of disturbances.

Amphibians

In particular the pipeline route from the Georgian border to KP 36+500 in Ardahan province should be regarded with a major importance for Caucasian salamander (*Mertensiella caucasica*).

As standard mitigation measures, construction activities should be timed to avoid the peak reproductive periods to reduce the chances of disturbances (June-September – Tarkhnishvili and Serbinova, 1993[9]) and mortalities especially in the above mentioned areas.

Terrestrial Invertebrates

The highest impacts are mainly related to the emission of dust, particulate and gaseous pollutants and to the emission of noise.

The following specific mitigation measures are recommended **from KP 42+400 to KP 43+300 and at KP 280+400**

- Special attention should be paid on the dust lifting during construction activities, since dust emission could originate reduction in the visibility and disturbance to the lepidopters' flight and the damage of larval food plants due to dust and particulate fallout and emission of air pollutants (NO_x, CO).
- Frequent mist spraying should be applied on dusty areas. The frequency of spraying will depend upon local conditions such as rainfall, temperature, wind speed and humidity. The amount of mist spraying should be just enough to dampen the material without over-watering which could result in surface water runoff.

Aquatic Invertebrates

Site-specific working methods and construction drawings will be developed for water passages. These methods will contain procedures to protect water passages against pollution, minimize sedimentation, mitigate the impact on vegetation along the water passages, and restore the water passages to the condition before the construction;

- river water should not flow over the water pie or canal so it will enter and exit at normal river change level;
- construction works will be conducted during the time when flow is low, if possible and will be conducted in a limited timeframe.

[9] Tarkhnishvili D. N. and Serbinova I. A. 1993. The Ecology of the Caucasian Salamander (Mertensiella caucasica Waga) in a Local Population. Asiatic Herpetological Research. Vol. 5, pp. 147-165.

	Moreover, in order to reduce the demand of freshwater for the hydrotesting and other project activities, the possibility of water re-use should be evaluated where practicable. Refer to the table for the impacts on surface waters for further mitigation measures at water crossings. Standard mitigation measures should be specifically applied in the river crossings listed in Table 8.2.11.2-2 for the *Unio crassus*. **Fishes** Standard mitigation measures should be specifically applied in the river crossings listed in Table 8.2.10.2 3 for the species potentially present. It is recommended to remove fish from isolated in-water work zones if necessary Even if the impact is regarded as medium, a particular attention should be paid in the crossings of Koca river and Simav stream where two critically endangered species (Cobitis puncticulata and Oxynoemacheilus simavica) are potentially present and Critical Habitats are potentially determined.
Performance Indicators	Wildlife road kills from Project vehicles
	Records of unauthorised impacts to wildlife occurring from personnel actions
	Records of changes to wildlife habitat
	Wildlife monitoring programme results for changes in animal abundance, distribution and habitat use
	Monitor presence and abundance of any rare species of mammals, birds, reptiles, arthropods, aquatic macroinvertebrates, fish and amphibians
	Wildlife monitoring programme results for decrease in biodiversity
Monitoring and further Work	Cooperate and contribute, as requested by the TANAP, to the implementation of wildlife and habitat monitoring programmes throughout the construction phase.
	Implement monitoring to verify that the necessary habitat composition and structure is maintained to support the existing species diversity.
	Performance Indicators: Records of changes in abundance of any rare species of mammals, birds, reptiles, arthropods, aquatic macroinvertebrates, fish and amphibians
	Record wildlife mortalities from vehicle collisions
	Record significant wildlife observations

Table 6 Summary of Management of impacts on Fauna and Habitats

1.6.5 Management of Impacts on Cultural and Historical Resources

The project identified the area along the project area with cultural and archaeological importance. The cultural heritage management plan is providing the details of these findings and the mitigation measures to eliminate and/or minimize the impact on these areas.

The following tables summarize the requirements of the managements on the cultural and historical elements during construction.

Potential impacts	Unintentional disturbance of known sites with historical or cultural value
	Unintentional disturbance of previously undiscovered sites with historical or cultural value
Performance objectives	No disturbance of known sites with historical or cultural value due to project
	Minimise disturbance of previously undiscovered sites with historical or cultural value due to project activities
	No increase of public access to sites of historical or cultural value due to project related development
Management Actions & Strategies	Map all previously recorded sites of historical or cultural value prior to construction so that approximate locations are known to project contractors and personnel
	Ensure that qualified specialist (e.g., archaeologist) are onsite during construction in the vicinity of any previously recorded historically or culturally important sites
	Archaeological supervision shall be provided in accordance with Cultural Heritage Management Plan.
	Educate project workforce on the recognition of sites with historical or cultural value
	Apply Chance Find Procedures in case archaeological findings/bones are encountered; Cease work upon the unintentional chance discovery find of any sites with historical or cultural value and work will not commence again without direction from a qualified specialist
	Use only designated or approved access roads to project ROW or other construction facilities
Performance Indicators	Records of disturbances to sites of historical or cultural value during project

	construction
	Records of public access to sites of historical or cultural value due to project
	Recording of accidental findings during the project construction
Monitoring and further Work	Implement monitoring of construction activities by a qualified specialist during project construction in locations of historically or culturally important sites
	Each construction activities is required to be done under the supervision of an archaeologist

Table 7 Summary of Management of impacts on Historical / Cultural Resources

1.6.6 Management of Impacts on Air Quality

TANAP Project route construction is estimated to last approximately during 43 months and excavation and construction activities are predicted to last 24 months. Studies will be conducted during daytime and are limited by 12 hours.

The impact on the air quality during land preparation and construction phase will be mainly the dust resulting from construction activities and the gaseous emissions from the construction machinery.

The following management plans will address the mitigation measures to eliminate or minimize the impacts on the air quality:

- Traffic Management Plan
- Pollution Prevention Plan

The following tables summarize the requirements of the management of impacts on air quality.

Potential impacts	Generation and dispersion of dust by earthmoving, material handling and construction vehicle movements
	Generation and dispersion of gaseous and particulate emissions from machinery, plant and equipment during construction
Performance Objectives	Minimize dust arising from construction activities
	Minimize vehicle and equipment emissions arising from construction activities
	Maintain compliance with Workplace Health and Safety Requirements

Standard Mitigation Measures	Implement dust control and dust suppression techniques
	Maintain roads on a regular basis to prevent excessive dust generation
	Use low emission vehicles wherever possible
	Use vehicles that were checked legally for their exhaust emissions.
	Restrict third party vehicle access to project related activities
	Implement regular maintenance programmes for vehicles and equipment
	Restrict excessive idling of vehicles or equipment
	Enforce speed limits along access roads and ROW
Specific Mitigation Measures	Monitor the dust impact at Putka Gölbaşı Ardahan, Erzurum Marshland, Bataklıkdüzü Sivas before and during construction in order to ensure effectiveness of defined standard mitigation measures (Ref Chapter 8-1 for details)
Performance Indicators	Records of magnitude of dust releases
	Receipt of dust complaints
	Results of air quality monitoring programmes for effects to air quality resulting from project related activities
Monitoring and further Work	Implement air quality monitoring programmes to assess the air quality during the Project development
	Investigate any dust or air quality complaints that arise from construction activities

Table 8 Summary of Management of impacts on Air Quality

▪Management of Impacts related to Noise and Vibration

The sources of the noise and vibration will be the construction machinery and specific construction activities as blasting.

The following management plans will address the mitigation measures to eliminate or minimize the impacts of noise and vibration:

- Traffic Management Plan
- Pollution Prevention Plan

The following tables summarize the requirements of the management of impacts of noise and vibration.

Potential impacts	Disturbances to local wildlife due to the construction operations, particularly during seasons of sensitivity
	Hearing damage to human receptors
	Noise disturbance to non-project related human receptors
Performance Objectives	Prevent disturbances to wildlife
	Prevent hearing damage to personnel working on-site or other human receptors
Mitigation Measures	Maintain equipment on a regular basis
	Use quieter methods and equipment when possible
	Replace or repair parts generating excessive noise
	Restrict excessive idling of project related equipment and vehicles
	Maintain project access roads to reduce noise associated with vibration and vehicle noise
	Deploy temporary noise barriers near sensitive areas
	Do not locate project related noise emitting infrastructure near areas inhabited by human receptors
	Conduct project construction during daylight hours and not during normal sleeping hours
Specific Mitigation Measures	particular attention will be paid to the implementation of noise suppression measures (standard mitigations) if the construction activities of the pipeline, camp site and pipe stock yards in Putka-Gölbası area will be done in the migration period for migrant birds (from March to May and from September to November)
	particular attention will be paid to the implementation of noise suppression measures (standard mitigations) if the construction activities of the pipeline in Erzurum Marsh area in the migration period for Vanellus gregarius (from March to April and from September to November)
	to monitor the impact due to the increase of noise level on protected area Putka-Golbasi and Erzurum Marsh ambient noise level will be monitored before (as blank) and during construction.

Management Actions & Strategies	Maintain equipment on a regular basis
	Use quieter methods and equipment when possible
	Replace or repair parts generating excessive noise
	Restrict excessive idling of project related equipment and vehicles.
	Maintain project access roads to reduce noise associated with vibration and vehicle noise
	Consider deploying temporary noise barriers near sensitive areas
	Do not locate project related noise emitting infrastructure near areas inhabited by human receptors
	Conduct project construction during daylight hours to the extent practicable and not during normal sleeping hours
Performance Indicators	Records of compliance of construction noise with the accepted limits
	Records of magnitude of noise emissions
	Records of noise complaints
	Reports of disturbances to structures/buildings because of vibration
Monitoring and further Work	Investigate any noise complaints that arise due to Construction
	Pre-construction integrity monitoring for structures/buildings which are in close vicinity of the project activities
	Cooperate and contribute, as requested by the TANAP, to the Implementation of wildlife monitoring programmes for noise disturbance throughout the construction phase.
	Conduct periodic acoustic testing of active work areas to ensure noise levels are maintained within acceptable limits

Table 9 Summary of Management of Noise and Vibration Impacts

1.6.7 Management of Visual Impacts

During the construction phase visual impacts are distributed over most of the provinces, because project components specific to the phase such as camp sites and pipe stockyards will be located evenly along the pipeline route. Visual impacts are assessed to be higher in the provinces where the compressor stations will be located, as these are the most impacting elements from a visual standpoint. For

this reason the highest impacts are found in the Ardahan and Balikesir provinces, two of the provinces where the compressor stations will be built. Despite the fact that compressor stations will be built also in the Sivas and Eskişehir, impacts are lower because less sensible receptors are present in the surroundings of the designated compressor station areas.

The following management plan will address the mitigation measures to eliminate or minimize the visual impacts:

- Reinstatement and Erosion Control Management Plan

The following tables summarize the requirements for the management of visual impacts.

Potential impacts	Changes in visual features of the landscape
Performance Objectives	No unacceptable changes in visual features of the landscape
Standards Mitigation Measures	See Project Pollution Prevent Management Plan and Emergency Response Plan in ESIA for methods
	See Waste Management Plan of ESIA for methods to prevent soil contamination by waste production. Wastes to be handled as a minimum to Turkish legislation project standards
	Implement Reinstatement and Erosion Control Management Plan
Specific Mitigation Measures for the AGIs with high impacts	Maximize opportunities to retain existing landform screening, i.e. site levelling will be avoided, if possible, if existing hollows or mounds may be used to integrate built features within the landform;
	New land form screening (e.g. bunds and mounds) will be introduced where this might complement the existing landform character.
	TANAP will develop a site-specific landscape plan for each site that will identify specific measures to reduce landscape and visual impact. This plan will address architectural measures such as schemes, opportunities for landform screening and landscape planting. Construction Contractors will be required to ensure that site clearance and reinstatement activities and building colour schemes are consistent with the requirements of the site specific landscape plans as advised by TANAP.(Ref. 1.1)
Performance Indicators	Records/reports of complaints of negatively impacted aesthetics received as a result of project related activities
Monitoring and further	Monitoring programmes will be implemented to ensure adequate reclamation

Work	and revegetation of project related disturbances has occurred.

Table 10 Summary of Management of Visual Impacts

1.6.8 Water Supply and Wastewater

During the construction phase that will begin with the land preparation works, one of the first construction activities will be installation of the camps. The camps that will provide accommodation, canteen facilities, and other basic needs for the workers throughout the construction, will be installed at the most appropriate locations along the route in terms of logistics and local conditions

During land preparation and construction period of the project, water use will be necessary for;

- The employed personnel for drinking water and utilization,
- The hydrostatic test before commissioning of the pipeline and
- Spraying in order to prevent dust formation in the construction area and the village roads to be used.

The following management plan will address the mitigation measures to eliminate or minimize the visual impacts:

- Waste Management Plan
- Pollution Prevention Plan

The following tables summarize the requirements for the management of impacts by water use and wastewater discharge.

Potential impacts	Changes in quality in receiving media of discharged wastewater
	Introduction of contaminants to nature
	Introduction of contaminants due to storm water runoff
	Introduction of contaminants due to direct discharge
	Introduction of contaminants due to fuel/oil leaks from equipment
	Water Consumption
	Nuisance to the community
	Permitting issues

Performance Objectives	Minimization of water use
	Minimization of wastewater
	Prevent contamination at receiving media
Specific Mitigation Measures	Discharge of wastewater to surface water resources after treatment in compliance with the applicable regulatory requirements (Ref. Chapter 4 and Chapter 8.1.9 and Chapter 11)
	Awareness training on minimal water use
	Disposal of hydrotest water in line with legal requirements (Ref. EIA Report Chapter 4 and Chapter 8.1.9, 8.4 and Chapter 11)
Performance Indicators	Results of monitoring programme for changes to water quality or quantity
	Results of monitoring programme treatment plant effluents
	Results of water consumption figures
Monitoring and further Work	Implement monitoring programmes to assess the water/wastewater quality and quantity

Table 11 Summary of Management of Impacts by Water use and Wastewater Discharge

The sites where water will be used during land preparation and construction phase, quantities, supply sources, wastewater quantities and wastewater disposal methods are given in Pollution Prevention Plan.

1.6.9 Management of Traffic and Transportation Related Impacts

Refer to Traffic Management Plan and Chapter 11.2.10 of ESIA Report.

1.6.10 Management of Construction Wastes

The wastes created during the construction activities will be disposed in accordance with the Waste Management Plan.

1.6.11 Management of Offshore Impacts

Sediment suspension due to changes of local morphology or other preparation works for the pipeline lowering, discharge of wastewater and accidental release of contaminants from vessels and equipment can generate an impact on sea water quality.

The following standard mitigation measures to limit the impact on sea water are indicated in the Project:

During the offshore pipeline construction works, dredging won't be performed.

However, in case bottom scanning is required after detailed studies, before initiating the construction works, representative samples will be received from bottom scanning and their analyses will be conducted by laboratories that have Competence/Pre-Competence Certificate.

The analysis of the samples will be carried out according to the criteria stipulated in Annex 3-B of Regulation on General Principles of Waste Management (published in the Official Gazette dated 05.07.2008 and numbered 26927).

- If the bottom scanning representative samples are classified as hazardous according to the analyses as per Annex 3-B of Regulation on General Principles of Waste Management, they will be recovered/disposed according to the provisions of Regulation on the Control of Hazardous Wastes.
- If the bottom scanning representative samples are classified as non-hazardous according to the analyses as per Annex 3-B of Regulation on General Principles of Waste Management, the provisions of Regulation on General Principles of Waste Management and Notification on Recovery of Some Non-hazardous Wastes (published in the Official Gazette dated 17.06.2011 and numbered 27967) will be implemented.
- If landfill is planned as waste disposal method, the wastes will be disposed according to the results of the analyses stipulated by Annex-2 of Regulation on Landfill of Wastes (published in the Official Gazette dated 26.03.2010 and numbered 27533).

During the construction to be conducted in sea, no sea refill will be performed; no liquid or solid substance will be disposed into the sea. During the works, necessary precautions for the construction wastes not to drop into the sea will be taken. The wastes of the marine construction vehicles will be given to licensed waste acceptance facilities/ waste receiving ships based on a mutual agreement between the parties and the permit to be taken from the pertinent Provincial Directorate of Environment and Urbanization according to the provisions of the Regulation on Waste Collection from the Ships and Control of Wastes (published in the Official Gazette dated 26.12.2004 and numbered 25862, which is amended by the Regulation published in the Official Gazette dated 18.03.2010 and numbered 27525).

The following management plan will address the mitigation measures to eliminate or minimize the offshore impacts:

- Waste Management Plan
- Pollution Prevention Plan

The following tables summarize the requirements for the management of offshore impacts.

Potential impacts	Degradation of seawater quality
	Changes in sea bottom morphology
Performance Objectives	No unacceptable changes sea bottom morphology
	No unacceptable changes in seawater quality
Standards Mitigation Measures	No liquid or solid substance will be disposed into the sea;
	Necessary precaution to avoid accidental dropping of the construction wastes into the sea will be taken into account;
	Water discharge permits and approvals will be obtained from relevant Authorities for all kind of wastewater discharge, including the water used in the hydro-test;
Specific Mitigation Measures	For the hydro-test, if possible, use environmental-friendly, non-toxic and biodegradable chemicals and then treat wastewater before their (careful and regulated) discharge into the environment; Assess in details hydro-test process once final chemical types and doses are known; Considering the high level of Mercury in 6 investigated stations located within the Project corridor, a detailed sediment characterization in the critical zones identified is suggested. If the abovementioned characterization confirms the high presence of Mercury in the area, in order to avoid the risk of correlate this pollution with the future presence of the pipeline, this issue should be notified to local authority. (Ref Chapter 8 of ESIA, Chapter 7.3.4 of ESIA. Specific locations for the sampling please refer to Appendix 2.4 baseline reports of the ESIA)
Performance Indicators	Records of marine pollution from project activities Records of sea bottom morphology damage from project activities

Monitoring and further Work	Programmes will be implemented to ensure seawater quality at marine construction areas

Table 12 Summary of Management of Impacts on Offshore Biological Components

1.6.12 Management of Impacts on Offshore Biological Components

The impact on marine species related to the increasing of turbidity is strictly correlated to the presence of sensitive species in the impacted areas. In particular some species of marine flora and some filter feeder marine species can suffer from the fine marine sediment suspension and consequent increase in water turbidity. Other more tolerant species are adapted to live in zones with high water turbidity and fine sediment dispersion.

The following management plan will address the mitigation measures to eliminate or minimize the offshore impacts:

- Waste Management Plan
- Pollution Prevention Plan

The following tables summarize the requirements for the management of offshore biological impacts.

Potential impacts	Reduction/degradation of habitat suitable for selected marine flora species
Performance Objectives	No unacceptable changes in marine habitat
Standards Mitigation Measures	No liquid or solid substance will be disposed into the sea;
	Necessary precaution to avoid accidental dropping of the construction wastes into the sea will be taken into account;
	Water discharge permits and approvals will be obtained from relevant Authorities for all kind of wastewater discharge, including the water used in the hydro-test;
specific Mitigation Measures	If necessary, assess in detail the presence and distribution of sea grass in the LSA: •avoid as much as possible the destruction of sea grasses, most of which are a remarkable habitat[10]; •minimize the unavoidable impacts of suspended sediment in the LSA; According to the results of the sea grass distribution map, if necessary, a

[10] According UNEP(OCA)/MED WG 149/5 rev.1 – Annex IV

	modelling of the sediment dispersion during the trenching activities should be elaborated; Anchoring activities should be avoided as much as possible on sea bottoms colonized by sea grasses; For the hydro-test, if possible, use environmental-friendly, non-toxic and biodegradable chemicals and then treat wastewater before their (careful and regulated) discharge into the environment; Assess in details hydro-test process once final chemical types and doses are known; Optimize the monitoring plan to check the effects of the Project activities on the Marine flora component.
Performance Indicators	Records of marine pollution from project activities Records of habitat damage from project activities
Monitoring and further Work	Programmes will be implemented to ensure seawater quality and habitat (sea grass meadow) monitoring at marine construction areas

Table 13 Summary of Management of Impacts on Offshore Biological Components

1.6.13 Management of Resource Consumption

The major resource that would be used during the project activities will be the water. Water use during various phases of the project is detailed in section 8.1.

The major infrastructures that would be used by the project will be:

1. Connections to the National Grid: The project plans to connect to the national grid of power supply after completion of the permitting process
2. Exiting waste disposal areas: As explained in Waste Management Plan the project will be disposing the solid waste to the available municipality waste disposal areas after completing the agreement procedures with the Municipality Authorities.
3. There will be needs for aggregate material during the land preparation and construction phase. The aggregate material needed would be procured from the nearby sand, gravel and stone. (Ref. Aggregate Management Plan)

In case it is required to open new quarries the construction contractor will take necessary permits and licences to open and operate the quarry. The requirements of the Turkish EIA regulation will be followed during the permitting process.

TANAP will have the right to inspect and audit these quarries to be compliant with the project and regulatory requirements.

The main consumption of energy during the land preparation and construction phase will be at the camp sites and the pipe yards in the form of electricity.

The electrical energy will be supplied to these areas through the connection to the national grid. This connection will require a permitting process. These permitting processes will be completed before the connection to the National Grid is established.

On site generators will be used if the connection to the national grid cannot be established.

The energy consumption during the land preparation and construction will be minimized through the measures below

Impact	Mitigation Measures
Resource consumption	Employee awareness Use of energy saving equipment Use of vehicles at good conditions

Table 14 Summary of Management of Impacts on Resource consumption -Minimization of Energy Use-construction

The major fuel consumption during the land preparation and construction phase will be by the construction machinery. Fuel for the consumption of the construction machinery will be from the fuel stations around the working area. The consumption of fuel during land preparation and construction phase will be minimized as stated in **Error! Reference source not found.**

Impact	Mitigation Measures
Resource consumption	Employee awareness Use of vehicles at good conditions

Table 15 Summary of Management of Impact on Resource consumption - Minimization of Fuel Use-construction

2 AGGREGATE MANAGEMENT PLAN

2.1 Purpose and Scope

Significant quantities of aggregate materials will be needed in order to construct the AGIs and ancillary sites (compressor stations, camping areas, pipe storage areas etc.) and relevant infrastructure along the pipeline. This plan will identify potential impacts and recommendations for impact mitigation.

At this stage of the project the estimated quantities and sources of aggregates have not been defined, yet.

EPCM will estimate the quantities and sources of the aggregates for the project land preparation and construction phase.

This Aggregate Management Plan (AMP) will than revised to include the facilities that will provide aggregate for the project.

All contractors will fulfil these requirements defined in this AMP by adapting them to their own operations. Each contractor must develop its own AMP following the start of the construction phase, and then develop the project-specific plans and procedures which explain the way to implement the requirements of this plan. The Contractor will use the AMP as the basis for preparing a detailed AMP. The Contractor will regularly update their AMP as the construction method is developed and detailed

2.2 Roles and responsibilities

TANAP will implement an environmental inspection, monitoring and reporting program ensuring that the commitments given in ESIA Report and this AMP are accomplished;

TANAP will monitor the permitting process for the aggregate supply that will be undertaken by the Contractor;

TANAP will ensure that Contractor identifies and manage the environmental and social impacts of the aggregate supply. TANAP will coordinate with the Contractor the preparation of an environmental and social impact assessment study in case of new quarries to be opened for aggregate supply.

Contractor will develop a detailed AMP and submit to the approval of TANAP including the estimated amounts and potential resources for aggregates. The construction works will not start without approval of the AMP.

This AMP will include the amounts of the aggregate materials needs and sources for the aggregate material supply. The contractors will define all the related permitting procedures operating a barrow pit and/or opening a new quarry in the AMP submitted to TANAP for approval

TANAP identified a provisional list of available quarries and barrow pits for possible consumption during the project through official correspondences.

The Contractor will review this list of available quarries and borrow pits. The Contractor will consult the public institutions and organizations to identify the utility of the existing aggregate sources within the scope of the project (licensed quarries, borrow pits and debris). If the existing borrow pits under operation do not meet the requirements and if an additional borrow pit is needed to be opened, the contractor will consult the public institutions and organizations to identify the necessary procedures to construct a new quarry. The contractor will conduct the activities pursuant to the relevant legislation and obtain all necessary permits licenses in accordance with Turkish Mining Law and Regulations and Turkish Environmental Law and regulations by considering the environmental constraints specified in this report.

The contractor will evaluate the environmental and social impacts of operating the selected existing or new the borrow pits and quarries and identify the mitigation measures to minimize these impacts. Following sections provide guidance on performing such an assessment. Requirements of the Aggregates Management Plan

In case existing borrow pits and quarries are to be used by the Contractor will identify the potential environmental impacts and required mitigation measures and include them in the Aggregate Management Plan. Contractor as a minimum will consider the following:

- Borrow pits and quarries will be one group of associated[11] facilities for the project and the environmental and social impacts of operating a barrow pit or a quarry (and opening a new quarry) will need to defined and managed in line with all the requirements of the project defined in the ESIA.
- The transportation to and from the borrow pit/quarry will subject to the requirements of the project Traffic Management Plan.

[11] IFC Performance Standard 1: Associated facilities, which are facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable. The area of influence encompasses the associated facilities.

- Applicable mitigation measures set by the Pollution Prevention Plan for management of noise, vehicle exhaust and dust emissions will be implemented by the contractor.
- Erosion and sediment control measures will be implemented and maintained.
- Minimization of disturbance on the neighbouring habitats is required.
- Implementation of measures to minimize the surface runoff from the borrow pits/quarries
- Contractor will implement the requirements of Waste Management plan for the control of quarrying wastes

In case a new quarry is required, location of the quarry will be selected considering:

- Accessibility.
- Traffic control requirements and road conditions
- Stormwater run-off and erosion potential of the site.
- Floristic and faunistic characteristics of the site. It is essential to minimize adverse impacts on the local flora and fauna.
- Cultural Heritage
- Provincial Environmental Planning Policies.
- Existence of potential contaminated land.
- Proximity to residential areas.
- Minimizing the visual impacts
- Accessibility.
- Security
- Sustainability of the source

The Contractor will prepare a landscape plan in order to minimize the visual impacts of operating the quarry.

There will be controlled basting to minimize the dust emissions. There will be dust collection on the drill rigs and other equipment. Drop heights of the dusty material will be minimized. Water or chemicals will be applied as dust suppression.

There will be limited night works and subject to TANAP approval. Design and engineering measures will be in place where applicable at sensitive locations such as noise barriers. Specific procedures will be prepared and submitted to TANAP approval for basting

Contractor will take the increased traffic impact of operating a quarry into consideration. Contractor will communicate with the local community on the management of the this increased traffic load and inform the relevant arties in order not to pose a safety risk and alter the livelihood practices of the local community (i.e. beekeeping, animal grazing and such).

Contractor will consider the ecological aspects during the selection of the new quarry location and make sure the impacts on the ecology and biological environment are at minimum for the selected site.

Contractors will develop project-specific AMP and procedures which explain the way to implement the requirements of AMP. Requirements defined in this report will guide the contractors to develop these plan and procedures.

Contractors will identify the roads to be used to transport the aggregate and identify the estimated transport time considering the traffic load and vehicle speed.

Contractors will comply with the PPP to minimize the impacts on Soil and Water (dust emission, noise, spills etc.).

Community notification will be undertaken when works are likely to cause dust or offensive noise to impact on the public and nearby residents.

Community notification will be undertaken before works are scheduled to commence outside normal working hours.

When a quarry is to be decommissioned a reinstatement plans will be prepared by the contractor. This plan will be presented to TANAP for approval and will consider as a minimum the following:

- The area will be cleaned of quarry operation equipment.
- The area will be instated to the original condition through revegetation if necessary. The contractor will refer to Erosion Control Reinstatement and Landscape plan and specification of the project.
- All the sediment and erosion control structures will be removed from site

2.3 Key Performance Indicators

- Number of complaints on the dust, noise and the traffic resulting from quarry/borrow pit operations
- Recorded damages on the roads during transportation of quarry material
- Number of tours per day to and from the quarry and borrow pits

2.4 References

Pollution Prevention Plan (PPP) (Section 6)

Waste Management Plan (WMP) (Section 7)

Traffic (Access) Management Plan (TAMP) (Section 3)

Erosion, Reinstatement and Landscaping Plan (ERLP) (Section 5)

Annex 1 of Environmental Monitoring Plan

Annex 2 of Environmental Monitoring Plan

3 TRAFFIC MANAGEMENT PLAN

3.1 Purpose and Scope

There will be extensive transportation activities during the land preparation and construction phase of the project.

The project logistics study has not been finalized during the preparation of the ESIA. However the following main principles of the transportation will be valid for the land preparation and construction phase:

1. Pipes will be transported to the main pipe storage area indicated in Chapter 2 and Chapter 5 by railway or seaway and from there,
2. Pipes will be transported to the pipe yards by railways or road.
3. Pipes will be transported to the construction corridor and camps by road.

The magnitude of the in the marine and railway traffic increase will be known after the finalization of the project Logistics Study.

Pipe storage areas are determined in order pipes to be transported to the construction areas and camp areas easily. In the oncoming phases of the project, new areas may be selected.

The traffic load due to trucks carrying pipes to the operations area before and during the construction works will contribute to the increase in traffic.

The other contributing factors to the increased road traffic during land preparation and construction activities would be:

1. Entry and exit of the personnel working at different points of the project route could also create heavy traffic. The personnel would be transported to the work areas by buses.
2. Transportation of tools, construction materials and waste.

This management plan describes the requirements for the management of traffic during land preparation and construction phase.

Traffic Management Plan (TMP) will be developed by the contractors to identify the measures for minimizing impacts of the traffic generated by the project.

Traffic Management Plan will be prepared by the EPC and CCs, where roads and intersections subject to intense construction traffic will be provided with additional mitigation measures such as traffic control, speed reduction systems and warning signals. The Contractor will also liaise with local authorities to inform them on solutions found for these areas. In addition drivers will be made aware of

the presence of these hotspots during induction and routine training sessions. This plan will focus on hotspots of intense traffic that are expected along the entire pipeline corridor, particularly in the surroundings of specific Project components such as compressors stations, campsites and pipe stockyards. Generally existing roads will be used to provide access to the construction RoW and various AGIs. The access roads are used on a temporary basis to transport personnel, equipment, vehicles, heavy trucks, and materials to project work areas. Some of these roads may not support heavy construction equipment and, therefore, would be used only for light truck traffic (e.g., pickup trucks).

In most cases, the roads used for pipeline construction and operations are existing paved or gravel public roads that would not require modification unless the road base were to deteriorate and make driving difficult or unsafe for both public and construction traffic. Two-track and dirt roads may require some level of improvement to support construction equipment, vehicles, and ongoing maintenance during the construction period, especially with rain or snow and travel over the roads degrades their condition. Road improvements such as blading and filling would be restricted to the existing road footprint (i.e., the road would normally not be widened unless for safety purposes) wherever possible and where there is evidence that the road was graded previously. If necessary, the equipment is pulled along the RoW by bulldozers, and the road or property is returned to its original state.

New access roads will be required in some areas, particularly the mountainous areas. Existing roads and bridges would likely have to be improved for safe pipe and personnel transport.

New access roads will be designed with adequate slope and cross-fall drainage to channel storm water safely to off-road soakaways, thereby preventing erosion or siltation. When new access roads will be required Contractor will get approval from TANAP and perform all the permitting and Environmental and Social Impact Assessment studies for the new roads.

The requirements defined in this plan are for the construction phase of TANAP Project but they can be used as a guideline for plans and procedures which will be implemented other phases of the project.

All contractors will fulfil the requirements defined in this TMP by adapting them to their own operations. Each contractor must develop its own TMP before the start of the construction phase.

The TMPs of the Contractors will include;

- The identification of the transportation routes for the goods and material to and from working corridor

- The interface with the Logistics Study that will be prepared by TANAP
- The deficiencies in the existing local infrastructure in coordination with TANAP and develop upgrading plans
- Definition of the access roads
- Definition of the speed limits
- Details of the training program for drivers
- Transportation of workforce
- Development of access road register
- Assessment of existing and new access roads before use
- Site specific mitigations to control traffic /labour safety/community safety/impacts to environmentally sensitive areas defined by ESIA studies
- Signage of the roads
- Training programs for the community

Traffic Management Plan will be prepared by the Contractor in order to maintain traffic safety of the road and to prevent the risks which may outcome due to the fact that the traffic load available will increase during the land preparation and construction phases of the Project and this plan will be reorganized for operation and decommissioning phases. The additional vehicle load, vehicle type and count that may be observed in the highway to be used during the land preparation-construction and operation phases of the Project will be determined, will be calculated as % and will be declared. Traffic Management Plan to be prepared will be submitted to the related Regional Directorates and activities will be conducted in coordination with them.

3.2 Roles and Responsibilities

TANAP will monitor the implementation of the TMP through auditing and inspections.

Contractor will develop, implement and maintain a project-specific TMP and procedures;

Contractors will make sure that the subcontractors are working in compliance with the requirements of the TMP.

Contractors will avoid the sensitive residential areas and historical and cultural road infrastructure during defining the traffic routes:

Contractors will ensure to minimise the damages on the road infrastructure, communicate with the local authorities in case of road damages and repair such damages.

3.3 Requirements of TMP

Contractors will communicate with the local authorities in coordination with TANAP for the road crossing works and ensure all the requirements defined by the authorities are in place.

All intersection between the pipeline and existing roads will be identified by the Contractor and the most appropriate construction technique will be used to reduce disruptions to the extent possible;

Consult with the local community on locations where the project traffic routes are passing to minimize the safety risks and impacts on the livelihood and transportation patterns (i.e. animal grazing, shuttle services and similar);

A survey will be conducted by the Contractor to assess conditions of roads affected by the construction phase to identify if they require upgrading activities and to ensure that they are returned to previous or better conditions once construction activities are concluded;

Access to settlements will always be guaranteed either through diversions or by allowing the passage of vehicles and livestock at certain hours through the use of proper materials (e.g. steel plates)over the trenches; when restrictions to access are unavoidable, appropriate alternative solutions will be agreed with local authorities;

Access to properties will be guaranteed or appropriate alternative accesses solutions will be are agreed with owners or users will be implemented;

Local communities will be informed by the Contractor on planned road closures or disruption with at least 72 hours' notice through official communication and signs;

Easy-to-read signs will be used to indicate any type of diversion or of traffic changes related to project activities;

Temporary traffic control and appropriate signs will be used to highlight warnings and to improve safety;

Temporary traffic control will be used in intersections and junctions where a higher road accident risk is identified;

Intersections between temporary roads and access roads will be designed so to be traffic-safe, especially for heavy-load vehicles;

Authorities will be notified when the oversize heavy vehicles will be required and vehicles will be escorted;

Frequently used roads will be inspected on a regular basis to ensure that they are not damaged, or to implement repair activities when necessary;

To work at night times, all necessary permissions will be taken from the authorities;

Material needed for the project and pipeline elements in particular, will be transported by rail and pipe stockyards will be located close the rail lines in order to reduce transport on roads;

All drivers will adhere to TANAP driving rules and appropriate training will be provided;

Related Turkish legislation on speed limits depending on the type of vehicles and roads shall be obeyed.

Transport of staff will be organized so the reduce the number of vehicles needed (i.e. use of busses and collective means of transport) to the extent possible;

Trainings will be provided to the adults and children in the settlement areas along and around the pipeline route in order to increase traffic awareness within the scope of the Traffic Management Plan;

Local authorities and local communities will be informed and consulted on impacts on traffic due to project activities and planned mitigation measures during the pre-construction and construction meetings and related Stakeholder Engagement Activities;

A Grievance Mechanism will be set up for communities and individuals to formally communicate their concerns, complaints and grievances to the company and facilitate resolutions that are mutually acceptable by the parties;

Compensations to accidental damages caused by project activities will be determined according to the Grievance Management Procedure that TANAP will prepare;

According to Logistics plan that will be prepared by the EPC and CCs, roads and intersections subject to intense construction traffic will be provided with additional mitigation measures such as traffic control, speed reduction systems and warning signals. The Contractor will also liaise with local authorities to inform them on solutions found for these areas. In addition drivers will be made aware of the presence of these hotspots during induction and routine training sessions.

Use existing corridors for main access roads and ROW

Minimize the development of new access roads

Use only existing roads, designated access roads and previously disturbed/cleared sites for Project facilities

New access roads will be designed with adequate slope and cross-fall drainage to channel storm water safely to off-road soakaways, thereby preventing erosion or siltation

Maintain roads on a regular basis to prevent excessive dust generation. Frequently used roads will be inspected on a regular basis to ensure that they are not damaged, or to implement repair activities when necessary;

3.4 Key Performance Indicators

- Number of traffic accidents
- Recorded complaints and grievances on project vehicles and drivers
- Number of maintenance works on roads
- Recorded damages on roads
- Records of unsafe driving by the project personnel

3.5 References

Pollution Prevention Plan (Section 6)

Community Relations Plan (Appendix 5.3 of ESIA)

Emergency Response Plan (Section 8)

Annex 2 of Environmental Monitoring Plan (TNP-PLN-ENV-GEN-003)
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4 CULTURAL HERITAGE MANAGEMENT PLAN

4.1 Purpose and Scope

In general, the cultural heritage management strategy will assure avoidance of significant cultural and archaeological resources within the construction corridor of the pipeline project. This plan will include impact and mitigation measures during the construction phase with the aim of protecting all known cultural resources.

1.1.Responsibilities

The Ministry of Culture and Tourism shall have the authority for all and any sanctions and responsibilities regarding the cultural and natural assets.

TANAP is responsible for the protection of archaeological and cultural heritage in the project's impact area are protected.

Contractor will submit the Cultural Heritage Management Plan to TANAP for approval.

Contractor will get the approval of TANAP for the members of the archaeology team to be assigned for the site.

Contractor will provide awareness trainings on archaeological and cultural heritage to the personnel.

Contractor will stop works and inform TANAP and closest Museum Directorate in case of chance archaeological finding. The Ministry and Museum Director being notified shall take the due actions as soon as possible as per the provisions of the Law regarding the Protection of Cultural and Natural Assets.

4.2 Requirements for intangible cultural resources

The Contractor will liaise with local Authorities to identify if Project activities can interfere with traditional celebrations or festivities; alternative solutions will be agreed with local authorities.

Furthermore the Contractor will liaise with local Authorities to identify if Project activities restrict access to elements of traditional culture; alternative solutions will be agreed with local authorities.

4.3 Requirements for tangible cultural resources

4.3.1 Identification of the cultural resources (tangible) and definition of mitigation measures before construction phase:

Pre-Construction Phase: During this phase, in the scope of baseline study, archaeological field surveys have been carried out in order to determine the archaeological potential of the pipeline route. Baseline studies and survey results are terminated with the determination of archaeological sites within the pipeline route related Preservation Boards inventories. Possible impacts are eliminated by decisions of route changes ensuring the externalization of the sites within the pipeline project. In those sites which cannot be route change due to some technical reasons, archaeological test/salvage excavations will be carried out and according to the excavation results related Preservation Boards will decide about the construction activities of the pipeline project. Detailed information about the sites determined on the pipeline route is given in the archaeological baseline report (Ref. Appendix 2.4 of ESIA Report) and also in the following table.

This table is generated from results of TANAP Natural Gas Pipeline route archaeological studies of REGIO. In this table there is information about sites located within 500 m corridor of the pipeline route, discovered within these archaeological studies and previously registered by the Ministry of Cultural and Tourism.

ARCHAEOLOGICAL SITE LOCATIONS: Names and detailed information about locations of the sites.

MITIGATION SUGGESTIONS: Expert opinion given to reduce the impacts over the sites. Suggestion / Proposal could be unique for each site, moreover, more than one / plural suggestions are stated according to significance, range and distance of the sites from the construction corridor.

RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA: The distance between the archaeological sites and the construction corridor with construction zone of aboveground facilities are taken into consideration. The construction impacts over the archaeological sites are determined in terms of international criteria 12 . GIS data place key role on determination of the construction impact degree. The defined rankings are:

-[12] Department for Transport UK, Design Manual For Roads and Bridges Part 2 HA 208/07 Cultural Heritage,

-Guidance on Heritage Impact Assessments for Cultural World Heritage Properties A publication of the International Council on Monuments and Sites January 2011

Ranking	Description
1	No material change to the site or feature
2	Very minor changes to archaeological materials, or setting
3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)
4	Changes to many key archaeological materials, such that the resource is clearly modified (Guide: 30-60% surviving deposits damaged or destroyed). Considerable changes to setting that affect the character of asset
5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide: 60-100% of surviving deposits damaged or destroyed). Comprehensive changes to setting

Table 16 Ranking Of Magnitude of Predicted Impacts on Archaeological Area

SITE DETAILS: Registration status of the archaeological sites and details of the Preservation Board decisions and the subjects playing key role on these decisions are summarized.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Approximate KP	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
1	Ayaz Gölü	Ardahan	5+780- 6+000	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. It is located within the 500m corridor at a distance of about 79 m. to the main axis. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
2	Tuya	Ardahan	13+950-14+000	No Change	1	No material change to the site or feature		x			The area conceals a "Fortress / Watch Tower". It is located 1 km southwest of Yurtbekler Village, 2 km north of Cambeli Village, 250-300 m north of Posof Creek over a rocky area. It is most probably built in Middle Ages. Part of the walls of a rectangular structure which resembles a small Fortress or Watch Tower is still standing. Registration process has been carried out by Kars Regional Board for Preservation of Cultural Assets.It is located within the 500m corridor at a distance of about 136 m. to the main axis. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
3	Alabalık Deresi	Ardahan	50+850-50+950	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. It is located within 500 m. pipeline corridor at a distance of 42 m to the main axis. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
4	Kirmav Şapel	Ardahan	58+470-58+540	No Change	1	No material change to the site or feature		x			The area conceals a building which is most probably a Chapel. It is located 2 km south of Hanak, on the western bank of Cotsuyu Creek, on the north of Kirmav Fortress and about 1.5 km northwest of Cayagzi Village. The building was totally torn down but some rubble stones are observed on the surface. Considering the type of structure and surface findings it can be concluded that it belongs to Middle Ages. The area is located within the 500 m construction corridor at a distance of 69.6 m to the main axis. Registration process has been carried out by Kars Regional Board for Preservation of Cultural Assets. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
5	Kirmav Düz Yerleşim	Ardahan	58+500-58+700	No Change	1	No material change to the site or feature		x		x	The area is a "Flat Settlement". It is located 2.5 km south of Hanak, 1 km northwest of CayagAzi Village, 500 m north of Kirmav Fortress. It is most probably a settlement related to Kirmav Fortress. In addition to potsherds, stone foundation belonging to an architectural structure were observed. The patterned pieces belonging to surface ceramics dates the location to Middle Ages. Registration process has been carried out by Kars Regional Board for Preservation of Cultural Assets. The site is within the 500 m impact corridor of the pipeline and 185.24 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
6	Kartalpınar	Ardahan	71+400-71+580	No Change	1	No material change to the site or feature		x			The Huyuk is 1 km southwest of Kartalpinar village, 750 m north of Ortagecit Village on the northern slopes of Kura River. Intense potsherds were observed over the Huyuk surface. Some painted and patterned ceramics provide information about date of the area. Based on this information, the settlement is estimated to be used between Late Chalcolithic period to Early Bronze age. Registration process has been carried out by Kars Regional Board for Preservation of Cultural Assets. The site is within the 500 m impact corridor of the pipeline and 27 m. away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
7	Ziyaret	Kars	139+500-139+590	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board (Ref. Document No:83416310/36.00.444791). It is located within the 500 m impact corridor. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Approximate KP	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
8	İnceçayır	Kars	143+580-143+600	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 235 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
9	Yassıca Yamaç Yerleşimi	Kars	145+600-145+710	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is a slope settlement. The area is located within 500 m pipeline corridor 38 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
10	Yassıca TepeüstüYerleşimi	Kars	145+720-145+850	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is a slope settlement. The area is located within 500 m pipeline corridor 183 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
11	Koşapınar	Kars	149+750-150+250	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 39 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
12	Kaledüzü	Kars	155+400-156+080	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 52 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
13	Güllü	Kars	157+300-157+620	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 38 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
14	Çatak	Kars	166+290-166+440	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 142 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
15	Memorial & Military Trenches	Kars	170+100-182+700	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			Trenches, battlefields and war graves can be frequently seen on the 500 m corridor of the Tanap pipeline route. The trenches consist of square or rectangular shaped ground pits 2-2.5 m in depth and 10-20 m2 in size. The trenches have a single entrance and their inner walls and entrances are reinforced with stones. Tunnels connecting the trenches can also be seen. In the corners of some of these trenches, there are sections that might have been used as guard posts. A monumental tomb dedicated to war heroes is located on the vicinity of the Tanap pipeline route. Many scattered trenches and similar structures were observed on the corridor within the specified boundaries. On the other hand, no traces of such structures were observed on the Sahdeniz pipeline crossing and its surroundings. Therefore, it is recommended to cross the area as close as possible to the Sahdeniz line and conduct the construction Works under archaeological monitoring.
16	Kurt Deresi	Kars	172+400-173+350	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 40 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
17	Yazılının	Kars	193+200-193+450	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 64 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Approximate KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**DESCRIPTIONS**
18	Deveağılı	Erzurum	219+180-219+380	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x	x		It is a "Kurgan" type pile-up tomb. It is located 800 m east of Gokce District, 750 m west of Deveagili Reef. It is about 1 m high and most probably belongs to Iron Age. According to Erzurum Preservation Board decision dated 27.09.2013 with no.930, the site is registered as 1st. degree protection site. The board decision dated 19.12.2013 with no. 1002 states that archaeological excavaions are needed for the final decision.
19	Tabya Tepe	Erzurum		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)	x	x			The site is located on 3.5 km northwest of Köprüköy district and 1.5 km southwest of 23 Temmuz Lake in Tabyalar Mevkii. The area is planning to be used as Fly Camp/Pipe Stock Yard and consists of a bastion constructed during 1877-1878 Ottoman – Russian War. On the surface of the bastion constructed as rectangle plan soil masonry, pieces of cartridge were discovered with Ottoman writings on it. According to 28.02.2014 dated and 1084 numbered decision of Erzurum Preservation Board of Cultural Assets, the site is stated Historical Site and the Fly Camp/Pipe Stock Yard should be planned outside of the site.
20	Demirdöven Kilisesi	Erzurum	271+300-271+680	Negligible	2	Very minor changes to archaeological materials, or setting	x	x	x		The area covers an old church and a settlement area. It starts on the edge of the road connecting Pasinler-Demirdoven to the main road. The area is located about 750 m. southwest of the Demirdoven village centre. The church is on the hill located on the left handside of the road to the village and it is partially intact. It is contructed with block stones and rubbles. The area is registered with the Erzurum Presservation Board decision dated 27.09.2013 and numbered 926. With decision 19.12.2013 and numbered 1002, the board further decided that archaeological excavations are needed for final decision.
21	Askeri Beton Korugan 5	Erzurum	289+650-289+700	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 300 m southwest of Cogender Village, 500 m east of Yigittasi Village, 600 m north of highway from Erzurum to Pasinler. They were built during World War II against a possible Soviet invasion. The area is located 72 m away from the main construciton axis. It is recommended to carry out all construction activities in the region under archaeological monitoring.
22	Askeri Beton Korugan 4	Erzurum	289+920-289+950	Negligible	2	Very minor changes to archaeological materials, or setting		x			The Military Concrete Trenches are located 300 m southwest of Cogender Village, 500 m east of Yigittasi Village, 600 m north of highway from Erzurum to Pasinler. They were built during World War II against a possible Soviet invasion. The area is located 15 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
23	Askeri Beton Korugan 3	Erzurum	290+040-290+070	Negligible	2	Very minor changes to archaeological materials, or setting		x			The Military Concrete Trenches are located 300 m southwest of Cogender Village, 500 m east of Yigittasi Village, 600 m north of highway from Erzurum to Pasinler.They were built during World War II against a possible Soviet invasion. The area is located 15 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities physically avoding the trench under archaeological monitoring.
24	Askeri Beton Korugan 8	Erzurum	293+600-293+630	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1.5 km northwest of Ovaköy, 1 km southwest of Golcigez Village and 500 m west of Susuzlar Hill. They were built during World War II against a possible Soviet invasion. The area is located 110 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Approximate KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**DESCRIPTIONS**
25	Askeri Beton Korugan 9	Erzurum	293+650-293+680	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1,300 m north of Ovaköy, 1,500 m southwest of Golcigez Village. They were built during World War II against a possible Soviet invasion.The area is located 243 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
26	Askeri Beton Korugan 10	Erzurum	294+280-294+300	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1,600 m southwest of Saksı Village. They were built during World War II against a possible Soviet invasion. The area is located 89 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
27	Askeri Beton Korugan 11	Erzurum	294+300 - 294+320	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1,500 m southwest of Saksı Village. They were built during World War II against a possible Soviet invasion. The area is located 68 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
28	Askeri Beton Korugan 2	Erzurum	294+400-294+420	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1.5 km northwest of Ovaköy, 1 km southwest of Golcigez Village and 500 m west of Susuzlar Hill. They were built during World War II against a possible Soviet invasion. The area is located 312 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
29	Askeri Beton Korugan 1	Erzurum	294+510-294+530	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1.5 km northwest of Ovaköy, 1 km southwest of Golcigez Village and 500 m west of Susuzlar Hill. They were built during World War II against a possible Soviet invasion. The area is located 427 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
30	Askeri Beton Korugan 6	Erzurum	294+580-294+600	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 2 km south of Saksı Village, 500 m north of Erzurum highway. They were built during World War II against a possible Soviet invasion.The area is located 394 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
31	Askeri Beton Korugan 7	Erzurum	294+700-294+720	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 2 km south of Saksı Village, 500 m north of Erzurum highway. They were built during World War II against a possible Soviet invasion. The area is located 429 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
32	Dolangez	Erzurum	298+850-300+400	Negligible	2	Very minor changes to archaeological materials, or setting	x	x	x		The estate was registered as immovable cultural asset by the Higher Council of Historical Assets and Monuments on 15.05.1976 with decision A-65. Erzurum Board for Preservation of Cultural Assets declared the location as protected area on 25.11.2011 with decision 71. The 48 m construction corridor passes through the protected area. On 19.12.2013 with decision no 1002, Erzurum Preservation Board decided to conduct archaeological excavations before taking final decision. The board also requires detailed environment protection plan.
33	Dolangez Yolu	Erzurum	299+700-300+220	Negligible	2	Very minor changes to archaeological materials, or setting		x			It is an old military road leading to Dolangez Bastions and was built by Sultan Abdulaziz in the 1820s. The stone paved road is 2 km long and 5 m wide. It starts on the Tilki Delikleri region near Tetikom and reaches to Dolangez Bastions. It is recommended that, for the section inside the construction corridor, the road pavement plan and other features should be documented before the construction and it should be restored based on the documents following the construction.
34	Değirmentepesi Kalesi	Erzurum	306+100-306+280	No Change	1	No material change to the site or feature		x			The area is a Citadel type of settlement. It is located east of the road from Çayırtepe to Koseahmet, over the Degirmentasi Hill, 1 km east of Tasmasor archaeological area, on the immediate east of Taslik Region settlement. The fortress was build over the terraces made on the hill. Some stone walls are still visible. Illegal excavation pits were observed in the area. Based on the surface findings, it could be concluded that the fortress belongs to middle ages. The area is 243 m away from the construction main axis. and registered as first degree

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											protection site by Erzurum Preservation Board decision numbered 27.09.2013, no: 930. As expert opinion it is recommended to conduct all construction activities uner archaeological supervision.
35	Tasmasor II	Erzurum	306+480-307+080	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x	x		The area is a "Flat Settlement" belonging to Middle Ages. It is located 2 km northeast of Cayirtepe Village and 1 km north of Tasmasor archaeological area. Potsherds belonging to Middle Ages were observed on the surface. Traces of structure walls built on a rectangular plan were also observed. Furthermore, illegal excavation pits dug by treasure hunters were noticed. The area is registered as first degree protection site by Erzurum Preservation Board decision numbered 27.09.2013, no: 930. On 19.12.2013 with decision no 1002, the board further decided to conducts archaeological excavations before taking a final decision.
36	Ögutlu (Nalbant Köprüsü Yanı) Höyük	Gümüşhane	507+800-508+500	No Change	1	No material change to the site or feature		x			The area is a "Huyuk". Some findings most probably belonging to Neolithic, Chalcolithic, Bronze and Iron Ages were observed on the surface. It is located 1.5 km northwest of Ogutlu Village on the southern slopes of Balahar Creek. Resa Hill is on the west, Değirmen Hill is on the east and Yağlıbabanın Sırtı region is on the north of the Huyuk. It is approximately 13 m high and build over a rock. Potsherds belonging to different periods were observed over the surface. Some architectural traces most probably belonging to a structure were also encountered. The location was declared as the first degree protection zone by Trabzon Preservation Board (23.03.2002 dated and 472 numbered board decision) . The area is 32 m away from the construction main axis. As expert opinion it is recommended to conduct all construciton activities under archaeological supervision.
37	Delimahmut Deresi	Sivas	631+490-631+570	No Change	1	No material change to the site or feature		x			The site is a “Slope Settlement” and dating back to Middle Age, located on the northeast of the road connecting the Dalimahmuz and Kapımahmut villages and the Delimahmüz River, and on 550 m South of Kurthamuru Hill. On the slope around the natural rock, some pieces of pottery examples dating to Middle age were discovered. The distance between the site and the construction area is 64m. Accoridng to 30.10.2013 dated and 1167 numbered decision of Sivas Preservation Board of Cultural Assets, the site is registered as 1st degree site. Archaeological survey is recommended during all construction activities as an expert opinion.
38	Mezraa Mahallesi	Sivas	634+830-634+880	No Change	1	No material change to the site or feature		x			The area is a "Family Cemetery". It is located northeast of Imranli Dam, 300 m south of Mezra District, 600 m north of Mezarlik Hill, 1.5 km west of Kapimahmut Village. The area is located 94 m away from the construction main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
39	Küçük Söğüşger	Sivas	697+550-697+600	No Change	1	No material change to the site or feature		x			The area conceals a "Huyuk". On the surface, potsherds belonging to Chalcolithic and Bronze ages were observed. It is located 250 m east of Kucuksogusger Region, south of Hollukluk Region, 2 km north of Acisu river and 3 km south of Cimenyenice Village and Kızılırmak river. It is a small size Huyuk and some illegal excavation pits were observed on the surface. The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
40	Dışkapı (Kemis)	Sivas		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100%	x	x			It is a necropolis located in the area which is planned to be used as Sivas-Hafik Fly Camp and stock area. The area is located 1 km east of Hafik subprovince, about 800 m northeast of Diskapi district, on the South of the road from Hafik to Imranli. The area is located in the field belonging to the Agriculture Credit Union. The necropolis is most probably belong to the huyuk located in the Diskapi district. 4 architectural elements were discovered on the area. Three of the pieces are round in shape while the other is in rectangular shape. With height of 30 cm and diameter of 60 cm, these pieces may be basis of some structures. In addition to these elements some bricks made of baked clay were also observed on the surface. Numerous

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No.	Receptor	Ranking	Approximate KP	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
						of surviving deposits damaged or destroyed)					ceramics belonging to late Roman period were also discovered. Pieces of roman period sarcophagus made of baked clay and pieces of human bones are commonly encountered in the area. The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1167 dated 30.10.2013. Therefore no physical intervention is allowed in the area.
41	Küçük Pilavtepe	Sivas	711+250-711+300	No Change	1	No material change to the site or feature		x			The area conceals a Huyuk having 18 m diameter and 6 m height. It is located 300 m north of Buyukpilav Hill, 1 km south of Hafik - Sivas road. Illegal excavation pits and rubble stones belonging to architectural structures were observed on the southern slopes of the Huyuk. Some potsherds possibly belonging to Chalcolithic period were also observed. The location is 39 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
42	Büyük Pilavtepe	Sivas	711+400-711+750	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board (decision no 1167 dated 30.10.2013). The area is located within the 500 m impact corridor 71 m away from the main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
43	Atçukuru Tepesi	Sivas	720+200-720+390	No Change	1	No material change to the site or feature		x			The area conceals a Huyuk. It is located 500 m north of Kizilirmak River, 200 m south of Tuzlugöl Lake and 1600 m south of Emre Village. The Huyuk is located on the Sagir Kayasi Region and has a height of 8 m. Intense potsherds belonging to Chalcolithic period were observed on the surface. The location is 177 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
44	Kültepe	Sivas	737+750-738+040	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board (decision no 1167 dated 30.10.2013). The location is 28 m away from the construction main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
45	Evinüstü Sırtı	Sivas	763+480-763+560	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board (decision no 1167 dated 30.10.2013). The location is 28 m away from the construction main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
46	Köyözü	Sivas	768+920-769+490	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area is a "Slope Settlement". It is located 1.5 km north of Karacaoren Village, over the eastern slopes of Çomaklı Hill. The area covers both banks of the Köyözü Creek. Potsherds belonging to Roman period were spread over a large area. A pile-up cone probably covering a cairn or a tumulus is located in the area. Based on the findings, all construction activities are recommended to be carried out under archaeological monitoring.
47	Çomaklı Tepe	Sivas	769+750-769+810	No Change	1	No material change to the site or feature		x			This tumulus is used as visiting place in the modern period. It is located 2 km north of Karacaören Village over Çomaklı Hill and currently visited by locals. The location is 157 m away from the construction zone. The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1263 dated 12.12.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.

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48	Yanıkarmut Tepesi	Sivas	771+050-771+120	No Change	1	No material change to the site or feature		x			This huyuk type settlement is located in the Karacaoren village of Yildizeli district in Sivas province. It is a naturally formed settlement over the Yanıkarmut Hill at an altitute of 1460 m. the area is about 2.5 km northwest of Karacaoren Village and 1.2 km northwest of Karacoren dam. Oluklu creek is about 500 m west of the area. An illegal excavation pit with a depth of around 3 m was observed over the location. Some materials belonging to Chalcolithic period and early and middle bronze ages were observed on the surface. The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
49	ArgAz	Sivas		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)	x	x			It is an archaeological area related to water cult located in the area planned to be Sivas Yildizeli fly camp and stock area. It is located on the road from Yildizeli to Tokat about 2 km northeast of Yildizeli, 400 m North of ArgAz farm, 400 m North of ArgAz huyuk and 800 m northwest of Tekhuyuk. Ceramics, bone pieces and architectural rubbles belonging to Roman period were discovered on the area. A small water spring, feeding into a modern water channel is located next to the area where the above mentioned artefacts were found. The architectural rubbles (which might have been a result of destruction made during the construction of the channel and a chimney) discovered in the area might belong to an architectural structure related with the water spring (fountain, etc). The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1262 dated 12.12.2013. With the decision of the board further stated that no physical intervention will be permitted in the area. As expert opinion it is recommended to change the location of the camp area or in case it is not technically possible to do so, ask for permission for construction with a justification letter.
50	Arpalık 3 (Arpalık Sarnıcı)	Yozgat	876+550-876+810	No Change	1	No material change to the site or feature		x			The area is most probably an open air ritual site. It is located 2 km east of Arpalik Village, 1 km southeast of Yılanlı Hill, 700 m northeast of Asikbaba hill. It is related with Arpalik 1 and Arpalik 2 areas. Human figures and some pits that were most probably dug for water supply were encountered. The area is formed of two pieces of rocks. Some potsherds were observed on the surface. The location is 30 m away from the construction zone. The area is declared as first degree protection zone by the decision of Kayseri Preservation Board with decision no 954 dated 07.02.2014. Based on the findings, route change will be necessary. Following the route change all construction activities have to be carried out under archaeological monitoring.
51	Arpalık 1 (Arpalık Kalesi)	Yozgat	876+980-877+500	No Change	1	No material change to the site or feature		x			The area is a Hilltop Settlement. It is located on the a rock hill which is 100m. north of Belekçehan and Arpalık village road. Painted potsherds belonging to Iron Age and Roman period were encountered on the surface. Potsherds and animal bones were discovered in the three illegal excavation pits made by treasure hunters on top of the hill. The area is 54 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Kayseri Preservation Board with decision no 953 dated 07.02.2014. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
52	Alıçlıseki	Yozgat	883+950-884+000	No Change	1	No material change to the site or feature		x			The location is a tumulus dating back to Roman Period. It is located 1.8 km southeast of Ozan, 500 m of Alacaardic Hill, 2 km west of Kucukkizildag Hill over the Alicliseki hilltop. The area is 41 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Kayseri Preservation Board with decision no 955 dated 07.02.2014. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
53	Kurupınar	Yozgat	915+060-915+260	Moderate	4	Changes to many key archaeological materials, such that the resource is clearly	x	x			The site is a “Flat Settlement” and located in 1 km south of Sarıhamzalı village, 1 km northeast of Kepirce village, 500m north of Kurupınar Mevkii and just on south of Sarıhamzalı Tumulus. On both sides of the site there are two rivers surrounding. On the field surface of the area, Roman pottery pieces form Roman Period, painted and unpainted potsherds, terra cotta tile pieces and some human bones are discovered. According to 21.02.2014 dated and 974 numbered decision of Kayseri Preservation Board of Cultural Assets, the site is registered as

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						modified (Guide: 30-60% surviving deposits damaged or destroyed)					1st degree site and the route change is accepted. After this decision the distance between the site and construction area became 52m. during all construction activities, archaeological survey is recommended as an expert opinion.
54	YAzılıtaş	Yozgat	920+110-920+220	No Change	1	No material change to the site or feature		x			The site is a “Flat Settlement” located within the boundaries of YAzılıtaş village in Sorgun district, Yozgat, on the left of YAzılıtaş-Akoluk road, in the agricultural land. According to surface pottery findings, the site is dated to Roman and Byzantine Periods. The distance between the site and the construction area is 67m. According to 01.03.2013 dated and 762 numbered decision of Sivas Preservation Board of Cultural Assets, the site is registered as 2nd degree site. During all construction activities, archaeological survey is recommended as an expert opinion.
55	Kaleycikkaya	Yozgat	920+150-920+200	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board. The area is 113 m away from the construction area. Construction activities in the vicinity of the region should be carried out under archaeological monitoring.
56	Kaleycikkaya	Yozgat	920+960-921+150	Moderate	4	Changes to many key archaeological materials, such that the resource is clearly modified (Guide: 30-60% surviving deposits damaged or destroyed)	x	x			The site is a “Hilltop Settlement” and located 1km north of YAzılıtaş village, 1.5 km southeast of Boz Tepe and 600 northeast of Bırcalık Tepe, on a rock hill. Potsherds dating to Neolithic and Chalcolithic Periods are the main findings of the surface. Besides potsherds, bone pieces and 1 piece of flint blade are discovered. Also a treasure pit (illegal excavation) discovered within the area. According to 21.02.2014 dated and 971 numbered decision of Kayseri Preservation Board of Cultural Assets, the site is registered as 1st degree site. With the same numbered and dated decision the route change is also accepted. After the route change the distance between the site and the construction area became 99m. During all construction activities archaeological survey is recommended as an expert opinion.
57	Karadeli Çeşmesi (Ümmet Tepe)	Yozgat	924+550-924+600	No Change	1	No material change to the site or feature		x			The site is a “Tumulus” and located on 1 km northwest of Peyniryemez village, on the southwest of Ümmet Tepe and 1.5 km northeast of Çakırhacılı village. The tumulus is damaged by treasure hunters. There are few potsherds and remains of architectural elements around the site. The distance between the site and the construction area is 81.5m. According to 01.03.2013 dated and 762 numbered decision of Sivas Preservation Board of Cultural Assets, the site is registered as 2nd degree site. During all construction activities around the area, archaeological survey is recommended as an expert opinion.
58	Zekeriye	Yozgat	929+050-929+080	No Change	1	No material change to the site or feature	x	x			The site is registered as 1st degree site by Sivas Preservation Board of Cultural Assets. The distance between the site and the construction area is 17m. The construction activities around this site will be carried out in a reduced area and will not be disturb the area within which the boundaries are defined. Besides this precaution, during all construction activities around the site, archaeological survey is recommended as an expert opinion.
59	Yenicederesi	Yozgat	937+630-937+850	No Change	1	No material change to the site or feature		x			The site is “Hilltop Settlement” and located on 1 km south of Tekkeyenicesi village and on the top of two contiguous hills. Potsherds of the surface indicate the Iron Age. The distance between the site and the construction area is 113m. According to 212.02.2014 dated and 973 numbered decision of Kayseri Preservation Board of Cultural Assets the site is registered as 1st degree site. During all construction activities around the area, archaeological survey is recommended as an expert opinion.
60	Tekkeyenicesi	Yozgat	937+790-937+950	No Change	1	No material change to the site or feature		x			The area is a Cemetery. It is located on the south of Tekkeyenicesi Village. The area is 41 m away from the construction zone. It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Approximate KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**DESCRIPTIONS**
61	Tekkeyenicesi Tümülüsü (Kuştepesi Tümülüsü)	Yozgat	938+120-938+180	No Change	1	No material change to the site or feature		x			The site is a tumulus registered as 2nd degree site by Sivas Preservation Board of Cultural Assets. The distance between the site and the construction area is 86m. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
62	Avgın	Yozgat	940+500-940+600	No Change	1	No material change to the site or feature		x			The area is a slope settlement. Based on the surface findings, it can be concluded that it belongs to Iron Age. It is located 2 km east of the Çalılı Village, 500 m away from the road connecting Çalılı and Tekkeyenicesi Villages. The area is located 25 m away from the construction zone. It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
63	Çalılı 2	Yozgat	942+300-942+400	No Change	1	No material change to the site or feature		x			It is located 650 m southeast of Çalılı Village on the slopes of the hill known as Mezarlık ridge. The area is an "Old Cemetery". It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
64	Çalılı 1	Yozgat	943+280-943+350	No Change	1	No material change to the site or feature		x			It is located 500 m south of Çalılı Village, 100 m north of Taşlıdölek region. The area is an "Old Cemetery". It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
65	Taşlıdölek	Yozgat	944+140-944+500	No Change	1	No material change to the site or feature		x			The site is a “Hilltop Settlement” located on 1,2 km west of Çalılı village, alongside of the road from Kayseri to Yozgat, in 100 m south of KAzanpınarı Tumulus. On the field surface, density of potsherds, terra cotta roofing tiles and remains of architectural elements dating to Late Roman – Byzantine Periods, along with metal and glass artifact pieces and bright glAzed potsherds. The distance between the site and the construction area is 220m. According to 21.02.2014 dated and 972 numbered decision of Kayseri Preservation Board of Cultural Assets, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
66	Çalılı 2 Tümülüsü	Yozgat	944+350-944+490	No Change	1	No material change to the site or feature	x	x			The site is a “Tumulus dated to Roman Period and located on 1 km west of Çalılı village, alongside of the Çalılı village road from Kayseri-Yozgat main road, and 600m south of KAzanpınarı Mevkii. On the field surface, two treasure pits (illegal excavation) were determined. According to 24.05.2013 dated and 916 numbered decision of Sivas Preservation Board of Cultural Assets, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended. If the route can not be cahged, a justified report must be prepared and expert opinion must be requested form authorized institution.
67	Killiarkaç	Yozgat	947+550-947+700	No Change	1	No material change to the site or feature		x			The area is a slope settlement. It is located 1.5 km northeast of Lökköy village, 700 m northeast of Paşalıhöyüğü region, 600 m south of Killiarkaç ridge over the slopes of a dry creek. Potsherds belonging to late Roman period and roof tile pieces were observed on the surface. The area is 48 m away from the construction zone and is in the process of registration by the Kayseri Preservation Board. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
68	Erkekli	Yozgat	954+680-955+010	No Change	1	No material change to the site or feature		x			The site is a “Flat Settlement” and located 1 km south of Yozgat-Yerköy main road, 1,8 km southwest of Yukarıelmahacılı village and 600 m east of Kuştepe. On the field surface potsherds dated to Early, Middle and Late Bronze Ages are discovered. The distance between the site and the construction area is 32m. According to 01.03.2013 dated and 762 numbered decision, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
69	Ziyaret Mevkii	Yozgat	956+550-956+650	No Change	1	No material change to the site or feature		x			The area is a flat settlement. Based on the surface findings, it can be concluded that it belongs to Iron Age. It is located about 1.5 km west of Erkekli village, 250 m north of Ziyaretmevkii, 1 km east of Bozoğunhöyüğü Region spread over the banks of Mısırözü Creek. Architectural foundation stones belonging to a 4x4 m structure were observed on the area. The area is in

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											the process of registration by the Kayseri Preservation Board. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
70	Yukarıelmahacılı	Yozgat	973+960-974+080	Negligible	2	Very minor changes to archaeological materials, or setting		x			The site is a “Flat Settlement” and located 1 km south of Yozgat-Yerköy main road, 1,8 km southwest of Yukarıelmahacılı village and 600 m east of Kuştepe. On the field surface potsherds dated to Early, Middle and Late Bronze Ages are discovered. The distance between the site and the construction area is 32m. According to 01.03.2013 dated and 762 numbered decision, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
71	Yukarıelmahacılı	Yozgat	974+050-974+110	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board. The area is located 95 m away from the construction main axis. Construction activities in the vicinity of the region should be carried out under archaeological monitoring.
72	Çatalarkaç	Yozgat	979+850-979+920	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board and was declared as first degree protection site.The area is located 235 m away from the main construction axis. Construction activities in the vicinity of the region should be carried out under archaeological monitoring.
73	Külyarma 2	Kırşehir	987+650-987+680	No Change	1	No material change to the site or feature		x			The area is a Tumulus type tomb. It is one of the two tumuli located in Külyarma Region. Traces of illegal excavations of treasure hunters were observed on top of the tumulus. As it is the case with the other tumulus, potsherds belonging to Hellenistic and Roman periods were encountered in the excavated pits. Registration by the Nevsehir Preservation Board is in progress. It is recommended to carry out all construction activities under archaeological monitoring.
74	Külyarma 1	Kırşehir	987+650-987+680	No Change	1	No material change to the site or feature		x			The area is a Tumulus type tomb. It is one of the two tumuli located in Külyarma Region. Traces of illegal excavations of treasure hunters were observed on top of the tumulus. Potsherds belonging to Hellenistic and Roman periods were encountered in the excavated pits. Registration by the Nevsehir Preservation Board is in progress. It is recommended to carry out all construction activities under archaeological monitoring.
75	Tuzla Köprüsü	Yozgat	1003+380-1003+420	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board. The area is located 153 m away from the main construction axis. Construction activities in the vicinity of the region have to be carried out under archaeological monitoring.
76	Tuztepe	Yozgat	1005+350-1005+440	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Nevşehir Preservation Board (Ref. No. 96743921/ 40.00.0.182). The area is located 95 m away from teh main construction axis. As expert opinion it is recommended to conduct all construction activities in the vicinity of the region under archaeological monitoring.
77	Aralısarı	Kırıkkale	1047+700-1048+150	No Change	1	No material change to the site or feature		x			The area is a "Slope Settlement". It is located about 1.5 km northwest of Besler village. A water resource known as Aga Cesmesi is at the south of the area. Intense potsherds belonging to Roman period were observed on the surface. In addition, pieces of bones, other pieces possibly belonging to glass ornaments and architectural block stones were also observed. The location was declared as third degree protection zone by Ankara Preservation Board No 2 by decision no 656 dated 24.10.2013. The area is 112m away from the construction main axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
78	Yeniyapan	Kırıkkale	1059+400-1059+500	No Change	1	No material change to the site or feature		x			The area which is located 1 km northwest of Yeniyapan village on the side of Kayseri state road is a flat settlement. Potsherds most probably belonging to Bronze Age were observed on the surface. The area and surroundings are intensely used for agriculture. It is recommended to carry out all construction activities under archaeological monitoring.
79	Maşattepe	Kırıkkale	1063+800-	No Change	1	No material change to the		x			The cemetery is located over the Masal hill which is 500 m south of Gülkonak Village. As expert opinion, it is recommended to carry out all construction activities under archaeological

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			1063+850			site or feature					monitoring avoiding the part of the cemetery remaining in the construction corridor.
80	Roma Su Kanalı	Kırıkkale	1075+250-1075+350	No Change	1	No material change to the site or feature		x			The location was declared as the third degree protection zone by Ankara Preservation Board No 2. The area is 213 m away from the Tanap construction axis. Construction activities in the vicinity of the region have to be carried out under archaeological monitoring.
81	Fatmatepesi Sırtı	Ankara	1120+560-1120+590	No Change	1	No material change to the site or feature		x			The tumulus having a diameter of 4.5 m diameter and a height of 1 m. is located at the south of Fatmatepesi Ridge on the area which is currently used for agriculture. Most probably it belongs to the Roman period.The area was declared as first degree protection site by Ankara Preservation Board no 2 with the decision 656 dated 24.10.2013. The location is 48 m away from the construction axis. It is recommended to conduct all construction activities under archaeological monitoring.
82	Gölderesi	Ankara	1128+480-1128+600	No Change	1	No material change to the site or feature		x			The slope settlement is located southwest of Yöreli Village. Some architectural remains (column pieces and marble blocks) probably belonging to the Roman period were observed around the canals surrounding the swamp area. One of the column pieces bears an inscription. A marble block has an inscription in Ottoman language. Roof tiles and potsherds were observed on the hill located southwest of the swamp. The location is 136 m away from the construction axis. The area was declared as third degree protection site by Ankara Preservation Board no 2 with the decision 656 dated 24.10.2013. It is recommended to conduct all construction activities under archaeological monitoring.
83	Gavurkale	Ankara	1133+950-1134+050	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Ankara Preservation Board No 2. The area is located 231 m away from the construction axis. Construction activities in the vicinity of the region have to be carried out under archaeological monitoring.
84	Kırıklı	Ankara	1141+700-1142+050	No Change	1	No material change to the site or feature		x			The area carries potential archaeological risk. Potsherds having archaeological value were observed within the construction corridor located in the north section of the Kırıklı Huyuk protection site (Chalcolithic, Bronze, Iron Age). The archaeological site may possibly extent (lower settlement, necropolis, etc.) towards the pipeline construction corridor. The area is 131 m away from the construction axis. It is recommended to carry out construction activities under archaeological monitoring.
85	Kırıklı	Ankara	1141+830-1141+850	No Change	1	No material change to the site or feature		x			The location is declared as a first degree protection zone by the decision no 5448 dated 15.10.2010 of the Ankara Preservation Board No 1. It is 239 m away from the construction axis. Construction activities in the region has to be implemented under the archaeological monitoring.
86	Çakıllı	Ankara	1154+000-1154+400	No Change	1	No material change to the site or feature		x			The cemetery belonging to Ottoman period is located 3 km northeast of Dikilitaş village. Some architectural elements such as column pieces and marble blocks were observed on the area surface. The location is 130 m away from the construction axis. All construction activities around the cemetery have to be carried out under archaeological monitoring.
87	Küllük	Ankara	1205+580-1205+750	No Change	1	No material change to the site or feature		x			The cemetery is located 2 km northeast of Çanakçı Village and 600 m south of the road between Türkkarsak and Tatlıkuyu Villages. The location is 1 km northeast of the Akgedik Hill and 600 m south of Küllük hill. The location and environs are used for agriculture. Rows of tombstones in rectangular form were observed in the area. In addition, tips of few tombstones were discovered. The cemetery most probably belongs to late Ottoman and early Republic period. The location is 46 m away from the construction axis. It is recommended to carry out construction activities under archaeological monitoring.
88	Altınini	Eskişehir	1230+750-1231+120	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 111m away from the construction axis. As expert opinion it is recommended to conduct all construction activities around the archaeological area under archaeological supervision.

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89	Örenbağları	Eskişehir	1239+300-1239+700	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 124 m away from the construction axis. As expert opinion it is recommended to conduct all construction activities around the archaeological area under archaeological supervision.
90	Kurupınar	Eskişehir	1250+900-1251+150	No Change	1	No material change to the site or feature		x			This slope settlement is located on the state highway from Eskişehir to Sivrihisar on the both slopes around the BoğAziçi creek which is close to the point where the pipeline crosses. In a newly opened water trench, some architectural elements and potsherds most probably belonging to bronze age were observed. On the fields, some columns and other architectural elements such as an architrave were revealed as the result of agricultural activities. The settlement was most probably used in the Bronze age and the Roman period. The location is 233 m away from the construction axis. The area is in the process of registration by the Eskişehir Preservation Board. As expert opinion, it is recommended to carry out all construction activities in the region under archaeological monitoring.
91	Seydi Çayı	Eskişehir	1323+440-1323+550	No Change	1	No material change to the site or feature		x			The area carry potential archaeological risk. Potsherds and roof tiles belonging to Roman and Early Byzantine periods were located on the fields east of Dogancayir village between Seydi creek and Hamidiye - Doğançayır road. The location is 181 m away from the construction axis. The intensity of the findings is low. Therefore it will be sufficient to conduct construction activities under archaeological monitoring.
92	Zafer Tepesi	Eskişehir	1329+450-1329+550	No Change	1	No material change to the site or feature		x			This slope settlement is located 2 km south of Zafer Hill and by the site of irrigation canals. Mortar, roof tiles and potsherds were observed on the surface. Among the discovered pieces, the glAzed potsherds may belong to Byzantine or Ottoman period. The area is 47 m away from the construciton axis. Therefore it will be necessary to conduct all construction activities under archaeological monitoring.
93	Koca Murat	Eskişehir	1329+750-1329+800	No Change	1	No material change to the site or feature		x			The slope type settlement is located 300 m. north of Kocamurat hill. A treasure hunter excavation pit was found on the settlement. The settlement is about 5 m high. The terracotta tablets and few potsherds indicate that it belongs to the Roman period. The lcoation is 125 m away from the construction axis. Eskisehir Preservation Board has initiated a registeration process. As expert opinion, it is recommended to carry out construction activities in the area under archaeological monitoring.
94	Koca Murat Tepesi 2	Eskişehir	1329+820-1329+900	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 112 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
95	Koca Murat Tepesi 1	Eskişehir	1329+950-1330+040	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 143 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
96	Güllü Höyük	Eskişehir	1330+180-1331+000	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 97 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
97	Büyükdere	Eskişehir	1332+700-1333+350	No Change	1	No material change to the site or feature		x			The huyuk with a height of 6 m is located on the left hand side of the road from Aksaklı to Büyükdere. Potsherds probably belonging to bronze and iron ages and roof tiles probably belonging to an architectural structure have been observed on the surface. The huyuk was destroyed due to intense agricultural activities and spread over the area. The area is 112 m away from the construction axis. Eskisehir Preservation Board initiated a registration process for the area. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.

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No.	**Receptor**	**Ranking**	**Approximate KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**DESCRIPTIONS**
98	Üçkuyu Sırtı	Eskişehir	1332+850-1333+360	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskisehir Preservation Board. It is located 207 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
99	Toraman Sırtı	Eskişehir	2+500-3+000	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The area is a "Slope Settlement" located on the Eskisehir Offtake route. It is located upper part of the region known as Toraman Ridge. Potsherds and rubbles probably belonging to an architectural structure were observed on the surface. Potsherds belong to middle ages. Eskisehir Preservation Board has initiated a registration process (ref document: 42244183-GNL/21-23, 03.01.2014). As expert opinion, route change is recommended for the part remaining in the construction corridor and following the route change conduct all construction activities in the region under archaeological monitoring.
100	Kale Yerleşimi ve Tümülüsü	Eskişehir	16+600-16+800	No Change	1	No material change to the site or feature		x			The area is a Huyuk settlement located on the Eskisehir Offtake route. It is located 1.3 km northwest of Yuruk Karacaoren village and 400 m. southeast of Akpınar Ridge. Two illegal excavations were observed on the road from Yuruk Karacoren to Eskisehir Industry Zone. Some traces of architectural foundation were observed on the huyuk located over a natural hill. Based on the potsherds observed on the surface it is estimated that the location was inhabited during Bronze and Iron Ages. The area is registered by the Eskisehir Preservation Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
101	Bakırcı Höyüğü	Eskişehir	23+000-23+500	No Change	1	No material change to the site or feature		x			The area is a Huyuk settlement located on the Eskisehir Offtake route. It is located among the agricultural fields about 850 m north of Sevinc Village. No agricultural activities were conducted on the area and it is well preserved. Huyuk is spread over a relatively large area. Based on the potsherds observed on the surface it is estimated that the area was inhabited in Bronze and Iron Ages. The area has been registered as a first degree archaeological site by the Eskisehir Preservation Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
102	Şaplı Höyük Mevki	Eskişehir	25+500	No Change	1	No material change to the site or feature		x			The area is a "Flat Settlement" located on the Eskisehir Offtake route. It is located 2 km norht of Sevinc Village among the agricultural fields located in the region known as Sablah hoyugu Mevkii. The cone of huyuk is visible on 1/25.000 scale maps but was destroyed probably by agricultural activities. The block and rubble stones revealed during the destruction were used to mark corners of the fields. Cultural layers may still exist under the gorund. The potsherds observed dates back to Iron Age, Hellenistic and Roman Periods. The area is registered by the Eskisehir Preservation Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
103	Dudu Höyük	Eskişehir	29+000-29+500	No Change	1	No material change to the site or feature		x			The area is a Huyuk settlement located on the Eskisehir Offtake route. It is located 2400 m south of Cumhuriyet village and 2600 northeast of Hasanbey district. The highest point of the huyuk is about 7 m. the huyuk spreads over an area which is 360 m at the south while the widest poing over the east west direction is 130 m. Pieces of ceramic reliefs dating back to Hitite period were observed on the surface. Some glAzed potsherds carrying characteristics of middle bronze ages were also observed. Pieces of roof tiles are also among the findings. The area is registered by the Eskisehir Preservation Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
104	Emir Çiftliği ve Çevresi	Eskişehir	1362+600-1366+800	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving	x	x			The areas was registered by Eskisehir Preservation Board with decision no 1821 dated 13.09.2013. The board does not allow any construction activities in the region as stated by letter no 42244183-720-2504. As expert opinion, route change is recommended for the section located within the construction corridor and after the route change conducting all construction activities under archaeological supervision. In case route change is not possible due to technical reasons. Application should be made to the Board with a justification letter.

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						deposits damaged or destroyed)					
105	Emirinçiftliği Mezar Anıtı	Eskişehir	1363+500-1364+050	No Change	1	No material change to the site or feature	x	x			There are many rock tombs and a rectangular shaped cult area in the region. It is located 2.3 km northeast of Gokcekisik Village and 0.9 km norhteast of Teke Tepe. The tombs were carved over the rock formation located on the south of the area. The tombs resemble Phrygian structures and each has size of approximately 6 x 4 x 2.3 m with an entrance of 3.5 m x 2 m. Small niches were observed on the walls. The cult area has rectangular shaped with a visible entrance. Eskisehir Preservation Board initiated the registration process. The route has to be moved at least 100 m away from the construction corridor as stated by the Board decision no 1777 date 11.09.2013.
106	Gökçekısık	Eskişehir		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)	x	x			Area is flat settlement.Some potsherds fragments were observed on the surface in Pipe Stock Yard which located about Eskişehir-Merkez- Gökçekısık village. There are Phyrigian settlement in Northwest of the Gökçekısık village and arrounds and registered as 1st. Degree archaeological area. The potsherd fragments which observed in Pipe Stock Yard may belongs to Phyrigian settlement at Gökçekısık as a different archaeological settlement. Eskisehir Preservation Board has initiated the registration process. As stated on letter 42244183-720-2504, the location of the camp site have to be changed.
107	Emirçiftliği Yörük Mezarlığı 1	Eskişehir	1365+280-1365+370	No Change	1	No material change to the site or feature		x			The are is declared as first degree protection zone by Eskisehir Preservation Board. It is located 116 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
108	Kümbetakpınar	Eskişehir	1392+880-1393+300	No Change	1	No material change to the site or feature		x			The slope settlement is located at the north of Kümbetakpınar Village and south of Çambayır Hill about 700-800 m east of Kocakalemli area. Stones belonging to an architectural structure, potsherds and roof tiles dating to Ottoman period were observed on the surface. It is located 106 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
109	Haşhaşlık Tepe	Eskişehir	1400+450-1400+850	No Change	1	No material change to the site or feature		x			The formation resembling a huyuk is at 3 km northeast of Dereyalak Village and 3.5 km northwest of Aşağı Kuzfındık Village on the southern slopes of Haşhaşlık hill at immediate north of Karcık creek. Intense potsherds roughly belonging to middle ages have been observed on the surface. At the west of the location a pathway and a simple bridge is located. No architectural remains were observed on the slopes but scattered stones indicate the presence of an architectural structure on the hill. The area is currently used for agriculture. Potsherds are more intense on the slopes as compared to the top of the hill. The are is very convenient for a settlement with the surrounding forests, proximity to water spring and suitability for agriculture. The area is located 138 m away from the construction axis. Eskisehir Preservation Board initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
110	Karcık Höyük	Eskişehir	1401+750-1402+120	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 147 m away from the construciton axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Approximate KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**DESCRIPTIONS**
111	Yeni Üreğil	Bilecik	1415+180-1415+230	No Change	1	No material change to the site or feature		x			This a tomb structure in the form of a tumulus. It is located about 1.5 south east of Yeni Üreğil Village and 1 km northwest of Hasan hill over a terraced plain. The tomb structure may belong to any period between Phrygian and Roman. No artefacts that could help to dating is observed. It is located 102 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
112	Yeşilçukurca	Bilecik	1419+280-1419+360	No Change	1	No material change to the site or feature				x	The modern cemetery about 400 m west of Yeşilçukurca village is currently used by the villagers. No archaeological mitigation measures are necessary during the construction activities.
113	Düzağaç	Bilecik	1422+650-1423+100	No Change	1	No material change to the site or feature		x			The slope settlement and Necropolis is located 1 km south of Düzağaç village. The area covers both banks of the Küçükçayır creek. Stone debris and roof tile pieces were observed on the surface. It is located 141 m away from the construction axis. Eskisehir Preservation Board initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
114	Selimdede Tepesi	Kütahya	1432+600-1434+300	No Change	1	No material change to the site or feature		x			The archaeological area and the shrine is located 1.5 km south of Çukurca Village, 2 km northeast of Muratlı village. The area resembling a natural hill is at the south of Akçaalan reef. Iğder creek passes over the southern slopes. A shrine for a dervish named Selim Ata (1320-1400) who lived in Murat I period is located over the hill. In addition to the main structure with an unknown date, there is a chapel structure (masjid). A fountain, a concrete building for public gatherings and toilets are also present. The area was terraced before the shrine was built. On the same hill, close to the shrine, there is a fountain structure. Four columns and some architectural elements belonging to Roman or Byzantine period were used in the construction of the fountain. The hill has archaeological importance with the scattered architectural remains made of baked clay and potsherds. All construction activities around the site should be carried out under archaeological monitoring.
115	Muratlı	Kütahya	1435+700-1436+350	No Change	1	No material change to the site or feature		x			The slope settlement is on the west and south slopes of the hill located at the north of Muratlı Village. Potsherds and roof tile pieces belonging to middle ages were observed over the surface. It is located 128 m away from the construction axis. Kutahya Preservation Board has initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
116	Ahmet Sırtı	Kütahya	1436+400-1436+500	No Change	1	No material change to the site or feature		x			The tumulus type tomb is located at immediate east of Çukurca junction of the Muratlı-Ilıcaksu road about 800 m southeast of Ilıcaksu village. The tumulus is about 4 m high and most probably belongs to Iron age. There are agricultural fields over the tumulus.The area is located 98 m away from the construction axis. Kutahya Preservation Board has initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
117	Arapdede	Kütahya	1456+850- 1456-950	No Change	1	No material change to the site or feature		x			The shrine is located on the Killik hill which is 2.8 km north of Saruhanlar village. The shrine is in a structure with stone walls and roof tiles which is built like other houses in the village. A sarcophagus made of concrete which is about 5 m long in the form of a grave is located in the shrine. An irregular stone wall surrounds the shrine and forms a porch. The building is not currently in use. The area is located 130 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
118	Çayırağzı Sırtı	Kütahya	1461+700-1462+100	No Change	1	No material change to the site or feature		x			The area is a hill top settlement. CayagAzi ridge has a shape of wide spread hill and located at 800 m east of Soğucak village and 300 m south of Orhaneli creek, on the north of the road to Böçen village. Intensive roof tiles were observed on the hill top. It is estimated that the area is a middle age settlement composed of a few houses. The ridge is currently used for agriculture and the surface discoveries were located on a big rock formation. The area is located 209 m away from the construction axis. Kutahya Preservation Board has initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Approximate KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**DESCRIPTIONS**
119	Soğucak	Kütahya	1461+880-1462+050	No Change	1	No material change to the site or feature		x			The modern cemetery is located 600 m east of Soğucak Village and 200 m west of Çayırağzı ridge. The cemetery is surrounded by a stone wall. A small section on the south is located within the construction corridor. The area is located 63 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
120	Nalbant	Bursa	1479+200 - 1479+650	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The site is a “Flat Settlement” located 800 m north of Nalbant village in Harmancık district and 700 m south of Danişment village in Hoban district. This archaeological site is divided in two by the asphalt road passing through. On the surface field pieces of rough pottery examples dated to Roman period are discovered which are more dense on the eastside of the road. On 100 m southeast of the area and within 500 m corridor of the pipeline route, there are Demir Kaynak Türbesi and Modern Cemetery. In the cemetery, spolien used of marble stone blocks of architectural elements are determined. A route change is accepted for the area that the boundaries are defined and the distance between the site and the construction area is 23m. During all construction activities around the area, archaeological survey is recommended as an expert opinion.
121	Üycekdede	Bursa	1488+750-1488+900	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection site by Bursa Preservation Board. The area is located 106 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
122	Dereköy	Bursa	1503+400-1503+500	No Change	1	No material change to the site or feature		x			The modern cemetery belongs to Dereköy. The area is located 36 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
123	Dallıca Köyü	Bursa	1573+550-1573+800	No Change	1	No material change to the site or feature		x			This modern cemetery is located 1 km northeast of Dallıca Village and 600 m west of Yarlıyatak Hill. It is located within the 500 m pipeline corridor 41 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.. It is recommended to carry out all construction activities under archaeological monitoring.
124	Arnavut Sırtı	Bursa	1585+750-1585+900	No Change	1	No material change to the site or feature		x			The location was declared as the first and second degree protection zone by Bursa Preservation Board. The area is located 96 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
125	Ekinlitepe Mevkii	Balıkesir	1597+800-1598+050	No Change	1	No material change to the site or feature		x			The slope settlements is located 2.5 km west of Göbel and 2 km south of Muradiye. The area is currently used for agriculture. Intense potsherds belonging to Byzantine period and clay roof tiles were observed on the surface. The area is declared as first degree protection site by Bursa Preservation Board with decision 2534 dated 11.11.2013. The area is located 33 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
126	Kalebayırı	Balıkesir	1617+950-1618+150	No Change	1	No material change to the site or feature		x			The location was declared as the first and second degree protection site by Bursa Preservation Board. The area is located 167 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities in the region under archaeological supervision.
127	Kalebayırı Arkeolojik Alanı	Balıkesir	1618+600-1619+000	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or	x	x	x		The location was declared as the first and second degree protection zone by Bursa Preservation Board. Route change is necessary for the location where the boundaries are defined. Following the route change, construction activities in the region have to be carried out under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Approximate KP	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
						destroyed)					
128	Hamamlı	Balıkesir	1619+200-1619+900	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x	x		The location was declared as the first and third degree protection zone by Bursa Preservation Board. Route change is necessary for the location where the boundaries are defined. Following the route change, construction activities in the region have to be carried out under archaeological monitoring.
129	Şevketiye	Balıkesir	1622+400-1624+750	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The site is a “Hill Settlement” located on hilltops include Çadır Tepe on 1.4 km northeast of Şevketiye village, and just on west of the finding area Boyalık Tepe located 2.2 km south of Akçaova village. The site draws attention with its proximity to natural resources. On the field surface, lots of potsherds and pieces of roofing tiles are discovered. According to findings the site can be dated to Late Roman Period. Bursa Preservation Board of Cultural Assets registered the site as 2th degree archaeological site by 14.02.2014 dated and 2960 numbered decision. According the same decision of the board, the field work must carried out by supervision of the related museum.
130	Bekirağa Tepesi	Balıkesir	1626+350-1626+700	No Change	1	No material change to the site or feature		x			The slope settlement is located 1.6 km east of Bayramiç village and 2.4 km southwest of Akçaova village. Potsherds and pieces of roof tiles made of baked clay were observed on the surface. Discovered pieces indicate that the area may belong to late Roman - Early Byzantine period. The area is located 208 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
131	Kapaklıçeşme	Balıkesir	1628+700-1630+050	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The site is a “Hill Settlement” located 1.5 km north of Bayramiç village, around the Kapalıçeşme Mevkii on 800 m west of Kocakoru Tepesi. On the field surface, a large quantity of Middle Age pottery and terr cotta roofing tiles are discovered. In the surrounding of the site, agricultural activities are still in progress. According to 14.02.2014 dated and 2959 numbered decision of Bursa Preservation of Cultural Assets, the site is registered as 3rd degree site; however this registered area is not located within the 500 m corridor of the pipeline route. When the expert opinion and digital data are considered, for the part of the area within the construction corridor, archaeological test pits are necessary. According to excavation results and decision of the related board, all construction activities should be archaeologically supervised if necessary.
132	Çeşmebayırı Sırtı	Balıkesir	1631+100-1631+700	Negligible	2	Very minor changes to archaeological materials, or setting		x			The area is most probably a slope settlement and located on 4 km southwest of Asmalıdere village, 1 km southeast of Yeltepe and 1.5 km south of Bağlarbaşı Hill. Roof tile pieces and potsherds belonging to Roman period were observed on the surface. Since the area is used for agriculture, it is also possible that the material was brought to the location as a result of agricultural activities. All construction activities should be carried out under archaeological monitoring. According to decision 2534 dated 11.11.2013 of the Bursa preservation board, excavations should be carried out and all activities should be conducted under the supervision of local museum directorate.
133	Zillak Tepe	Balıkesir	1635+800-1636+000	No Change	1	No material change to the site or feature		x			The slope settlement is located, 5 km. west of Manyas Lake, 750 m southeast of Ilıcak village and 500m. southwest of Sivri Dere. A concrete cistern was built on the top of the area. Potsherds, stone architectural elements and pieces of roof tiles made of baked clay were observed on the surface. Discovered pieces indicate that the area may belong to Middle Ages - Byzantine period. Some architectural elements made of andezid stone were observed over the

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Approximate KP	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
											slopes where the waer storage is located. The area is 51 m away from the constuction axis. Bursa Preservation Board initiated the registration process for the site with decision 2534 dated 11.11.2013. As expert opinion, route change is recommended for the section located on the construction corridor. Following the route change, construction activities in the region should be conducted under archaeological supervision.
134	Üzümlü	Balıkesir	1636+300-1638+100	No Change	1	No material change to the site or feature		x			The area is most probably a slope settlement and it is located on both banks of the Beyridlik creek flowing about 1 km southeast of Üzümlü Village. Potsherds belonging to late Roman or Early Byzantine period and roof tiles made of baked clay were observed on the area. Due to agricultural activities, the pieces are scattered over a wide area. the location is 76 m away from the construction main axis. As expert opinion, route change is recommended for the section located on the construction corridor. Following the route change, construction activities in the region should be conducted under archaeological supervision.
135	Paşaçiftliği	Balıkesir	1642+600-1643+100	Negligible	2	Very minor changes to archaeological materials, or setting		x			Located about 1 km south of Paşaçiftliği village. The area is located 1 km east of Dedeali Hill and 1 km north of Şarakman Hill. Bağlık creek flows along the south of the area. The area is very convenient for settlement in terms of water resources and agricultural fields. The area is most probably a flat settlement. Intense potsherds and roof tile pieces made of clay were observed on the surface. The findings most probably belong to late Roman or early Byzantine period. The area is 17 m away from the construction axis. Based on the decision 2534 dated 11.11.2013 of the Bursa Preservation Board, all construction activities have to be carried out under archaeological monitoring.
136	Deveci Düzü	Balıkesir	1644+850-1645+100	No Change	1	No material change to the site or feature		x			This Slope Settlement is located on the area called Devecidüzü Region which is 1.2 km west of Paşaçiftliği Village. Potsherds, pieces of roof tiles made of baked clay and rubble stones belonging to architectural elements were identified over a wide area. The area is currently used for agriculture. The findings most probably belong to late Byzantine or Ottoman period. The location is 89 m away from the construction axis. It is recommended that all construction activities should be carried out under archaeological monitoring.
137	Sağnıç Sırtı	Balıkesir		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)		x			The site located approximately 1.8 km west of Paşaçiftliği village is used as agricultural land. The potsherds with medium density are mostly pieces of rough plastered and stone mixed Roman pottery examples (there is a small quantity of mouth-handle and body pieces). These rough plastered examples correspond with roofing tiles forms and they could have been used for covering some graves. Due to these facts, the area can be determined as Necropole. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
138	Armutlu Tepe	Balıkesir	1649+150-1650+500	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area is most probably a slope settlement and located 1.2 km north of Körpeağaç Village. The are covers both sides of the road from Körpeağaç to Havutça and also includes Armutlu Hill. Intense potsherds and roof tile and brick pieces made of clay were observed on the surface. Although the size of the settlement is observed to be small, the potsherds were spread over a wide area. The marble column base located at the bottom of a wall in Havutça village which is located 2.5 km south of the area is an indication of archaeological potential of the region. This base belonging to Roman or Byzantine period may date back the same period with the Armutlu Hill settlement. The area is currently used for agriculture. This might be the reason why the artefacts are scattered over a wide area. The location is on the construction corridor of the project. As stated by decision 2534 dated 11.11.2013 of the Bursa Preservation Board, arcaheological monitoring is recommended for all construction activities in the area.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Approximate KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**DESCRIPTIONS**
139	Cankurtaran	Balıkesir	1653+180-1653+300	No Change	1	No material change to the site or feature		x			The area is most probably a flat settlement and located 850 m northeast of Ulukır Village. Intense tablet pieces made of baked clay were observed over the surface. The area most probably dates back to Roman period. The area is 24 m away from the construction axis. As stated by decision 2534 dated 11.11.2013 of the Bursa Preservation Board, arcaheological monitoring is recommended for all construction activities in the area.
140	Ahlatlıbaba Tepesi	Balıkesir	1657+000-1657+280	Negligible	2	Very minor changes to archaeological materials, or setting		x			The area is most probably a slope settlement and located 3 km northwest of Ulukır Village. Power lines cross the area. Potsherds and roof tile pieces made of clay belonging to late Byzantine and Ottoman period were observed on the surface. The area is 14 m away from the construction axis. As stated by decision 2534 dated 11.11.2013 of the Bursa Preservation Board, arcaheological monitoring is recommended for all construction activities in the area.
141	Akyol Deresi	Balıkesir	1660+190-1660+500	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area is most probably a slope settlement and spreads over both banks of Akyol creek passing about 2.5 km east of Çifteçeşmeler Village. Relatively intense potsherds and roof tile pieces made of clay were observed on the surface. The findings most probably belong to late Roman or early Byzantine period. The area resembles a small village having few houses. The area is convenient for settlement due to proximity to water resources and agricultural fields. As stated by decision 2534 dated 11.11.2013 of the Bursa Preservation Board, arcaheological monitoring is recommended for all construction activities in the area.
142	Kavaktepe	Balıkesir	1660+870-1660+950	No Change	1	No material change to the site or feature		x			The area has slope settlement features. It is located about 11 km northeast of Çifteçeşmeler Village and 800 m south of Kavaktepe. Akyol creek passes 600 m. east. Intense potsherds and roof tile pieces were observed on the surface. The artefacts become more intense on the northwest of the area. The small village settlement most probably belongs to late Roman or early Byzantine period. Bursa Preservation Board initiated the registration process for the site with decision 2534 dated 11.11.2013. As expert opinion, route change is recommended for the section located on the construction corridor. Following the route change, construction activities in the region should be conducted under archaeological supervision.
143	Çifteçeşmeler	Balıkesir	1662+080-1662+410	No Change	1	No material change to the site or feature		x			The area is declared as third degree protection site by decision 1508 of the Bursa Preservation Board dated 21.12.2012. The area is 85 m away from the construction axis. As expert opinion, it is recommended that all activities in the area should be conducted under archaeological supervision.
144	Çatalahmet Tepe	Balıkesir	1662+300-1664+200	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area carries high potential risk. It is located 2 km northeast of Kınalar Village and 1.6 km northwest of Çifteçeşmeler village. The area can be defined as an extension of the Cifteçeşmeler Protection Zone over the TANAP pipeline axis. Findings on the surface are spread over a 1.8 km x 900 m area. Because of intense agricultural activities, the artefacts are scattered over a wide area. Potsherds, roof tile and pieces belonging to late Roman, Middle Age and Byzantine periods were observed on the surface. The area is within the 500 m impact corridor of the TANAP route and partially located on the construction corridor. As stated by decision 2534 dated 11.11.2013 of the Bursa Preservation Board, arcaheological monitoring is recommended for all construction activities in the area.
145	Tavşantepe	Çanakkale	1674+600-1674+800	Negligible	2	Very minor changes to archaeological materials, or setting		x			The area has slope settlement features. It is located 800 m northwest of Gerlengeç village, 500 m east of Tavşantepe and over the northern slopes of Akpınar creek. Intense potsherds and roof tile and brick pieces belonging to Byzantine - Ottoman period made of clay were observed on the surface. The area is within the 500m impact corridor and 14 m away from the construction axis. It is recommended to carry out all construction activities in the identified region under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Approximate KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**DESCRIPTIONS**
146	Salkımtepe	Çanakkale	1690+100-1690+200	No Change	1	No material change to the site or feature		x			The location was registered by Çanakkale Preservation Board. It is 170 m away from the construction axis. Construction activities in the archaeological region should be carried out under archaeological monitoring.
147	Aktoprak	Çanakkale	1694+100-1695+100	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	X	x			The site is a Necropole registered as 1st degree archaeological site by 21.11.2003 dated and 2525 numbered decision of Çanakkale Preservation Board of Cultural Assets. With 26.09.2013 dated and 1158 numbered decision of the same board, the route change request of the board is defined. After this alteration, the distance between the site and the construction axe of Tanap pipeline route is 28m. During all activities around the site, archaeological survey is recommended as an expert opinion.
148	Palamut Dalyan-Osmancık Göçüğü	Çanakkale	1705+400-1710+300	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area is identified as High Potential Risk area from Archaeological point of view. “Pigging Station Marmara East Camp" is also located in the potential risk area.Potsherds, roof tile pieces and similar architectural materials belonging to late Roman-Byzantine period were observed on the surface. The area is located close to the Parion Ancient city. Therefore it is necessary to conduct all construction activities under archaeological monitoring.
149	Kemer Mevkii	Çanakkale	1706+800-1706+980	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The site is a “Flat Settlement” registered as 3rd degree archaeological site by 30.10.2013 dated and 1201 numbered decision of Çanakkale Preservation Board of Cultural Assets. The site was within the boundaries of East Marmara Region Pigging Station, after the change of the location of the station the site remained out of the area. However the site is still located within the boundaries of 500 m impact corridor of the pipeline route, and the distance between the site and the construction area is 34 m. The site can be dated to Roman Period and during all contruction activities, archaeological survey is recommended as an expert opinion.
150	Arkeolojik Alan	Çanakkale	1706+950-1707+150	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Çanakkale Preservation Board. It is located 205 m away from the construction axis. It is recommended to conduct all construction activities in the region under archaeological monitoring.
151	Kavakköy	Çanakkale	1734+450-1734+650	No Change	1	No material change to the site or feature		x			The area is located about 2 km east of Kavakkoy Village of Gelibolu. It is a Flat Settlement area with roof tiles and potsherds belonging to Roman Period. The area is within the 500 m impact area with a distance of 96 m to construction axis. It is declared as third degree archaeological protection area by Canakkale Preservation Board with decision 1158 dated 26.09.2013. The decision states that the construction activities should be conducted under the supervision of relevant institutions and archaeologists.
152	Kalealtı	Çanakkale	1748+700-1749+000	No Change	1	No material change to the site or feature		x			The location is 300 m west of Kalealti Village and 400 m north of Derincalik Mevkii. Some potsherds and architectural elements made of baked soil (roof tile and brick pieces) were observed on the surface. Remains of a fortress is at the immediate west of the location. The area is 28 m away from the construction axis and registered as first and third degree protection site by Canakkale Preservation Board. As expert opinion it is recommended to conduct all construction activities in the area under the supervision of archaeologits.
15	Mahmutkö	Edirne	1760+550-	No Change	1	No material change to the		x			The area carries potential archaeological risk. Scattered potsherds, roof tile and brick pieces belonging to middle ages were observed on the surface on the hilltop located southwest of

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No.	Receptor	Ranking	Approximate KP	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
3	y		1761+750			site or feature					Mahmutköy. The area is very convenient for a settlement. All construction activities should be carried out under archaeological monitoring.
154	Cevizlik	Edirne	1762+000-1762+200	No Change	1	No material change to the site or feature		x			This Huyuk type settlement is located 1.4 km west of Mahmutköy and bears archaeological findings belonging to Prehistoric and Classical periods. Potsherds and roof tiles made of baked clay dating back to prehistoric period were observed 600 m southeast of Cevizlik Region over the area on the right hand side of the road to Mahmutköy. The area is inside the 500 m impact corridor and 49 m away from the construction axis. It is recommended to conduct all construction activities under archaeological monitoring.
155	İzzetiye Köprüsü	Edirne	1770+500-1770+650	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Edirne Preservation Board. It is 212 m way from the construction main axis. During the construction works, activities creating vibration should be avoided and all construction activities in the region have to be carried out under archaeological monitoring.
156	Tayyare Sırtı	Edirne	1774+750-1774+850	No Change	1	No material change to the site or feature		x			The area is most probably a flat and slope settlement. It is located 1.7 km northeast of Siğilli Village, 2.3 km southwest of Keşan on the road from Siğilli to Keşan. Potsherds belonging to Byzantine - Ottoman period were observed on the surface. A water spring is located about 200 m south of the area. The location is 69 m away from the main construction axis. All construction activities around the site should be carried out under archaeological monitoring.
157	Kumlu Çeşme	Edirne	1787+050-1787+700	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area is most probably a slope settlement. It is located about 1.5 km northwest of Korucu Village. Dried creeks are located on the north of the area. Acıçeşme creek passes about 1.5 north. The potsherds encountered on the surface are rough and law fired Roman Ceramics. All construction activities around the site have to be carried out under archaeological monitoring.
158	Sivritepe	Edirne	1787+980-1788+000	No Change	1	No material change to the site or feature		x			The area is a "Tumulus". It is located 1 km southwest of Korucu Köy. It might belong to Iron Age (Achaemenid) period. It is registered as first degreee protection zone by Edirne Preservation Board with decision no 1390 dated 18.12.2013. The area is 125 m away from the construction axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
159	Hıdırköy	Edirne	1790+700-1791+050	No Change	1	No material change to the site or feature		x			The area is most probably a slope settlement. It is located about 800 m southwest of Hıdırköy. The area is currently used for agriculture and divided into two by a tractor pathway. Intense potsherds, pieces of roof tiles and bricks made of clay were observed on the surface. Patterns on the glAzed ceramics indicate a time line of Byzantine-Ottoman period. The area is 129 m away from the construction axis. It is recommended to carry out all construction activities under archaeological monitoring.
160	Turpçular	Edirne	1795+100-1795+300	No Change	1	No material change to the site or feature		x			The area which is surrounded by a wall is a modern cemetery located on immediate west of Turpçular Village and located 359 m away from the construction axis. It is recommended to carry out all construction activities under archaeological monitoring.
161	Bağlı Sırtı	Edirne		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100%		x			The site is approximately located near 2700 m south of Sarıcaali village in İpsala district . Irrigation channels are installed in the western plain, which is formed by the alluvium deposit of the Meriç River. Some pottery examples are discovered on the northern side of the FMS-GR station. These pieces are examples of rough plastered and stone mixed Roman pottery. Although not yet certain, they can be classified as roofing tiles. Besides these dominated examples, some pithos rims and handles and cooking pots are observed. The site can be stated as a “slope settlement” due to the topographic and archaeological features of the area. During every construction activities in this field where Tanap FMS-GR station will be

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Approximate KP	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
						of surviving deposits damaged or destroyed)					constructed, archaeological supervision is recommended as an expert opinion.

Table 17 **Archeological Findings**

* The table of archaeological finding will be updated and submitted to each contractor.

4.4 Chance Find procedure during land preparation and construction

In this phase any underground cultural assets can be discovered. In these circumstances, all construction activities must be stopped. The site will be put under protection. Archaeological team responsible from monitoring will be carried out field assessment and inform the related Archaeological Museum in order to start the necessary salvage excavations. The following sections describe the legal process in case of a finding during construction phase.

An archaeologist will accompany to each excavation works of the pipeline and record any assets found as a result of trench works. When archaeological strata or remaining are encountered, the requirements of following legislation will be followed:

- Law no 2863 and dated July 23, 1983 regarding Protection of Cultural and Natural Assets
- Regulation on the Fixation and registration of Real estate Cultural and Natural Assets that need to be Protected
- European Convention on the Protection of Archaeological Heritage
- Convention concerning the Protection of World Cultural and Natural Heritage and
- World Bank Group

Law no 2863 and dated July 23, 1983 regarding Protection of Cultural and Natural Assets set the following requirements:

- Those property owners, who find movable and real estate cultural and natural assets, know or have just become aware of that there are cultural and natural assets on the lands they own or use shall be obliged to inform the closest museum directorate or village headman or local governor in other places maximum in three days. Such assets shall be notified to the proper major command if they are found in the military garrison and forbidden zones. Being notified; village headman, local governor or relevant authorities who directly become aware of such assets shall take the necessary measures for the preservation and security of such assets. The headman shall inform the closest local governor on the same day about the assets as well as the measures taken; the local governor and other authorities shall inform the Ministry of Culture and Tourism and the closest museum directorate in writing within ten days. The Ministry and museum director receiving the notification shall take the due action as soon as possible as per the provisions of this law.

- The fixation of the real estate cultural and natural assets that need to be protected as well as the natural protected areas shall be made by obtaining the opinions of the relevant institutions and organizations the activities of which are affected in the coordination of the Ministry of Culture and Tourism. The date, art, zone and other properties of the cultural and natural assets will be taken into consideration during fixation. Adequate works that are similar and reflect the properties of their periods will be fixed as cultural assets that need to be protected taking account of the possibilities of the state. The fixations regarding the real estate cultural and natural assets that need to be protected shall be registered upon the decision of the regional council of protection. The procedures, principles and criteria regarding fixation and registration shall be set forth in a regulation. The real estate cultural and natural assets owner by the registered and affiliated foundations which are under the management or control of the Directorate General of Foundations; and real estate cultural and natural assets such as mosque, tomb, caravansary, madrasah, bath, prayer room, small Islamic monastery, fountain, dervish lodge, water fountain and etc. that are owned by real and legal entities and need to be protected shall be fixed and recorded in inventory by the Directorate General of Foundations. The announcement, declaration and land registry of registration decisions shall be stipulated in the regulation.

- Constructions and physical interventions shall not be allowed on the protected and cultural Substantial repair, construction, installation, drilling, partial or complete demolition, burning, excavation or similar works shall be considered as construction and physical intervention.

- In the event that an archaeological antique is found coincidentally during the construction and excavation works all construction works shall be stopped in the area where the antique is found and the Museum Directorate of that province shall be contacted under the relevant law[13].

A protocol that outlines the activities to be carried out with respect to the cultural and natural assets found along the TANAP Project was concluded with the Ministry of Culture and Tourism. Such protocol should be included in the CHMP that is prepared.

Contact information of Preservation Boards and Museum Directorates in each province on the pipeline route is given in below table:

[13] Regulation on Protection of Cultural and Natural Assets (Official Gazette 23 July 1983, 2863), Article 4. Imperative Notification

PROTECTION BOARDS	AREA OF RESPONSIBILITY	ADDRESS
Kars Regional Drectorate of Cultural Entities Preservation Board	Ardahan, Kars	Cumhuriyet Mah. İnönü Cad. İl Genel Meclis Binası No: 20 KARS
Erzurum Regional Drectorate of Cultural Entities Preservation Board	Erzurum, Bayburt, Bingöl,Tunceli, Erzincan	Yeni Hükümet Konağı Kat: 5 ERZURUM
Trabzon Regional Drectorate of Cultural Entities Preservation Board	Trabzon , Artvin,Gümüşhane, Giresun,Rize	Cumhuriyet Mahallesi Nemlioğlu Cemal Sokak No:25 TRABZON
Kayseri Regional Drectorate of Cultural Entities Preservation Board	Kayseri, Yozgat	Tacettin Veli Mahallesi Lalezade Cad. No:6 Kiçikapı – Melikgazi / KAYSERİ
Sivas Regional Drectorate of Cultural Entities Preservation Board	Sivas, Tokat, Malatya, Yozgat	Atatürk Kültür Merkezi Kat:4 SİVAS
Nevşehir Regional Drectorate of Cultural Entities Preservation Board	Nevşehir, Kırşehir, Niğde	Emek Mah. Nar Yolu No: 28 NEVŞEHİR
Ankara 1 Regional Drectorate of Cultural Entities Preservation Board	Ankara (Çankaya, Yenimahalle, Etimesgut, Keçiören, Mamak, Gölbaşı, Kazan, Sincan, Nallıhan, Beypazarı, Ayaş, Polatlı, Çamlıdere, Kızılcahamam), Bolu, Çankırı, Kastamonu	Konya Sokak No:46 Kat 1 Ulus / ANKARA
Ankara 2 Regional Drectorate of Cultural Entities Preservation Board	Ankara, Çankırı, Kırıkkale, Kastamonu, Çorum, Bolu	II. Meclis Binası Yeni Binalar Ulus/ ANKARA
Eskişehir Regional Drectorate of Cultural Entities Preservation Board	Eskişehir, Afyon, Bilecik	Arifiye Mahallesi Okullar Sokak No: 2 – ESKİŞEHİR

PROTECTION BOARDS	AREA OF RESPONSIBILITY	ADDRESS
Bursa Regional Drectorate of Cultural Entities Preservation Board	Bursa, Balıkesir	Osmangazi Caddesi Orhangazi Çıkmazı No: 22 Tophane/BURSA
Kütahya Regional Drectorate of Cultural Entities Preservation Board	Kütahya, Uşak	Cumhuriyet Mahallesi, Esnaf Caddesi, Esnaf ve Sanatkarları Birliği Binası (Metem Tesisleri),Kat: 4 / KÜTAHYA
Çanakkale Regional Drectorate of Cultural Entities Preservation Board	Çanakkale	Cevatpaşa Mah. İnönü Cad. No:2 Çanakkale
Edirne Cultural Heritage Preservation Board	Edirne, Kırklareli, Tekirdağ	Maarif Caddesi No: 18 İlhan Koman Evi – EDİRNE

Table 18 Contact Information of Protection Boards

PROVINCE OF THE MUSEUM	ADDRESS AND CONTACT INDIRMATION
KARS	**Address**: İstasyon Mah. Cumhuriyet Cad. KARS **Telephone:** : (0474) 212 14 30 - 212 38 17 Faks: (0474) 212 14 30 **E-mail:** karsmuzesi@kultur.gov.tr
ERZURUM	**Address**: Yenişehir Caddesi No: 11 ERZURUM **Telephone:** (0442) 233 04 14 Faks : (0442) 233 04 15
SİVAS	**Address**: Yüceyurt mah. Rahmi Günay cad. Arkeoloji Müzesi SİVAS **Telephone:** (0346) 221 04 46 **Fax:** (0346) 224 40 67 **E-mail:** sivasmuzesi@kultur.gov.tr
YOZGAT	**Address**: İstanbulluoğlu Mahallesi Müze Caddesi No:19 66100 YOZGAT **Telephone:** 0 354 212 27 73 / 212 14 94 **Fax:** 0 354 212 27 73 **E-mail:** yozgatmuzesi@kultur.gov.tr
KIRŞEHİR	**Address**: Kültür Merkezi İçi KIRŞEHİR **Telephone:** (0386) 213 33 91

ANKARA	**Address**: Gözcü Sokak No:2 06240 Ulus / ANKARA **Telephone:** +90 (312) 324 31 60 – 61 – 65 **Fax:** +90 (312) 311 28 39 **E-mail:** anmedmuz@ttnet.net.tr **E-mail:** anmedmuz@gmail.com
ESKİŞEHİR	**Address**: Atatürk Bulvarı No:64 26020 ESKİŞEHİR **Telephone:** 0 (222) 230 13 71 - 220 90 16 **Fax:** 0 (222) 230 17 49 **E-mail:** muze@eskisehirmuze.gov.tr
BURSA	**Address**: Kültürpark içi-Çekirge/BURSA **Telephone:** (0224) 234 49 18 **Fax:** (0224) 234 49 19 **E-mail:** bursamuzesi@kultur.gov.tr
BALIKESİR	**Address:** Paşabayır Mahallesi Ziyaret Bahçesi Mevkii Bandırma BALIKESİR **Telephone:** (0266) 714 82 71
KÜTAHYA	**Address**: Cumhuriyet Caddesi, Ulu Camii yanı KÜTAHYA **Telephone:** (0274) 223 69 90 **Fax:** (0274) 224 26 38 **E-mail:** muzemi@ttnet.net.tr
ÇANAKKALE	**Address**: İzmir Caddesi ÇANAKKALE **Telephone:** (0286) 217 65 65 **Fax :** (0286) 217 11 05
TEKİRDAĞ	**Address**: Kültür Sarayı Camiatik Mah. Roterdam Cad. Malkara TEKİRDAĞ **Telephone :** (0282) 427 00 53
EDİRNE	**Address**: Meydan Mahallesi Kadirpaşa Mektep Sokak No:7 EDİRNE **Telephone:** +90(284) 225 11 20 - 225 16 25 **Fax:** (0284) 225 57 48 **E-Posta:** edirnemuzesi@kulturturizm.gov.tr **Web Site:** http://www.edirnemuzesi.gov.tr

Table 19 Contact information of Museums

European Convention on the Protection of Archaeological Heritage (Valetta, 16/01-1992)

"European Convention on the Protection of Archaeological Heritage" (Amended) (Valetta, 16/01-1992) is also referred to as Valetta Convention. This convention provides for guidelines regarding the funding of publication of findings generated as a result of excavation and exploration works and studies

conducted. The Convention also deals especially with making the archaeological sites available to public and actions and activities regarding the training and education that need to be performed in order to raise awareness about the value of the archaeological heritage.

Convention concerning the Protection of World Cultural and Natural Heritage (1972)

Turkey signed the Convention concerning the Protection of World Cultural and Natural Heritage which is shortly referred to as World Heritage Convention and was put into force by United Nations Education, Science and Culture Organization (UNESCO) in the capacity of contracting party to the Convention in the meeting held in Paris between October 17 and November 21, 1972.

The parties to the convention agreed clearly and explicitly to ensure that "the most possible effective and efficient measures shall be taken in order to protect, preserve and promote the cultural and natural heritage" within their territories.

4.5 References

Annex of 2 Environmental Monitoring Plan

Chapter 8.3 and 8.6 of ESIA Report

Alignment Sheets

5 EROSION, REINSTATEMENT AND LANDSCAPING PLAN

5.1 Purpose and Scope

The Erosion and Reinstatement and Landscaping Plan (ERLP) intend to set out requirements for the reinstatement and re-establishment of soil and vegetation following construction (bio-restoration) activities so as to minimize erosion. This plan also applies to permanent and temporary AGIs during the construction of the project. This document is complementary to the other Project Standards.

The requirements defined in this plan are for the construction phase of TANAP Project but they can be used as a guideline for plans and procedures which will be implemented other phases of the project.

All contractors will fulfil the requirements defined in this ERLP by adapting them to their own operations. Each contractor must develop its own ERLP before the start of the construction phase.

A soil survey will be performed during preconstruction to provide the actual site data on soil and erosion characteristics and the biodiversity as described in Section 1. This data will be used to enhance the Erosion, Reinstatement and Landscaping Plan if required

5.2 Roles and Responsibilities

TANAP will monitor the implementation of the ERLP through auditing and inspections.

TANAP will ensure the ERL specification is available before the construction activities start.

Contractor will develop, implement and maintain a project-specific ERLP and procedures;

Contractors will make sure that the subcontractors are working in compliance with the requirements of the ERLP.

5.3 Requirements of ERLP

The reinstatement requirement of areas disturbed by construction works including project areas that are used to support construction, including (but not limited to) construction camps, pipe lay down areas, maintenance areas, roads and other transport facilities; and waste management and disposal sites.

The methods to be used for removing storing, and replacing excavated topsoil, subsoil and rock; and for disposing of any of those materials that are surplus to reinstatement requirements will be defined.

The process for selection of the methods to be used for excavation and blasting will be defined.

The choice of methods has significant influence on the quantity and character of subsoil/rock to be reinstated or disposed of will be described.

The minimum technical requirements for topographical replacement, erosion control and biorestoration will be described.

5.4 Principles of the ERLP methods

Contractor shall fully reinstate any land disturbance due to third party assets/activities where that disturbance is:

(1) within the TANAP-ROW; or

(2) close to the TANAP-ROW or project area that reinstatement is necessary in order secure the effective reinstatement of the project area.

The above principle applies to third party pipelines, railways, roads and buildings but is not limited to these examples.

Contractor shall, after backfilling and before replacement of soil, clean-up all areas affected by construction operations. That will include removal of all plant, equipment and materials not required for replacement of soil and subsequent biorestoration. In pre-developed areas (either for agriculture or industry) the cleaned condition shall be reinstated in accordance with this specification; however, the remediation of contaminated land is not covered by this specification and reference should be made to the Contract Documents.

Clean-up shall be accomplished to the satisfaction of TANAP.

Following completion of backfill and initial reinstatement activities Contractor shall reinstate any damaged or relocated third party properties. This shall be in accordance with the access to site agreements and be to satisfaction of the appropriate regulatory authority and TANAP.

In those areas and along water courses and in locations prone to erosion, Contractor shall backfill and re-instate immediately after installation of the pipeline. Also in these areas, Contractor shall fully re-instate in accordance with this specification. This applies to, but is not limited to: new/upgraded roads and tracks, including bridges, helicopter pads, construction camps,

maintenance bases, borrow pits, aggregate quarries and excess rock disposal sites.

5.5 Construction Support Facilities

Reinstatement of the land at Construction Support Facilities shall commence immediately on removal of each individual facility. The reinstated condition shall be to a condition at least as good as that prevailing before establishment of the facilities, depending on the post construction land use and the Project's access agreement.

Construction support facilities will be avoided in Special Areas. Should this become unavoidable prior approval of TANAP is required. The Contractor shall prepare all necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority.

Contractor shall reinstate the area to the satisfaction of TANAP, the regulatory authority or landowner and shall obtain written approval from TANAP, the appropriate regulatory authority or the landowner of the level of reinstatement. Notwithstanding such approval, all reinstatement shall be to the satisfaction of TANAP. Contractor's photographs of the condition of the area prior to construction may be used for reference.

There shall be no waste remaining after removal of the facility and upon return of the site to the landowner. Except for new roads, facilities shall be removed and the land restored so that it is suitable for its original function. New roads shall be handed over as part of the completed project with shoulders finished in keeping with the local environment. Excess rock or stumps may only be left with the agreement of the landowner.

5.6 Permanent Above-Ground Installations (AGIs)

The Landscaping at all permanent aboveground installations are to be performed in accordance with the Project Drawings and specifications.

Contractor shall reinstate the construction area surrounding AGIs to the satisfaction of TANAP and the appropriate authority or landowner and shall obtain written approval from TANAP and the appropriate regulatory authority or the landowner of the level of reinstatement. Notwithstanding other such approvals, all reinstatement shall be to the satisfaction of TANAP. Contractor's photographs of the condition of the area prior to construction may be used for reference.

5.7 Spoil and Excess Rock/Stump Disposal Sites

Contractor shall close, cap, and landscape all (except as otherwise agreed with TANAP) excess rock/stump disposal sites by the completion of the Contract. Sites shall be dealt with in accordance with the relevant project requirements. Contractor shall develop site-specific plans that are to be approved by TANAP. Biorestoration, where appropriate shall be carried out in accordance with TANAP approved Special Area Reinstatement Method Statements.

Spoil and excess rock/stump disposal sites will be avoided in ecologically sensitive areas. Should this become unavoidable, prior approval of TANAP is required. Contractor shall prepare all necessary procedures and plans to achieve such approval and obtain permits as required by any affected authority.

The excess rock/stump material shall be compacted to the values defined by project Reinstatement and Erosion Control Specifications. The surface shall be landscaped to resemble local conditions and in line with the project Reinstatement and Erosion Control Specification.

5.8 Existing Roads and Access

Contractor shall upgrade and maintain roads during the works as necessary for safe operations, and reinstate them to their original upgraded condition or better following completion of construction activities.

Contractor shall provide for such work all hard-core, tarmac, asphalt, and other materials as required.

5.9 Quarries

Contractor will ensure that all borrow material will only be sourced from (both existing and new) licensed and authorized sites or sources. TANAP is in the process of identifying suitable existing quarries in the proximity of the pipeline route. Where new quarries need to be opened the contractor will obtain the necessary permits and licenses and conduct any necessary environmental impact assessments.

Reinstatement of the quarries will be carried out to the satisfaction of the respective landowners and local authorities.

5.10 Topsoil Removal And Storage

Topsoil is defined here as the top, fertile layer of material on the land surface that is capable of supporting plant growth. It contains the seed bank and is therefore an essential component of the revegetation program. Maintenance of topsoil quality, particularly its structure and the integrity of its seed bank, is vital to both biorestoration work and erosion control.

The TANAP ROW shall be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of topsoil is essential to achieving this objective.

5.10.1 Topsoil Stripping and Storage

Along the TANAP ROW the depth of the topsoil shall be established by the Contractor if necessary the results of the preconstruction survey for soil characterization will be referred. Procedures shall be developed by the Contractor for topsoil stripping in advance of all work fronts. Work shall not commence until approval of TANAP is received.

A. Topsoil Stripping and Storage -

Topsoil shall not be mixed with subsoil or rock-like topsoil materials and shall be stored on the opposite side of the TANAP-ROW to subsoil; other than in restricted areas where mixing will be prevented by physical means, e.g. geotextile sheeting. Isolated piles of topsoil should be clearly signed as ‘Topsoil’ in Turkish and English.

In order to reuse the topsoil on site at a later stage soil needs to be stored in temporary stockpiles to minimize the surface area occupied. The topsoil also should not be positioned within adjacent to ditches, water courses, future excavations and other construction activities.

Contractor shall strip the topsoil over the working width required for the TANAP ROW.

Areas with a topsoil depth less than 15cm deep will be identified in the approved soil stripping procedure and the appropriate measures taken (as defined in the approved procedure). Topsoil will not be stripped in the area that will be used to store topsoil or subsoil or as stated in the pre-entry agreement.

The project Reinstatement and Erosion Control Specifications will address further details for the appropriate storage of stripped topsoil.

5.10.2 Subsoil Removal And Storage

The subsoil will be excavated from the pipe trench and, in some cases, from ridge-top widening or cutting of benches on sides of slopes. In general, subsoil shall be returned to the excavated area. However, in Special Areas (Ref Chapter 8 of ESIA) subsoil may be required to be removed.

Subsoil that will be reused, (i.e. returned to the trench or corridor TANAP-ROW) shall be placed in stockpiles as shown on the typical drawings.

Further details will be defined in the Reinstatement and Erosion Control Specification of the project.

5.10.3 Trench Excavation And Pipeline Padding

Excavated Material

The creation of surplus excavated material shall be minimized as far as practicable, for example by use of rock-trenching machines. All material that is excavated shall be re-used to the maximum extent practicable. Contractor shall produce a waste minimization statement justifying the extent to which surplus material will be minimized and reuse maximized.

Blasting

Blasting will only be used where other excavation methods are considered technically infeasible or uneconomic, and it shall be demonstrated to, and approved by, TANAP, that the blasting will minimize over-break of ground and minimize the generation of spoil material. All HSE related procedures shall be followed when blasting is used. Appropriate method statements shall be prepared and risks shall be identified and mitigated.

Fill and Padding

Padding and fill materials shall not be imported unless demonstrated to, and approved by, TANAP that such fill is technically necessary and/or online processing is technically infeasible or uneconomic and that suitable backfill cannot be provided by excavation techniques (e.g. crushing).

Effective soil stabilization techniques, quality and quantity shall comply with the requirement as defined in the Construction Specification and Project Drawings. Contractor shall import suitable padding material where local excavated material does not meet the Specification or as requested by TANAP.

Management of Excess Soil and Rock

Generally, all soil and rock shall be returned to the excavated areas. In some locations, however, there will be surplus subsoil or rock that cannot be returned, and this must be disposed of both safely and in line with the environmental requirements of the Contract and in accordance with the requirements of the project Waste Management Plan.

Material remaining surplus after final reinstatement shall be removed from the TANAP-ROW as inert waste. Contractor retains the same responsibilities for excess soil and rock as for any other waste material as specified in the project documentation and Waste Management Plan.

Priorities for Managing Excess Soil and Rock

In developing a plan to dispose of excess material, Contractor shall follow the priorities for disposal as follows:

1st priority: TANAP-ROW Reuse

Where generated spoil is suitable for use as a construction material it will be first considered for reuse on the TANAP-ROW for:

Project infrastructure works materials; stability, erosion control, construction camps, AGIs, etc.

2nd priority: On TANAP-ROW Disposal

For restoration purposes e.g. simulation of rock streams/glaciers in adjacent areas, hillside contour blending. Localized increase in finished surface height of TANAP-ROW where approved by TANAP.

Note the special requirements for disposing of material on side-slopes specified in Section 19.2.

3rd priority Off TANAP-ROW Reuse

Transfer to third Party for re-use purposes as raw or semi-finished materials, e.g. crushed andesite that may be suitable for road construction materials or for rail ballast.

The Contractor shall enter into negotiations and agreements with third parties regarding the feasibility, material specifications, terms and conditions for supplying spoil materials off the TANAP-ROW as materials acceptable for reuse. Notification of such agreements shall be duly noted and reported to TANAP. The requirements of the project Waste Management Plan regarding waste transfer shall apply.

4th priority: Off TANAP-ROW Disposal (permanent soil and rock)

All Off ROW disposal sites are to be agreed prior to use with TANAP and are to be in accordance with the project Waste Management Plan.

Spoil shall not be deposited;

in valley bottoms, creeks, gully crossings, or sink holes; where they will potentially interrupt concentrated overland flow;

Earth works management shall be engineered particularly in contour restoration.

5.11 Reinstatement Of Soils

The TANAP ROW shall be reinstated to a sufficient extent in order to allow the affected area to be returned to its pre-project use and productivity. Appropriate maintenance and handling of all soil is essential to achieving this objective.

General reinstatement shall achieve:

- Final surface up to 100 mm above level of undisturbed adjacent ground and blended to the existing contours (excluding trench berm).
- Planting within pipeline final ROW to be approved by TANAP.
- In barren areas, a semi- natural appearance is required: rocks or processed rock may be distributed over the final surface provided the particle size distribution is similar to that of adjacent undisturbed rocks.
- Erosion control measures (if any) may remain visible.

Upon completion of reinstatement, disturbed areas shall be inspected jointly by Contractor and TANAP for slope stability, relief, topographic diversity, acceptable surface water drainage capabilities, and compaction.

Standard Reinstatement of Subsoil

On return of the subsoil to the trench the subsoil shall be compacted to a similar compaction to that in the adjacent undisturbed area. The depth of subsoil after settlement shall not be above the level of the surrounding ground. After the subsoil has been returned and the land levelled, the subsoil shall be rendered to a loose and workable condition to a depth of 350 – 400 mm and contoured in keeping with the adjacent undisturbed ground. Both the Contractor and TANAP Environmental Inspectors shall regularly monitor subsoil replacement, compaction and contouring.

Special Reinstatement of Subsoil

Special reinstatement is applied where it has been necessary to cut a bench into the hillside in order to lay the pipe and the intention is to restore the original slope by filling-in the bench, thereby removing any scar in the landscape.

Side-cut topsoil shall be stripped and removed from the area and stockpiled. Both the topsoil and subsoil shall be stored separately. The side slope cut shall be restored, as far as practicable, to the original contours, so that the cut surface blends with the original contours. The subsoil layers shall be arranged so that the outer edges effectively restore the slope to its original (ground) level; on no account should subsoil extend beyond the original line of slope or a new slope be created which is steeper than the original slope. Following compaction of the subsoil, the topsoil shall be spread over the site, harrowed and reseeded.

Reinstatement of Topsoil

Topsoil shall be segregated and shall not be mixed with spoil material before or during replacement. Only topsoil shall be segregated and re-spread over the surface. Topsoil shall not be used for bedding material in the trench, and topsoil from unstripped/undisturbed areas shall not be used to cover adjacent disturbances. Topsoil shall not be handled during excessively wet conditions or at times when the ground or topsoil is frozen.

Once the disturbed areas have been re-contoured and compacted, topsoil shall be re-distributed over the entire disturbed areas from which it was stored.

All disturbed areas shall be subject to final grading as specified in Section 17; however, measures shall be taken prior to seeding to ensure disturbed areas remain in rough condition to help protect the stability of topsoil after its re-distribution. On sites where harrowing etc. is not practical (e.g. steep slopes, rocky areas), the sites should be dozer-tracked perpendicular to the slope or otherwise left with adequate roughness following topsoil placement.

When the topsoil is replaced over the TANAP-ROW, a slightly rough, loosely consolidated texture shall be achieved in order to promote vegetation growth.

5.12 Temporary Erosion and Sediment Control

Contractor shall be responsible for employing, to the satisfaction of TANAP, any temporary erosion and sediment control measures in order to protect the TANAP-ROW and adjacent areas during construction activities. In the event that the pipeline ditch remains open for an extended period, the Contractor shall

ensure trench integrity and employ such measures as temporary ditch breakers, silt fences, straw bales, etc. as deemed necessary.

Temporary ditch breakers are installed in the open trench and are removed before lowering the pipe. Temporary ditch breakers have the purpose of arresting flows inside the trench during construction.

The following temporary erosion control measures shall be incorporated along the TANAP-ROW in order to protect the environment and to achieve the performance standards as set out in Project Reinstatement and Erosion Control Specification.

On longitudinal slopes with open trenches, plugs of unexcavated material shall be left in the trench to interrupt surface flow and prevent scouring of the trench bottom.

Stumps should be left in place wherever possible to provide soil stabilization.

Drainage channels shall be installed on all longitudinal and transverse slopes as required.

Where slopes require cutting, flumes shall be installed across the TANAP-ROW. These shall carry water from drainage sumps on the upslope.

Final grading of all cut or filled soil slopes shall be restricted to a maximum gradient in accordance with TANAP approved site specific designs.

The TANAP-ROW shall be monitored to prevent:

- subsidence of the pipeline trench (below natural grade);
- breaching of diversion berms;
- slope wash from improperly placed berms;
- slumping and soil movements from cut and fill slopes;
- loss of stored topsoil, subsoil or cuttings.

5.12.1 Sediment Interception

Where the TANAP-ROW intersects or is parallel to a watercourse sediment interception shall be provided to prevent sediment entering the water. Sediment interception shall be provided for runoff that may occur during construction and reinstatement activities until the establishment of sufficient vegetation to meet the requirements of Project Reinstatement and erosion Control Specification.

Sediment interception devices may take the form of a Silt Fence, Wooden Fence or Straw Bale Barrier. Sediment filters and trapping devices are applicable to sites expected to remain bare during the rainy season and anywhere sediment laden storm water may leave the site and affect other properties or water bodies. The Project Reinstatement and Erosion Specification will provide further details on the sediment interception devices.

5.12.2 Water Disposal

Pipeline trenches commonly collect water during construction. Because it may be turbid and sediment laden, trench water may require filtering before it can be discharged.

Trench water is commonly removed using a pump connected to a 7–10cm diameter flexible hose. Disposal of trench water shall be in accordance with the requirements of the project Pollution Prevention Plan.

Appropriate measures to prevent erosion and sediments during the disposal of trench water, hydrotest water, or any other water shall be adopted. Such measures are specified in the project Pollution Prevention Plan and all water discharges shall be undertaken in accordance with the requirements of that plan.

5.13 Permanent Erosion Control Devices

There are three components to stormwater management: erosion control, runoff control, and sediment control. Erosion control prevents soil from being displaced and is largely done naturally by vegetation; construction typically removes the vegetation and disturbs the soil making it prone to erosion, but there are many techniques that can be used to prevent/lessen erosion in active work areas. Runoff control conveys stormwater across work areas in a manner that does not cause erosion. Sediment control becomes necessary when erosion actually occurs and is meant to trap sediment before it leaves the work area; it is a last line of defence that can be expensive and timely to install/maintain and is prone to failure. All three components must be considered during construction for a stormwater management system to be successful, whereas many people think firstly only about sediment control (i.e., silt fences); a good erosion control and runoff control scheme can result in very little need for sediment control and keep a project in compliance.

The following devices will be applicable for the project. Further details on these devices will be provided in the Project Reinstatement and Erosion Control Specification and project typical drawings.

- Slope Breakers (Interceptor Cross Drains)
- Gabions
- Ditch (Trench) Breakers
- Erosion (Jute) Matting
- Crushed Rock
- Lined Chutes and Vegetated Waterways
- Gully Remediation
- Reno-Mattress Systems,
- MacMat Systems (by Maccaferri)

5.14 Marking Of Erosion Control Works

Contractor and TANAP are to walk the pipeline ROW to jointly stake the route with the agreed upon measures immediately prior to clearing and grading of the ROW. Due to the length of the TANAP pipeline and the lot allocation, multiple teams will be required to perform this function.

The geotechnical works are to be marked, taking into account the topographical alignment of the right of way, the cutting to be performed, and the type of land. If the amount of material to be removed is considerable the locations of temporary storage areas shall be marked and agreed with TANAP.

The marking of preliminary geotechnical works shall be approved by TANAP and recorded by Contractor prior to beginning the works.

5.15 Rivers

The design and bank/river bed restoration shall be in accordance with Project Drawings.

Method statements shall be produced by the Contractor for all river crossings for TANAP approval. The TANAP approved method statement shall detail all construction and restoration procedures.

The disturbed portion of the river bed shall be returned to pre-construction contours where possible and in compliance with Project Drawings. Any deviations shall be subject to TANAP approval. The backfill over the pipe shall be at least as scour-resistant as the original bed material. For gravel bed rivers,

the armoured bed (the sediment forming the surface layer that is coarser than the underlying sediment) shall be recovered during construction and replaced on the bed during reinstatement.

River banks shall be restored to their original condition and contours. Where this is not possible, Contractor shall propose site specific solutions with engineering justification; this shall be included in the TANAP approved method statement.

Erosion protection and stabilization measures shall be provided so that erosion will not accelerate and/or increase as a direct or indirect result of the construction activities. Erosion and soil stabilization measures, when implemented, shall not be intended to permanently alter the pre-construction hydrologic and environmental regimes including natural erosion of the rivers.

Erosion and sediment control devices (including settlement ponds) shall be installed and maintained until re-vegetation and/or selected stabilization measures shown in Project Drawings are is sufficiently established and functioning to meet the requirements of Project Reinstatement and Erosion Control Specifications. Contractor shall detail erosion and sediment control measures to be used in the TANAP approved method statement and these shall be compliant with the project Special Crossing Design Drawings. Erosion and sediment control devices (including settlement ponds if judged to be necessary) shall be installed and maintained until revegetation is sufficiently established to meet the requirements of Project Reinstatement and Erosion Control Specifications. Where erosion matting and/or bio-restoration will not achieve the project reinstatement performance requirements, or where otherwise indicated on Project Drawings, or as otherwise deemed necessary, erosion protection using geotextile and riprap shall be used. Where permanent scour protection are needed on river crossings as indicated on Project Drawings, protection measures shall consist of geotextile plus rip rap, and/ or rock-filled gabion. Requirements for riprap, geotextile, and gabions, including but not limited to material specifications, placement and testing shall be in accordance with Project Drawings and Pipeline Construction Specification.

5.16 Biorestoration

Vegetation, by intercepting rainfall and having roots binding the soil, reduces soil erosion and sediment. Revegetation in the project area means returning the land to its use prior to construction of the TANAP pipeline. This could mean planting grasses in grazing areas or on highly erodible landscapes, such as those belonging to moderately steep and steeper slopes; or planting alpine plants where the land is unsuited to grass. Privately owned land will normally be

replanted to the pre-existing condition or as agreed with the landowner and TANAP. Trees will not be planted within an 8 m wide strip over the pipe. However, trees will be planted in areas suitable for reforestation, such as the verge of the right-of-way. In addition to the TANAP's working width, its temporary roads and other disturbed areas shall be reinstated by the Contractor to the satisfaction of the Landowner and TANAP.

All biorestoration programs shall be approved by TANAP. Landowners shall be consulted by the Contractor to assist in developing these programs. Where Landowners requirements cannot be achieved, the Contractor shall consult with TANAP to agree final resolution of the issue.

The objectives of biorestoration are:

(1) to reinstate the variety and distribution pattern of the original plant species with the long term objective of reinstating the local ecology; and

(2) to establish sufficient vegetation cover to reduce erosion to meet the performance requirement of defined by the Project Reinstatement and Control Specifications through restoration of the local plant community.

The long-term cover shall be the native flora with the exception of areas that were planted with crops or other non-native species prior to construction. The biorestoration strategy is based on supplementing the seed bank of local species that will remain in the topsoil when it is replaced. All biorestoration materials including seeds and plants are to be supplied by the Contractor.

5.16.1 Agricultural/developed areas

In agricultural (defined as arable land) and other developed areas the Contractor shall leave the land in the condition specified in the pre-entry agreements. Except where agreed otherwise, the Contractor shall assume that the land is to be made ready for re-planting with crops: the land shall be graded and tined to remove compaction. Application of fertilizer and other soil amendments (if needed), and planting on permanent growing areas will be carried out by the landowner or tenant. The Contractor shall, however, seed and maintain all topsoil storage areas as required by Section 5.11, and irrigate all areas to the extent required to suppress dust formation.

5.16.2 Undeveloped areas

The project Reinstatement and Erosion Control Specifications will define the minimum values for percentage cover of ground vegetation to minimize surface

erosion and provide a sustainable, self-generating plant community under virtually all conditions.

Original percentage cover shall be estimated from the Contractor's photographic record of the route, or, in case of doubt, by reference to adjacent undisturbed areas.

The vegetation cover shall be composed of either:

- the species originally found in each route section or project area;
- or other species (for example, fast growth types) that are suited to the local environment and indigenous to the region; (The selection of species which do not belong to the same area shall be aligned with sensitivity of the area. For example for critical habitats, there may be certain restriction of importing alien species to the area.)
- or an ecologically compatible mixture of those two groups.

The biorestoration maintenance, including weeding and grazing control, shall be the Contractor's responsibility for a period defined within the Contract. TANAP shall assume responsibility for continued maintenance of the biorestoration into operations.

5.16.3 Scheduling

Contractor shall carry out biorestoration work in the appropriate growing seasons. Sowing or planting must take place in the appropriate season for the applicable plant types. Contractor shall identify from historical meteorological data suitable weather 'windows' for each area of the route. Biorestoration schedule to be approved by TANAP.

Contractor will produce a Biorestoration Schedule including pre-construction transplanting or cultivation in addition to post-construction soil preparation, planting and aftercare. Scheduling of the biorestoration shall be aligned with the EIA requirements and management plans and shall be issued to the TANAP for confirmation before being applied.

5.16.4 Selection of Plant Species

This section refers to the species and form of materials (seed, seed-mix, bulb, or plant etc.) chosen to supplement the seed bank of the topsoil. This section does not apply to agricultural or other developed areas.

The selection of species shall be designed to achieve the objectives defined in 5.16.

Contractor shall be responsible for the choice of species and form of materials for each project area and section of TANAP-ROW. Contractor will refer to specialist advice provided by ecologist in contractor's team on existing species and their distributions.

Contractor shall produce Site Specific Special Area Reinstatement Plans and Generic Reinstatement Plans describing the quantity of plants/seeds and material forms to be planted for approval by TANAP. This plan shall include certain mitigations and limitation for critical areas in terms of selection of species and seeds to be used.

Rare plants

Rare plants will be dealt with in accordance with the mitigation measures detailed in the ESIA. In addition to flora, there may be certain fauna which make a habitat critical; in this case certain limitations shall be applied to the seed selection.

Species selection

Where rapid growth is necessary for erosion control or other reasons, the species selected for initial planting shall have the following be compatible with the area required to be erosion controlled:

- dense, fibrous horizontal root structure close to the surface;
- dense uniform ground cover, particularly during the season of the most intense rainfalls;
- resistant to damage by high-velocity run-off;
- resistant to damage from trampling by people and animals; not persistent – will allow the original species to re-colonize the area;
- if possible, not clumpy or tussocky as this may lead to concentration of run-off between the plants.

The species selected for long-term growth shall reflect the variety and distribution pattern of the pre-construction flora.

Fertilizer

Fertilizer will be applied to disturbed surfaces, as necessary, where vegetation is to be seeded or planted. Further details will be included in the Project Reinstatement and Erosion Control Specification.

5.16.5 Procedures to be Followed by Contractor

Depending on local soils, slope and climate and the nature of the local plant communities, one or more of the following procedures for re-vegetation can be adopted:

- sowing of grass seeds
- planting of shrubs / tree whips at 1 m centres';
- planting shrubs/tree whips at 2 m centres in a lunette (micro basin)

Further details will be provided in the Project Reinstatement and Erosion Control Specifications.

5.16.6 Reforestation

Forests reduce runoff because of their interception of rain and their beneficial effect on soil infiltration. They reduce erosion by the effects of plant roots binding soil particles together and of humus protecting the surface. Reforestation of the ROW will occur wherever a forest existed before construction of the pipeline. For the purposes of this specification a forest is defined in accordance with Article 1 of the Forest Law that states 'trees and small trees, naturally or artificially grown, together with their surrounding area are considered as forest areas'. The reforestation strategy will be to successfully replace every tree felled during ROW clearance. However, not all trees will be able to be replaced in the same location from which they were removed as trees will not be able to be replanted along an 8 m wide strip above the pipeline. It is noted that the revegetation strategy in all sections of the ROW will be to reinstate the pre-construction vegetation in terms of both composition and density.

Further details will be defined in the Project Reinstatement and Erosion Control Specification.

The Contractor shall provide a detailed reforestation strategy as a component of the Project specific plans and procedures that specify how the requirements of this Plan will be implemented and which will be submitted to TANAP for approval 12 weeks prior to clearance of the Right of Way. The following information should be included in the reforestation strategy:

- species to be used and where;
- specific planting methods;
- detailed requirements for fertilizer use;

- detailed requirements for aftercare and monitoring;
- and supervision of reforestation activities.

5.16.7 Protection of Planted Materials

In sections where livestock or wild animals may be present, precautions shall be taken to protect the seeds and plants from damage. Some or all of the following techniques should be employed:

- security patrols and procedures;
- liaison and agreements with livestock managers;
- erection of stock-proof fencing (designed/installed to discourage theft), along the project area boundaries;
- supplement boundary fencing by internal area fencing to give double protection to particular areas;

5.16.8 Aftercare, Monitoring and Corrective Action

Contractor shall carry out the necessary aftercare (watering, further application of fertilizer, weed control, etc.) during the Contract maintenance period in order to meet the re-vegetation requirements.

Where necessary, Contractor will provide appropriate fencing to prevent access by grazing animals and vehicles. Fences will be fitted with signs in Turkish indicating the purpose, i.e. the enclosure is a TANAP biorestoration project area and fencing is required for protection.

Appropriate levels of irrigation/watering shall be provided for revegetated areas. The quantity and timing will be dependent on local climatic conditions, soil type and species requirements. Local advice should be sought.

Contractor shall examine the biorestoration process of each section every three months after planting and report against the performance criteria specified in the Reinstatement and Erosion Control Specification. Where the criteria are not met, or it appears that they will not be met within the specified time, Contractor shall take corrective action as specified in the same specification.

5.17 Special Areas

The TANAP pipeline project contains topographical, geological and ecological features, which are characterized on the project as Special Areas; these require particular attention throughout construction and reinstatement. The

Project Reinstatement and erosion Control Specification will define the II erosion category to be applied to these Special Areas, therefore suitable erosion control to meet these criteria is critical.

Methodology statements for these areas shall demonstrate sufficient awareness and intent to minimize construction impact. A high level of importance is attached to the satisfactory reinstatement of these areas; therefore an increased level of TANAP inspection, prior to acceptance, is planned. These Special Areas are as follows:

side slopes;

steep slopes;

ecological sensitive areas;

karstic areas;

volcanic tuff;

and above ground installation sites.

In addition to specialized construction techniques and increased levels of inspection, these areas are to be specifically considered by the Contractor during planning and project control. Special Areas will be identified uniquely on schedules and reports. Consideration of schedule constraints within these areas (weather, planting seasons, animal breeding periods etc.) will be clearly identified by the Contractor on associated documents.

The general construction philosophy shall address completion of these identified Special Areas with minimum delay. The back-end of the spread shall follow directly behind the lowering-in crew. The Contractor will minimize the exposure of these areas to inclement weather.

The Contractor shall provide suitably qualified and experienced specialists to assist in the reinstatement engineering and re-vegetation procedures and method statements for the entire route and with particular consideration of these Special Areas. Such specialists shall include ecological specialists in relation to the reinstatement of ecologically sensitive areas (as specified in the ESIA), who work for in-country specialist organizations. TANAP will also provide specialists to oversee and audit these activities.

Contractors shall ensure that specialist subcontractors are appointed to provide both advice and specialist skills for reinstatement planning and execution in Special Areas.

Project Reinstatement and Erosion Control Specification will include the detailed measures to be applied at Side Slopes and Spoils and Steep Slopes.

5.17.1 Ecologically Sensitive Areas (ESA)

Specialist advice and input will be required in relation to a number of aspects of the planning and implementation of reinstatement activities including but not limited to: pre-construction surveys (see below); selection of appropriate species for revegetation; planting methods; translocation of plants and animal; removal and replacement of turfs; use of fertilizer; and species identification.

The ESIA will identify ESAs in which particular species of plants and animals have been recorded. However, detailed mapping of the presence of such species will be required prior to construction to facilitate the reinstatement of a similar plant community to that existing prior to construction and to confirm the presence of animal species that may require translocation prior to construction.

Based upon the information contained in the ESIA, Reinstatement and Erosion Control Specification, this document, specialist advice and the results of pre-construction surveys, a site-specific Special Area Reinstatement Method Statement will be produced for each ESA which will clearly specify the measures to be adopted in each ESA and the means by which these measures will be implemented.

In addition to specialist input to the planning of reinstatement activities, ecological expertise will be present on site during all relevant activities within ESAs (e.g. route clearance, re-vegetation) to provide advice and supervision. Contractors will be expected to provide appropriately qualified personnel to undertake the day-to-day supervision of such activities and TANAP will also provide specialists to advise and supervise the reinstatement works.

5.17.2 Above Ground Installation Sites

Measures that will be adopted to minimize the visual impacts of the permanent buildings and facilities at AGI sites include the following:

- landscape planting within the site boundary where appropriate;
- opportunities to retain existing landform screening will be maximized, i.e. site levelling will be avoided, if possible, if existing hollows or mounds may be used to integrate built features within the landform;
- new landform screening (e.g. bunds and mounds) will be introduced where this might complement the existing landform character;

- the use of appropriate colour schemes to minimise the visual impact of buildings;
- external lighting will be minimized to that necessary for safety and operational purposes and downward facing lighting and lighting of the same colour will be used to minimise spill and offsite impacts.

Contractors site-specific Reinstatement Method Statements for AGI sites shall address the following:

- maximizing opportunities to retain existing landform screening, i.e. site levelling will be avoided, if possible, if existing hollows or mounds may be used to integrate built features within the landform;
- new landform screening (e.g. bunds and mounds) will be introduced where this might complement the existing landform character.

Prior to construction, TANAP will develop a site-specific landscape plan for each site that will identify specific measures to reduce landscape and visual impact. This plan will address architectural measures such as colour schemes, opportunities for landform screening and landscape planting. Construction Contractors will be required to ensure that site clearance and reinstatement activities and building colour schemes are consistent with the requirements of the site specific landscape plans as advised by TANAP.

5.18 Restricting Access

In order to prevent rutting, subsequent erosion problems, and damage to riparian areas, measures should be taken to prevent unauthorized use of the TANAP-ROW as a roadway. Access should be blocked, at locations specified by TANAP representatives, through the construction of barrier berms of sufficient height (minimum 1.5 m high) to provide a barrier to vehicles. Where possible, the berms should be tied to vegetation or rocks adjacent to the ROW to prevent traffic from circumventing the barrier. Rocks excavated during construction, 0.3 m in diameter or larger may be used instead of the earthen berms. Timber cleared during the construction may also be staggered across the ROW so as to deter off-road vehicle use.

5.19 Handover And Post-Construction Maintenance

Contractor shall obtain sign-off of the pre-entry form from the landowner agreeing on the standard of reinstatement. Contractor shall notify TANAP prior to such meetings and allow for TANAP attendance/monitoring. Contractor shall not attend such meetings without TANAP presence unless agreed in writing by TANAP.

Contractor, upon completion of reinstatement, shall accompany TANAP on an inspection of all project areas, before demobilizing from site. TANAP will notify the Contractor of any insufficiencies in the reinstatement of the TANAP-ROW / project areas. The Contractor shall carry out any further reinstatement to the approval of TANAP.

During the contract maintenance period, Contractor shall be responsible for maintaining the standard of reinstatement and for ensuring that the stated erosion class and biorestoration requirements are met.

5.20 Key Perfomance Indicators

- records of revegetated areas
- records of biorestoration results if applicable during the construction period

5.21 References

- Pollution Prevention Plan
- Annex 2 of Environmental Monitoring Plan
- Project Reinstatement and Erosion Control Specifications
- Erosion, Reinstatement and Landscaping Plan

6 POLLUTION PREVENTION PLAN

6.1 Purpose and Scope

The Pollution Prevention Plan (PPP) outlines the actions to avoid or, when cannot be avoided, minimize the release of pollutants or spills to air, water and land during implementation of the project.

Pollution Prevention Plan (PPP) aims to define the required actions in terms of organization, responsibilities, measures, planning and system implementation to prevent the environmental impact of TANAP project on the environmental components i.e. soil, air and water during the implementation of the project.

The standards and requirements defined in this plan are mainly for the construction phase of TANAP Project but they can be used as a guideline for plans and procedures which will be implemented during other phases of the project. The plans for operational phase will be prepared in relevance to operational procedures of the pipeline system which will be developed based on this PPP. These operational plans will be revised in parallel to the development of the operational procedures during the construction phase.

Construction of TANAP project will be including various activities performed by different contractors. The major construction activities of the project, as defined in this document, are given below:

1.Construction of the pipeline

2.Construction of infrastructure including but not limited to:

- Roads, pipe storage areas
- Camps,
- Loading/unloading and other intermediate areas,

which will be used either temporarily or permanently during the pipeline construction and the pipeline operation.

3.Construction of above ground installations (compressor stations, block valves, etc.) and construction of infrastructure which will be used either temporarily or permanently at these facilities.

All contractors will fulfil these requirements defined in this PPP by adapting them to their own activities. Each contractor must develop its own PPP following the start of the construction phase, and then develop the project-specific plans and procedures which detail the implementation the requirements of this plan.

6.2 Roles and Responsibilities

TANAP will implement an environmental inspection, monitoring and reporting program ensuring that the commitments given in ESIA Report and this PPP are accomplished for all the aspects of the project;

TANAP will implement a program to follow and analyse any environmental incidence or accident.

Contractors will develop a PPP and procedures for pollution prevention measures which will cover all project aspects related to;

•emissions;

•water sources and;

•waste management.

Contractors will fulfil all the requirements and precautions which are defined in this PPP and the project-specific PPP or procedures of the Contractor;

Contractors will control the performance of all subcontractors regard to this PPP, the project-specific PPP and procedures.

As a part of the Employment and Training Plan, contractors will provide trainings to the all personnel who will be involved in project operations and make them understand the requirements of this PPP, project-specific PPP and project-specific procedures. These training programs will give an opportunity to the all personnel to understand the following topics:

a)requirements of PPP and how to implement them on the site

b)procedures to follow and mitigation measures to implement in case of any spill or other pollution incident

c)In addition to the above mentioned general training topics, contractors and TANAP will also provide specific trainings to the personnel based on their project specific tasks. These trainings will include but not limited to the following topics:

d)Environmental investigation;

e)Control of hazardous materials (collection, reuse, recovery, storage and disposal of hazardous materials);

f)Control of hazardous chemicals (collection, reuse, recovery, storage and disposal of hazardous materials);

g)Waste management (collection, reuse, recovery, storage and disposal of hazardous and non-hazardous wastes);

h)Pollution prevention management ;

i)Dissemination response (especially spill response management for soil and water);

j)Usage of dissemination response equipment;

k)Prohibited Materials;

l)Vehicle maintenance requirements;

m)Dust control;

n)Noise control;

6.3 Requirements of the Pollution Prevention Plan

6.3.1 Prevention of soil and groundwater pollution

Contractor will implement measures for safe storage and transport of all the fuels and greases on the site in order to prevent pollution of the soil in the vicinity of fuel, grease, hazardous substance storage, maintenance and transport sites. These measures will particularly include but not limited to the following:

- Fuels, greases and chemicals will be stored in tightly sealed containers that are clearly labelled;
- There will containment bunds or spill trays for the storage of the hazardous material;
- All the fuel, grease and chemical storages will be placed onto an impermeable floor inside and stored in an area which has impermeable leakage control reservoir;
- All vehicles, equipment and installations will be checked for any fuel and grease leakage before use and will be regularly monitored for leaks;
- Maintenance procedures in line with available manufacturing requirements will be in place for all machinery and equipment;
- Maintenance activities (including fuelling and re-fuelling) will be at designated areas selected to be away from environmentally sensitive areas (i.e. water courses, high groundwater table and such);

- Adequate amount of appropriate absorbents be in place in "designated maintenance area" in order to handle with minor leakages;
- Vehicles will be never left unattended in case of a jammed valve during maintenance or fuelling activities;
- Taps and valves will be checked regularly for signs of wearing; and be securely closed and locked when they are not in use.
- All the equipment and storage areas will be secured properly with safety fences; and gateways will be locked in order to prevent pollution which may arise from violent acts and theft; and
- Site personnel will be trained related to dissemination response and use of dissemination response equipment and also carry absorbents in their vehicles;
- The good housekeeping at camps, construction areas and at locations where construction related activities take place will be in in place
- All containers of fuel, lubricant oil and chemicals will be sited on containment bund. The bund will be of sufficient capacity to contain at least the 110% of the volume of the largest tank.
- If the containment bund is not practical than dip trays will be used stored chemicals and fuels.
- Any soil contamination identified during the construction activities shall be addressed in strict compliance of Regulation on Control of Soil Contamination and Contaminated Lands by Point Sources, Dated: 08.06.2010, No:27605

6.3.2 Surface and Ground Water Pollution Prevention and Control

The measures will include but not limited to the following conditions:

- Direct access of the vehicles and mechanical equipment to waterway will be kept at minimum. When they require to the waterway, all vehicles and mechanical equipment will be checked for any fuel and grease leakage before they enter the waterway;
- Spill response equipment will be in place at the river crossing areas in case of a spill to the rivers from construction and transportation equipment specifically diesel tankers.

- Discharge of water at the pipeline trenches, conducted in areas where water table is high, will comply with the relevant Turkish and EU Legislation and IFI standards;
- Water resulting from the dehydration of the canal or the construction site, will not be discharged directly into a water body or a wetland;
- During pumping operations, water will be pumped at a speed and flow not causing any destruction in the river bed;
- The domestic wastewater will be separated from hazardous, oily water discharges
- Implement well drilling best practice training program for all project well drillers
- Obtain all required permits to use groundwater resources
- Use best practices for well drilling, well completion, and well abandonment
- Maintain natural drainage patterns during construction
- Measures will be in place to avoid silt or turbid discharge water from trench or construction site dewatering operations to be discharged to any watercourse.

6.3.3 Management of Wastewater

After the completion of construction phase of the project a complete hydrostatic test of the entire pipeline will be implemented in order to confirm its integrity.

Hydrostatic testing will be planned so that the opportunities for water re-use are maximized: First priority is to use surface water for hydrotesting, if this is not possible groundwater resources can be used with permission and ensuring no impact on public use and environmental sensitivities

Water may need to be transferred from one test section to another along the pipeline due to conservation or supply difficulties. In such cases, necessary consideration will be given to complete the installation program taking full account of water supply and disposal requirements.

The transfer of test water from one section to another will be accomplished through metal pipework provided no water is lost or spilled. As the water is transferred from one section to the next, it will be filtered and its chemical composition will be checked and adjusted as necessary.

If there are doubts as to the water quality, and if the water is kept for a long period of time in the pipeline, it may be necessary to treat the water chemically to prevent biological growth in the water. The introduction of oxidation/corrosion inhibitors may also be necessary in order to protect the internal pipe surface. The addition of the chemicals will be subject to close scrutiny and control. The water will be checked periodically to ensure that it remains within the specified compositional limits and will be tested prior to disposal.

The volume of the process water required for the hydrostatic tests will vary depending on the length of test sections determined considering the hydrostatic pressure profiles and the amount of test water re-used from section to section. According to the initial studies, the volume of process water for the hydrostatic test will be approximately 2,000,000 m3 for the 56 inch pipeline section and 539,700 m3 for 48 inch pipeline part.

Water studies and analyses will be carried out during the engineering stage to identify possible water intake sources and discharge points regarding the water sources for the hydrostatic test. The water sources will be more or less distributed evenly along the pipeline, but the space between them will certainly require several test sections to be filled from one source; and the transfer of water over several test sections will be the regular practice to be adopted.

Wastewater produced after the hydrostatic test shall be treated with appropriate methods in order to satisfy the standards indicated in the “Regulation on Water Pollution Control (RWPC)" numbered 25687 and date 31.12.2004. In addition to the limits defined in RWPC, limit values determined by IFC (Environmental, Health, and Safety Guidelines for Onshore Oil and Gas Development) will also be respected.

Turkish Regulation on Water Pollution Control (31.12.2004 dated and 25687 numbered)

Table 19: Mixed Industrial Wastewater Discharge Standards

(Industries for which sector identification cannot be done)

Parameter	Unit	Composite Sample (2 hr)	Composite Sample (24 hr)
Chemical Oxygen	mg/l	400	300

Demand (COD)			
Total Suspended Solids (TSS)	mg/l	200	100
Oil & Grease (O&G)	mg/l	20	10
Total Phosphorus	mg/l	2	1
Total Chromium	mg/l	2	1
Chromium (Cr+6)	mg/l	0.5	0.5
Lead (Pb)	mg/l	2	1
Total Cyanide (CN-)	mg/l	1	0.5
Cadmium (Cd)	mg/l	0.1	-
Iron (Fe)	mg/l	10	-
Floride (F-)	mg/l	15	-
Copper (Cu)	mg/l	3	-
Zinc (Zn)	mg/l	5	-
Mercury (Hg)	mg/l	-	0.05
Total Kjeldahl Nitrogen	mg/l	20	15
Fish Biotest (ZSF)	-	10	10
Color	(Pt-Co)	280	260
pH	-	6-9	6-9

Table 20 Non-Domestic Wastewater Discharge standards in Turkish Regulations

Parameter	Limits
Total Hydrocarbon Content	10 mg/L
pH	6-9

Parameter	Limits
BOD	25 mg/L
COD	125 mg/L
Total Suspended Solids	35 mg/L
Total Phenols	0,5 mg/L
Sulfides	1 mg/L
Heavy Metals (total)	5 mg/L
Chlorides	600 mg/L (average) 1.200 mg/L (Maximum)

Table 21 **Hydrotest Water Discharge Standards in IFC**

Hydrostatic testing of offshore equipment and marine section of the pipeline involves pressure testing with water (typically filtered seawater, unless equipment specifications do not allow it) to verify equipment and pipeline integrity. Chemical additives (corrosion inhibitors, oxygen scavengers, and dyes) may be added to the water to prevent internal corrosion or to identify leaks. In managing hydrotest waters, the following pollution prevention and control measures should be considered:

- Minimizing the volume of hydrotest water offshore by testing equipment at an onshore site before the equipment is loaded onto the offshore facilities;
- Using the same water for multiple tests;
- Reducing the need for chemicals by minimizing the time that test water remains in the equipment or pipeline;
- Careful selection of chemical additives in terms of dose concentration, toxicity, biodegradability, bioavailability, and bioaccumulation potential;
- Sending offshore pipeline hydrotest water to shore facilities for treatment and disposal, where practical.

If discharge of hydrotest waters to the sea is the only feasible alternative for disposal, a hydrotest water disposal plan will be prepared that considers points of discharge, rate of discharge, chemical use and dispersion, environmental risk, and monitoring. Hydrotest water disposal into shallow coastal waters will be avoided.[14]

[14] IFC EHS Guidelines for Offshore Oil and Gas Development, 2007

Domestic waste water to be produced by the personnel working under the project can be characterized as moderately polluted domestic wastewater. According to the literature information based on research carried out, specifications of the domestic waste water (total pollution load) to be produced are given in Table 22 below.

The contractors will make sure the wastewater treatment plant discharge standards are in compliance with these parameters through routine monitoring of the discharge water quality minimum monthly basis.

PARAMETER	Unit Load (mg/l)	Total Load (kg/h)
BOD5	220	19,9
COD	500	45,23
Suspended Solid	220	19,9
Oil-grease	100	9,05
Total P	8	0,72
Total N	40	3,62
Total Cl	50	4,52
Total sulfur	30	2,71
Total organic carbon	160	14,47
pH	6-9	

Table 23 **Properties of Domestic Wastewater Generated in Land Preparation and Construction Phase**

Source: Metcalf and Eddy. (2004), *Wastewater Engineering; Treatment, Disposal and Reuse*, Mc Graw Hill Book Company, New York, ABD.

The domestic wastewater to be produced during land preparation and construction phase of the project shall be treated at the package waste water treatment facility and after complying with the " Average Discharge Standards to Receiving Environment for Domestic Waste Water" given in "Regulation on

Water Pollution Control (RWPC)" numbered 25687 and dated 31.12.2004, it will be discharged to the nearest receiving environment.

In addition to the limit values given in the Regulation on Water Pollution Control (RWPC), the limits indicated in IFC General Environmental, Health and Safety Guidelines and EU Guidelines will be respected. (Ref.Annex 1 Environmental Standards for Monitoring of Environmetal Monitoring Plan))

For the package treatment plants planned to be established during land preparation and construction period of the project, an approval shall be obtained as per Wastewater Treatment/Deep Sea Discharge Plant Project Approval Circular dated 15.03.2012 and numbered 2012/9. As well as the Discharge permit, WWTP typical project approval will be taken regarding the public mandate.

Additionally, Environmental Permission Certificate will be obtained from the relevant Provincial Directorate of Environment and Urbanization for the discharge of the treated wastewater according to the provisions of the "Regulation for The Permissions and Licenses to be Obtained According to the Environment Law" numbered 27214 and dated 29.04.2009 and provisions indicated in the amendments of this regulation.

During the pipeline construction works, water is usually collected in the trenches excavated for the pipeline. Since this water is blurry and full of sediment, before discharging this to an unpolluted location, a sedimentation process will be applied.

The ditch water will be discharged by pumps and after sedimentation of the sediments in sedimentation ponds to be established along the project route, the water will be discharged to the closest receiving environment.

The sediment material collected from the sedimentation ponds will be disposed of in nearest disposal facilities.

6.3.4 River Crossings on the pipeline

All the necessary measures will be taken in order to protect water passages against pollution, to minimize sedimentation, to mitigate the impact on vegetation along the water passages, and to restore the water passages to the condition before the construction. Construction drawings will enable fulfilment of site-specific construction methods and cover the work sites designated by the Contractor. The measures will particularly include but not limited to the following conditions;

- Trenchless and isolation methods will be used during water way crossing as stipulated by the ESIA and engineering specifications and Annex 2 of Environmental Monitoring Plan,
- Contractors will develop specific construction drawings and method statements for the crossings subject to TANAP approval
- Clean and native materials will be used during bed and bank restoration work
- Natural or mechanized filtering will be applied for preventing turbid waiter from re-entering the watercourse.
- Site-specific working methods and construction drawings will be developed for water passages;
- Water crossings will be planned and designed not to affect the stability and long-term functioning of the water courses;
- De-plantation along the river/stream will be at minimum and old trees will not be cut where necessary;
- Any construction material and structure will be removed from the waterway after the construction is completed;
- River canals, river beds and riversides will be restored and, if necessary, rehabilitation measures will be taken; and
- The river crossings will be restored to the condition before the construction in line with the specific construction drawings.

6.3.5 Impacts on Noise and Air Quality

- All the necessary measures will be taken in order to control dust and other air emissions. These measures will include but not limited to the following topics:
- All the necessary measures will be taken in order to ensure that the impact of noise under all construction activities is avoided in the vicinity of noise-sensitive receivers such as settlements, schools, hospitals and vulnerable ecologies. Dust emitting material stocks and the trucks transporting such material will be covered with appropriate material to prevent flown caused by wind;
- Construction sites, open storage piles and transportation routes will be moisturized as much as feasible,

- While working close or in the vicinity of any settlement (villages, detached housing etc.) special attention will be paid to prevent dust movement.
- Exhaust emissions from construction and transportation vehicles will be monitored in six monthly periods, these vehicles will have the exhaust gas emission certificate from the Ministry of environment and Urbanization;
- Engines will not be left in operating mode when they are not used;
- Noise and vibration risk assessments will be performed for residential areas close to construction activities;
- Night-time activities will be kept to a minimum to reduce disturbance to local communities due to noise and vibration emissions; if night-time construction activities are necessary, local authorities and local communities will be informed with 48 hours' notice;
- Emissions of dust will be limited through road watering, especially on unpaved roads;
- Roads will be maintained on a regular basis to prevent excessive dust generation
- Use low emission vehicles will be used wherever possible
- Vehicles will be checked legally for their exhaust emissions.
- Third party vehicle access to project related activities will be restricted
- Regular maintenance programs for vehicles and equipment will be implement
- Excessive idling of vehicles or equipment will be restrict
- All project related vehicles will respect road speed limits reduced by 10 km/h to the extent practicable;
- Related Turkish legislation on speed limits depending on the type of vehicles and roads shall be obeyed.
- Monitor the dust impact at Putka Gölbaşı Ardahan, Erzurum Marsland, Bataklıkdüzü Sivas before and during construction in order to ensure effectiveness of defined standard mitigation measures
- Night works will be avoided if it will be subject to TANAPs approval
- Equipment will be selected with lower sound power levels;
- High efficiency mufflers will be used on all construction equipment

- Engine cover will be kept closed when the equipment is in operation in order to minimize the noise;
- Premises will be located as far as possible from the residential buildings, and noise barriers will be used to mitigate the noise level on sensitive receivers on whom significant noise impacts are expected;
- Project traffic routing through community areas will be reduced wherever possible;
- During the construction stage, relevant Turkish, EU Legislation and IFI standards will be followed in order to minimize the noise.
- Maintain project access roads to reduce noise associated with vibration and vehicle noise
- Deploy temporary noise barriers near sensitive areas.
- Use quieter methods and equipment when possible.
- Replace or repair parts generating excessive noise.
- Restrict excessive idling of project related equipment and vehicles.
- Blasting works will be subject to TANAPs approval.
- Use high efficiency mufflers on all construction equipment
- Maintain equipment on a regular basis
- Use quieter methods and equipment when possible
- Replace or repair parts generating excessive noise
- Restrict excessive idling of project related equipment and vehicles
- Temporary noise barriers will be deployed near sensitive areas

6.4 Key Performance Indicators

- Records of noise and dust complaints
- Records of dust and noise monitoring (as per Annex 2 of Environmental Monitoring Plan)
- Records of wastewater discharge quality analysis (as per Annex 2 of Environmental Monitoring Plan)
- Records of groundwater withdrawal amounts
- Records of amount of surface water use

- Records of vehicle emission certificates

6.5 References

- Emergency Response Plan (ERP) (Section 8)
- Waste Management Plan (WMP) (Section 7)
- Employment and Training Plan (ETP) (App-5.4 of ESIA Report)
- Annex 2 of Environmental Monitoring Plan (TNP-PLN-ENV-GEN-003)
- Annex 1 Environmental Monitoring Planand Appendix 4.6 of ESIA Report.
- Hydrotest plan for onshore and offshore pipeline sections

7 WASTE MANAGEMENT PLAN

7.1 Purpose and Scope

Waste Management Plan (WMP) includes the identification of waste streams and management actions including minimization, recycling, collection, storage, treatment and disposal of wastes which will be generated during site preparation, construction and operation phases of the project.

Waste management plan (WMP) is developed to identify the measures for minimizing impacts of the wastes generated by the project.

The requirements defined in this plan are for the construction phase of TANAP Project but they can be used as a guideline for plans and procedures which will be implemented other phases of the project.

All contractors will fulfil the requirements defined in this WMP by adapting them to their own operations. Each contractor must develop its own WMP with identified water streams, disposal methods, identification of permit requirement and management actions before the start of the construction phase, and then develop the project-specific plans and procedures.

- Contractors will ensure that the waste disposal strategy developed for the project through their plan and procedures will follow the following handling hierarchy:

  1.waste avoidance is the most preferable option;

  2.Minimisation of quantities and hazards of waste generated is the second preferred option;

  3.reuse, recovery and recycling shall be preferred over treatment of waste;

  4.disposal shall be considered as a last resort;

- Contractors will follow the Basic Principles for Waste Management-

  1. Follow-up of wastes with cradle to grave approach.-

  2.Segregation of wastes at source and waste categorization.-

  3.Reuse, recovery and recycling have the priority.-

  4. All wastes should be handled throughout the route and will not be left at site.

  5. Dumping and burning of wastes are strictly forbidden.

  6.-Waste transportation and disposal should be done via licenced facilities

7.Mixing different waste types is strictly forbidden.

8. Waste transportation to the nearest licensed facility to a possible extent

7.2 Roles and Responsibilities

Contractors will fulfil the requirements defined in this WMP by adapting them to their own activities. Each contractor must develop their own WMP and procedures aligned with TANAP policy which explain the way to implement the requirements of this plan. WMP of the Contractor will be submitted to TANAP for approval and be approved before the start of construction works.

Contractors will also develop necessary procedures for the implementation of their management plans.

Contractors will make sure that the subcontractors are working in compliance with the requirements of the WMP.

The Contractor shall refer to as a minimum, the project documentation listed in section 1.5 References and addressed in the document elsewhere, while developing their Management Plans.

The activities will not be launched before the approval of TANAP is obtained for the management plans and procedures.

The Contractor will regularly update their WMP as the project needs change or requirements are identified in detail.

As detailed in Chapter 11 of the ESIA Report, Contractors are expected to comply with National Laws and shall also conform to international standards and practices generally prevailing in the Natural Gas pipeline industry, including relevant Performance Standards of the International Finance Corporation (IFC 2012 PS). Such requirements are detailed in Chapter 4 and Appendix 4.6 of the ESIA report and Contractors are required to ensure that their activities comply with all relevant Turkish legislation and international requirements including but not limited to those listed in Chapter 4 and Appendix 4.6 (Legislation Register) of the ESIA.

Third party monitoring for ensuring the compliance of the contractors with defined requirements is under TANAP's responsibility. TANAP has developed a comprehensive Environmental and Social Management Organization to effectively implement, manage, and monitor the project's commitments. Table 11.1.3-1 of chapter 11 demonstrates the overall HSSE Organization of TANAP Project.

The Commitment Register, Annex 2 of Environmental Monitoring Plan and Chapter 11.3 of ESIA Report shall be referred to, for full details of responsibilities for the implementation of the mitigation measures and monitoring requirements.

The Contractor will ensure that all Contractor personnel participate in all training programme including regular site-specific training sessions on E&S issues including Waste Management throughout the course of their contract. (Refer to App 5.4).

Specific roles and responsibilities in WMP are given below:

- TANAP will develop and maintain the project health and safety requirements and communicate such requirements to the contractors in an effective manner;
- TANAP will monitor (i.e. by auditing and such) the implementation of the WMP and health and safety procedures by the Contractors;
- Contractor will be responsible for developing, implementing and maintaining a detailed, project-specific WMP which will fulfil the minimum requirements and precautions defined in this WMP;
- Contractor will be responsible for informing its employees on the requirements of the WMP and health and safety procedures (i.e. training);
- Contractor will be controlling the performance of all subcontractors regard to this WMP, the project-specific WMP and procedures;
- Contractor will be responsible for producing reports with performance indicators for the successful implantation of WMP and communicate to TANAP.

7.3 Requirements of Waste Management Plan

Contractors will make sure:

- All wastes are segregated and recycling procedures are in place.
- Licensed domestic solid waste disposal areas are identified through communication with the local authorities.
- Licensed hazardous waste disposal area is identified through communication with the local authorities.
- Temporary site waste storage areas are identified and arranged in compliance with local regulations.
- There will be dedicated containers at site for segregated and recycled wastes.

- Contractors identify the waste generation streams specific to their activities and define the disposal methods for these wastes in compliance with the project regulations.(Annex 1 of this document presents a provisional list of waste streams applicable to land preparation and construction phase)
- Contractors will establish recording and reporting process for the created wastes at sites.
- Contractors will set up a Strategy for minimizing the generation of wastes
- The contractors will define training requirements for the personnel on waste minimization, recycling and disposal in the Waste Management Plan and include in the Training Program.
- Good housekeeping procedures will be in place for minimizing the generation of wastes.
- A provisional list of waste disposal and wastewater treatment facilities along the route is presented in Annex 2. Specific studies on waste management facilities and landfills used during construction activities will be performed by Contractor to verify and extend the list in Annex 2 and ensure that they are capable of sustaining additional pressure brought by Project without affecting current waste management services.

7.3.1 Waste Streams and Disposal Requirements

The waste streams and disposal requirements in the below sections are given for the land preparation and construction phase and will provide the guidance for the operation and decommissioning phases. TANAP will prepare operation and decommissioning phases specific to the waste streams of these phases.

Contractor is expected to define the waste streams and disposal process for the wastes created at site.

In the following section a categorisation of the wastes is presented referring to the categorisation by Turkish Legislation.

7.3.2 Excavation Waste

Onshore Pipeline Construction

In all areas (including wetlands, marshes, areas with steep slopes, agricultural fields, etc.), included in the Right of Way (~36 m corridor), the topsoil (if present), which is the most important element to be used during bio-restoration, will be stripped and stored appropriately for future re-use. During the excavation works, for the laying of the pipes and construction of the above

ground installations necessary amount of bottom cover soil would be excavated and would be stored at the construction site.

The top soil will be stored separately from the excavation materials and after the construction work is completed, it will be used in the land clearance and rehabilitation works again.

During these operations, the following provisions indicated in the Regulation on Control of Excavation Soil and Construction Debris published in Official Gazette No: 25406 on 18.03.2004 regarding the storage of the top soil would be respected;

- The top soil shall be stored in an appropriate area to prevent from being scattered by wind or water streams or other factors, from being mixed with foreign materials and from being deteriorating with respect to original characteristics and necessary protection measures shall be taken.
- The area where the top soil would be stored shall not have more than 5% inclination.
- During the storage of the top soil, possible losses shall be prevented and the quality of the soil shall be maintained.
- If the top soil shall be kept exposed for a long time, it will be ensured that surface is covered with fast growing plants.

The excavation soil that will be taken out during the pipeline construction will at first be accumulated throughout the route in order to be used for bedding, padding and backfilling. In cases where excavation soil is not appropriate for bedding, padding and backfilling, material will be supplied from off-site after obtaining the necessary permissions and licenses. Imported material used for bedding, padding and backfilling will be sand and will be clean and salt-free; and shall not contain clay, roots, stones or other material which is likely to cause damage to the pipe coating. The excavation material remaining after bedding, padding and backfilling process will be used for reinstatement of roads and land preparation. Remaining excavation soil will be stored on permitted sites.

The waste material which is occurred from excavation works during the land preparation and construction phase will not be emptied to the rivers that flows or dry, related to “the River Beds and Floods Decree” Numbered 2006/27 from Prime Ministry.

During all excavation works under the scope of the project, provisions of Regulation on Control of Excavation Soil and Construction Debris and also

provisions of the Regulation on Control of Soil Pollution and Contaminated Lands by Point Sources would be complied with.

7.3.3 Domestic Solid Wastes

During the construction phase that will begin with the land preparation works, one of the first construction activities will be installation of the camps where the project workers will live. The camps that will provide accommodation, messing, and other basic needs for the workers throughout the construction, will be installed at the most appropriate locations along the route in terms of logistics and local conditions.

Domestic solid waste from the personnel would be collected in closed containers located at various points of the camp areas. These solid waste would be collected in containers and at certain intervals would be transported to the solid waste collection system belonging to the nearest municipality and be disposed of.

Domestic solid waste produced under the project would be disposed of according to the "Regulation for the Control of Solid Waste" published on 14.03.1991 with number 20814 and its amendments indicated below;

- On Official Gazette dated 03.04.1991 and with number 20834
- On Official Gazette dated 22.02.1992 and with number 21150
- On Official Gazette dated 02.11.1994 and with number 22099
- On Official Gazette dated 15.09.1998 and with number 23464
- On Official Gazette dated 18.08.1999 and with number 23790
- On Official Gazette dated 29.04.2000 and with number 24034
- On Official Gazette dated 25.04.2002 and with number 24736
- On Official Gazette dated 05.04.2005 and with number 25777.

7.3.4 Packaging Waste

There would be packaging waste from the packaging materials used in the transport of equipment, from the packaging of the materials used and from the personnel in land preparation and construction phase of the project.

The packing paper, plastic and glass bottles i.e. packaging wastes will be collected separate from other wastes without considering material used and

the source of the material and should be sent to licensed recycling facilities according to Article 23 of the Regulation on Control of Packaging Waste.

The collection of these packaging materials within the camp sites and their disposal would be done in compliance with the provisions of the "Regulation on Control of Packaging Waste" which was published in Official Gazette No: 28035 on 24.08.2011

7.3.5 Waste Batteries and Accumulators

The maintenance process of the vehicles to be used in land preparation and construction period of the project would be done in authorized services. However, when it is not possible, the maintenance procedure will be carried within the facility. In cases where the maintenance process of the vehicles used in the project are carried out within the facility, possible waste batteries that come out would be stored in a closed containers with a leak-proof floor according to the Regulation on Control of Waste Batteries and Accumulators published in Official Gazette No: 25569 on 31.08.2004 and batteries shall be delivered to the collection points established by the municipalities or by the companies distributing or selling batteries and waste accumulators (vehicle batteries) shall be delivered to the temporary storage areas established by the companies distributing or selling accumulator products and maintenance companies.

Within the scope of the project, provisions of the Regulation on Control of Waste Batteries and Accumulators and amendments of this regulation shall be complied with.

7.3.6 Medical Wastes

All medical wastes occurred in the infirmary units of the camps sites during land preparation and construction period of the project shall be disposed of according to the provisions of Regulation on Control of Medical Wastes published in Official Gazette No: 25883 on 22.07.2005. The medical wastes should be placed inside red plastic bags which are resistant to tearing, piercing, bursting and carrying; originally from moderate density polyethylene material, with double bottom seam and without pleats, with double ply thickness of 100 microns, with at least 10 kg holding capacity, carrying on both sides the warning symbol of "International Biohazard" and "ATTENTION! MEDICAL WASTE" with at an easily readable size. The bags would be filled to a maximum of 3/4 capacity and would be tightly closed and when necessary double bagging would be done having the same specifications in order to ensure absolute leak-proofing.

Medical wastes that have cutting and piercing properties would be collected separately from the other waste in a plastic or laminated cardboard having the same specification as piercing, tearing, breaking and bursting resistant, waterproof and leak-proof, could not be opened or tampered with, having the warning symbol of "International Biohazard" and warning of "ATTENTION! CUTTING AND PIERCING MEDICAL WASTE". These collection containers would be filled a maximum of 3/4, would be tightly closed and put into red plastic bags and once the waste boxes are filled, they would absolutely not be compressed, opened, emptied or recycled.

Medical wastes collected in the camp sites according to the points indicated in the regulations, would be disposed of by delivering to the nearest health institution or municipal medical waste collection system. Medical waste that are produced under the project shall be regularly recorded according to the Regulation on Control of Medical Waste, shall be sent to the Provincial Directorate of Environment and Urbanization, these information shall be kept for at least three years and be kept open to examination of the Ministry upon request.

Within the scope of the project, provisions of the Regulation for Medical Waste Control and amendments that were published in Official Gazette No: 27537 on 30.03.2010, in Official Gazette No: 28131 on 03.12.2011, in Official Gazette No: 28812 on 05.11.2013 and in Official Gazette No: 28948 on 21.03.2014 shall be complied with.

7.3.7 Waste Oils

The maintenance process of the vehicles to be used in land preparation and construction period of the project would be done in authorized services. However, when it is not possible, the maintenance procedure will be carried within the facility. If any waste oil is produced, the waste oil shall be collected in a closed temporary waste storage area with leak-proof floor and covered with a shelter. The oil collected would be given to a licensed waste oil recovery company according to the Regulation on Control of Waste Oil published in Official Gazette No: 26952 on 30.07.2008.

Additionally, waste vegetative oil will occur in the cafeterias of the camp sites within the scope of the project. These wastes will be collected separate from other wastes and would be disposed according to the provisions given in the Regulation on Control of Waste Vegetative Oil Published in Official Gazette No: 25791 on 19.04.2005

After the delivering of the waste oils to licensed companies, Waste Oil Declaration Form in Appendix-2 of the Regulation should be filled and sent to

the Relevant Provincial Directorate of Environment and Urbanization until the end of February of the following year. Besides, provisions of the following would be complied with;

- "Regulation on Control of Waste Oil" published in Official Gazette No: 26952 on 30.07.2008 and the amendments made in the regulation and published in Official Gazette No: 27305 on 31.07.2009, in Official Gazette No: 27537 on 30.03.2011 and in Official Gazette No: 28812 on 05.11.2013,
- "Regulation on Control of Waste Vegetative Oils" published in Official Gazette No: 25791 on 19.04.2005 and the amendments made in the regulation and published in Official Gazette No: 27305 on 31.07.2009, in Official Gazette No: 27537 on 30.03.2011 and in Official Gazette No: 28812 on 05.11.2013,
- "Regulation on Control of Polychlorinated Biphenyls and Polychlorinated Terphenyls" published in Official Gazette No: 26739 on 27.12.2007 and the amendment published in Official Gazette No: 27537 on 30.03.2010,
- "Regulation on Soil Pollution Control and Point Sourced Polluted Areas" published in Official Gazette No: 27605 on 08.06.2010 and the amendments made in the regulation and published in Official Gazette No: 28323 on 14.06.2012 and in Official Gazette No: 28704 on 11.07.2013.

7.3.8 Waste Tyre

During land preparation and construction phase of the project, the maintenance activities of the vehicles and construction machines will be done in authorized services. If there is a need to change the tyres of these vehicles and machines, the end of life tyres that come out would be sent to tyre distribution companies or to the authorized transporters indicated in the regulation.

All provisions in the Regulation on the Control of End of Life Tyres published in Official Gazette No: 26357 on 25.11.2006 and the amendments published in Official Gazette No: 27537 on 30.03.2010 and in Official Gazette No: 28817 on 10.11.2013 will be respected.

7.3.9 Hazardous Wastes

The hazardous wastes to be possibly generated during land preparation and construction phases of the project are fluorescent tubes, cartridges, print toners, filter materials, transformers, paints/varnishes, waste lubricants. These wastes are occurred as a result of machine and equipment usage and hazardous

waste produced by domestic usage and other wastes contaminated with these kinds of wastes.

The waste codes for the hazardous wastes are given below in accordance with Annex-4 of Regulation on General Principles of Waste Management (published in the Official Gazette dated 05.07.2008 and numbered 26927).

07 WASTES RESULTING FROM ORGANIC CHEMICAL PROCESSES

07 02 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Plastics, Synthetic Rubber and Synthetic Fiber

07 02 16	Wastes containing harmful silicon	(M)*

*** (M)** Whether waste is hazardous or not is determined by looking threshold concentration that is given in Appendix 6 of Waste Management Regulation.

-Waste originated from materials used for insulation

07 04 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Organic Plant Protection Products (excluding 02 01 08 and 02 01 09), Materials (Agents) used for Wood Preservative (excluding 03 02) and Other Biocides

07 04 13	Wastes containing hazardous material	(M)

-These wastes will be generated as a result of shaping, scission, maintenance of lubricated and preservative-treated materials such as wood, 5/10 lumber, plywood etc.

08 WASTES RESULTING FROM MANUFACTURING, FORMULATION, SUPPLY AND USAGE OF LINING (DYES, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, PUTTY AND PRINTING INKS)

08 01 Wastes Resulting From Manufacturing, Formulation, Supply and Usage and Detachment of Dye and Varnish

08 01 11	Waste dyes and varnish containing organic solvent or other hazardous materials	(M)
08 01 13	Sludge with dye and varnish, containing organic solvents and other	(M)

	hazardous materials	
08 01 21	Wastes of dye and varnish remover	(A)*

*** (A) Definitely hazardous waste regardless of properties**

-These wastes will be generated as a result of usage of dye, varnish, hardening agents etc.

08 03 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Printing Inks

08 03 17	Waste printing toners containing hazardous materials	(M)

-These wastes include cartridges and toners used in offices.

08 04 Wastes Resulting From Manufacturing, Formulation, Supply and Usage of Adhesives and Insulators

08 04 09	Adhesive and filling compound waste containing organic solvents or other hazardous materials	(M)

-These wastes will be generated as a result of processes like agglutination, puttying etc.

09 WASTES RESULTING FROM PHOTOGRAPHY INDUSTRY

09 01 Wastes of Photograph Industry

09 01 01	Water-based bath and activator solution	(A)

10 WASTES RESULTING FROM HEAT TREATMENT

10 01 Wastes Resulting From Power Plants and Other Combustion Plants

10 01 22	Slurry containing hazardous materials resulting from boiler cleaning process	(M)

13 WASTE OIL AND FUEL OIL (EDIBLE OILS, EXCLUDING O5 AND 12)

13 01 Waste Hydraulic Fluid

13 01 10	Mineral based hydraulic fluid	
13 01 11	Synthetic hydraulic fluid	

13 01 12	Biodegradable hydraulic fluid	

13 02 Waste Engine, Transmission and Lubrication Oils

13 02 06	Synthetic oils related to engine, transmission and lubrication	
13 02 07	Easily biodegradable engine, transmission and lubrication oils	

-These wastes classified in groups 13 01 and 13 02 include oils originated from instantaneous and periodic maintenance of vehicles and heavy machinery

13 03 Waste Insulating and Heat Transfer Oils

3 03 08	Synthetic insulating and heat transfer oils	

-These wastes include waste oils originated from energy equipment such as transformers, capacitors ,generators

13 05 Oil/Water Separator Contents

13 05 02	Sludge generated from oil/water separator	(A)
13 05 06	Oil generated from oil/water separator	(A)

-These wastes include kitchen waste, wastes from storage areas, oils from upper part of Oil/ Water separators, bottom sediments (settleable oily matters) etc.

13 07 Waste Liquid Fuels

13 07 01	Fuel oil and diesel fuel	(A)
13 07 02	Gasoline	(A)

-These wastes consist of residual fuel from pouring tray accumulating during fuel delivery and residual fuel during cleaning of fuel tank

14 06 Waste Organic Solvents, Refrigerators and Foam/Aerosol Propellant Gases

14 06 01	Chlorofluorocarbons, HCFC, HFC	(A)

-These wastes contain packaged waste gas to be generated during repair and maintenance of cooling elements

15 WASTE PACKAGES; UNSPECIFIED ABSORBERS, MOPS, FILTER MATERİALS AND PROTECTIVE SUITS

15 01 Package (including waste packages collected separately by municipality)

15 01 10	Packages including residuals of hazardous materials or contaminated with of hazardous materials	(M)

-These wastes contain contaminated packages, packaging waste, container having hazardous materials.

15 02 Absorbers, Filter Material, Swabs and Protective Suits

15 02 02	Absorbers contaminated with hazardous materials, filter materials(oil filter provided that not defined differently),swabs, protective suits	(M)

-These wastes contain spill kit contaminated with hazardous materials, clothing and textile wastes such as workers' suit, shoe, glove etc. and also wastes coming from air and oil filters

16 WASTES NOT PREDEFINED IN THE LIST

16 01 Scrap Vehicles (including heavy machinery) and Wastes Resulting from Detachment of Pieces and Vehicle Maintenance (excluding 13, 14, 16 06 and 16 08)

16 01 07	Oil filters	(A)
16 01 14	Antifreeze liquid containing hazardous materials	(M)

-These wastes contain oils resulting from periodic and instant maintenance of vehicles and heavy machinery.

16 02 Waste Electrical and Electronical Equipment

16 02 11	Waste equipment containing chloroflorocarbon,HCFC,HFC	(M)

-These wastes are originated from periodic and instant maintenance and change of electrical and electronic equipment. Capacitors and transformers are so important to be collected very dangerous PCB(polychlorinated biphenyl) and PCT (polychlorinated terphenyls)

16 04 Waste Explosives

16 04 01	Waste ammunition	(A)
16 04 03	Other waste explosives	(A)

-These wastes result from blasting operations during pipeline excavation.

16 05 Gasses in Pressure Tank and Waste Chemicals

16 05 06	Laboratory chemicals consisting of hazardous matters or containing hazardous materials	(M)

-These wastes contain chemical wastes from laboratory such as concrete, quality control etc. that will establish in camps and stations

16 06 Batteries and Accumulators

16 06 01	Lead batteries	
16 06 02	NiCad batteries	(A)
16 06 03	Mercury cell	
16 06 06	Electrolytes collected separately from batteries and accumulators	(A)

-These wastes include all kinds of electrolytes from batteries and accumulators in camps and stations.

17 CONSTRUCTION AND DESTRUCTION WASTES (INCLUDING EXCAVATION FROM POLLUTED AREAS)

17 01 Concrete, Brick, Roof Tile and Ceramic

17 01 06	Concrete, brick, roof tile and ceramic mixture or separate	(M)

	groups containing hazardous materials	

17 02 Wood, Glass and Plastics

17 02 04	Wood, glass or plastic including or contaminated with hazardous materials	(M)

17 03 Bituminous Mixtures, Coal Tar and Tarred Products

17 03 01	Bituminous mixtures including coal tar	(M)

17 04 Metals (Including alloys)

17 04 09	Scrap metal contaminated with hazardous materials	(M)
17 04 10	Cables containing oil, tar and other hazardous materials	(M)

17 05 Soil (Including Excavation from Polluted Areas), Rocks and Dredging Sludge

17 05 03	Soil and rocks containing hazardous materials	(M)

17 08 Gypsum-Based Construction Materials

17 08 01	Gypsum-based construction materials contaminated with hazardous materials	(M)

17 09 Other Construction and Demolition Wastes

17 09 03	Other construction and demolition wastes containing hazardous wastes(including mixed waste)	(M)

-All wastes in this section cover all excavation soil, ruins, and construction wastes contaminated with hazardous materials that are not included in the "Regulation on Control of Excavation Soil, Construction and Demolition Wastes".

18 WASTES RESULTING FROM STUDIES ON HUMAN AND ANIMAL HEALTH AND/OR SIMILAR (EXCLUDING KITCHEN AND RESTAURANT WASTES THAT ARE NOT DIRECTLY RELATED TO HEALTH)

18 01 Wastes Resulting From Birth, Diagnosis, Cure or Disease Prevention Studies For Humans

18 01 03	Wastes which are collected and disposed according to specific procedures in order to prevent infections	(A)
18 01 08	Cytotoxic and cytostatic medicine	(A)

-These wastes contain contaminated MEDICAL WASTES formed after medical attention and cutting, drilling and infectious wastes from infirmary, health cabinet and first aid center. They are disposed according to Regulation on Control of Medical Wastes. These medical wastes could be removed by municipalities that are licensed for medical waste collection.

20 MUNICIPAL WASTES INCLUDING FRACTIONS COLLECTED SEPARATELY (DOMESTIC WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES)

20 01 Fractions Collected Separately (Excluding 15 01)

20 01 21	Fluorescent lamps and other wastes containing mercury	(A)
20 01 29	Detergents containing hazardous substances	(M)

These wastes contain exhausted fluorescent lamps used in camps and stations for lightening, cleaning agents including hazardous materials, pesticides (in bag or container), battery, cell, accumulator and other hazardous wastes

The quantity of the hazardous wastes would be dependent of the activities in the camp sites and it is not possible to give exact information on the amount of the waste at this stage.

Hazardous wastes will be disposed according to the provisions in the Regulation on Control of Hazardous Wastes published in Official Gazette No: 25755 on 14.03.2005, the hazardous wastes would be stored temporarily within the camp site separate from other wastes in a closed environment preventing any chemical reaction. After that, these wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the Ministry of Environment and Urbanization.

During the storage of hazardous wastes in land preparation and construction period of the project following provisions indicated in Regulation on Control of Hazardous Wastes will be respected:

- A record shall be kept on the amount of the waste and packaging and labelling of the waste shall be according to the internationally accepted standards required by the environmentally licensed recycling or disposal facility which will receive the waste.
- The Waste Declaration Form indicated in the regulation shall be filled and approved every year by the end of March with the previous year's information using the web based program prepared by the Ministry of Environment and Urbanization and a copy shall be stored for five years.
- The waste would be temporarily stored in durable, leak-proof, safe containers at international standards placed on a concrete area away from the buildings of the camp, there will be hazardous waste labels on the containers, the quantity and the stored date would be indicated on the container, if the containers are damaged, the waste would be transferred to other containers having the same specifications, containers would always be kept closed, and they would be stored so that the waste does not chemically react.
- All the measures shall be taken for the health and safety of the employees responsible for the collection, transportation and temporary storage of the waste within the facility.
- In order to prevent pollution that happens as a result of accidental spill or by deliberate actions, depending on the type of the waste, location of

the incident would be brought to its original condition by latest within a month from the time of the incident and all the expenses for this shall be borne.

- Also, when waste are spilled by accident or deliberately and in other similar cases, office of the governor shall be informed and a report detailing the accident date, accident location, type and quantity of the waste, cause of the accident, the waste disposal action and rehabilitation of the accident location shall be submitted to the office of the governor.

- **Wastes to be generated from Welding Activities**

Welding wastes to be generated as a result of pipe welding activities will be temporarily stored at sites with impermeable grounds for a maximum duration of one year until recovery and given to companies licensed by Ministry of Environment and Urbanization as stipulated by Notification on Recovery of Some Non-hazardous Wastes (published in the Official Gazette dated 17.06.2011 and numbered 27967).

7.3.10 Waste generation during offshore activities

- No liquid or solid substances will be disposed of into the sea;
- Necessary precautions for the construction wastes not to drop into the sea will be taken.
- The wastes of the marine construction vehicles will be given to licensed waste acceptance facilities/ waste receiving ships based on a mutual agreement between the parties and the permit to be taken from the pertinent Provincial Directorate of Environment and Urbanization according to the provisions of the Regulation on Waste Collection from the Ships and Control of Wastes (published in the Official Gazette dated 26.12.2004 and numbered 25862, which is amended by the Regulation published in the Official Gazette dated 18.03.2010 and numbered 27525).

7.4 Key Performance Indicators

The performance indicators for the monitoring of the implementation of the waste management plan will be as follows. Project HSSE procures and plans should also be referred for the performance indicators:

- Waste disposal records (amount, date, disposal authority, disposing party)
- Site plans with segregation areas

- Records of recycled waste (type, amount)
- Good housekeeping
- Site inspection records

7.5 References

- Pollution Prevention Plan
- Annex 1 of Environmental Monitoring Plan and Appendix 4.6 of ESIA
- Annex 2 of Environmental Monitoring Plan
- Employment and Training Plan

Appendix 1 Provisional list of waste streams during land preparation and construction

Waste Type	Source	Requirements
Construction debris	Earthworks, excavation	Refer to section 7.3.2 (reuse during construction, dispose in accordance with legislation, check for contamination and dispose accordingly)
Hazardous wastes (such as empty containers of chemicals, waste oil, light bulbs grease, welding material, electrical/electronic wastes and similar)	Earthworks, workshops, vehicle cleaning areas	Refer to section 7.3.9 (store separately at site, dispose in accordance with legislation, incinerate at licenced facilities),
Excavated soil	Earthworks, excavation	Refer to section 7.3.2 of ESIA and Section 5. (reuse during construction, dispose in accordance with legislation, check for contamination and dispose accordingly, use during reinstatement)
Packaging waste	Workshops	Refer to section 7.3.4 and recycle
Waste food	Canteen, workers accommodation	Refer to section 7.3.3, dispose in accordance with legislation
Scrap metal and similar	Construction areas, workshop	Recycle
Waste pipe/piping material	Construction areas, workshops	Refer to section 7.3.9 and recycle if not hazardous
Waste sludge	Wastewater treatment plant	Refer to section 7.3.9, dispose in accordance with legislation, dispose to wastewater

		treatment facilities in the vicinity)
Medical	First aid rooms	Refer to section 7.3.6, dispose through licenced contractors in accordance with legislation
Waste tyres	Workshops, vehicle cleaning areas	Refer to section 7.3.8 dispose in accordance with legislation
Domestic wastewater	Canteen, sanitary network	Refer to pollution Prevention Plan App 5-10 of ESIA, wastewater treatment at site
Hydrotest wastewater	Hydrotesting	Refer to pollution Prevention Plan App 5-10 of ESIA
Oily water	Workshops, spills, vehicle cleaning areas	Refer to section 7.3.7 and section 7.3.9, collect separately and dispose in accordance with legislation

Appendix 2 Waste disposal and wastewater treatment facilities along the route (to be verified and extended by the contractor)

1.Waste Disposal Facilities Along the Route

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
ARDAHAN	-	-	-	-	-	-	-	-	-	-
KARS		KARS ÇİMENTO SAN.VE TİC.A.Ş.-								Domestic solid wastes are disposed in Karadağ Burnu at 5 km distance
ERZURUM	DOĞUÇAM GERİ DÖNÜŞÜM ENERJİ İNŞAAT MÜHENDİSLİK ÇİÇEKÇİLİK TİCARET VE SANAYİ ANONİM ŞİRKETİ,									Süngeriç Landfill

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	AKSU ÇEVRE DANIŞMANLIK VE GERİ DÖNÜŞÜM ANONİM ŞİRKETİ									
ERZİNCAN	ABADAN KAĞIT MAKİNE İNŞAAT SANAYİ TİCARET VE LİMİTET ŞİRKETİ	EBRAR METAL PLASTİK CAM MADEN DÖŞEMELİK AHŞAP KAPLAMA ÜRETİM İTHALAT İHRACAT SANAYİİ VE DIŞ TİCARET ANONİM ŞİRKETİ								Erzincan Municipality Landfill

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
BAYBURT										There is a sanitary landfill area in Gözlük stream position, 4 km away from Şingah district. Bayburt Common Solid Medical Waste Regular Landfill Area.
GÜMÜŞHANE										KOZA ALTIN İŞLETMELERİ A.Ş. MASTRA

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
										ALTIN MADENİ
GİRESUN										
SİVAS		ÇINAR PROFİL SANAYİVE TİCARET LTD.Ş Tİ.		YILKA HURDACILIK LTD.ŞTİ.						
		VOTORANTİM ÇİMENTO SAN. VE TİC. A.Ş SİVAS ŞUBESİ,								
		YILKA HURDACILIK LTD.ŞTİ.								
		MURAT								

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
		KOÇYİĞİT								
YOZGAT		METALTEK METALURJİ SANAYİ VE TİCARET LİMİTED ŞİRKETİ, YİBİTAŞ YOZGAT İŞÇİ BİRLİĞİ İNŞ. MALZ. TİC. VE SAN. A.Ş.					AZE ÇEVRE TEKNOLOJİLERİ SANAYİ VE TİCARET ANONİM ŞİRKETİ-YOZGAT TIBBİ ATIK STERİLİZASYO			Yozgat Solid Waste Landfill

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
							N TESİSİ			
KIRŞEHİR										Solid Waste Disposal Facility and Landfill
KIRIKKALE						BİRİKİMSAN METAL MADENCİLİK GERİ DÖNÜŞÜM GIDA VE TAŞIMACILIK SANAYİ VE TİCARET LİMİTED ŞİRKETİ Kırıkkale	OPTİMET LTD.ŞTİ. - TURANLAR LTD.ŞTİ. (KIRIKKALE TIBBİ ATIK			Solid Waste Regular Landfill Area

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
						ŞUBESİ	STERİLİZASYON TESİSİ)			
ANKARA	BİRCANLAR KATI ATIK GERİ DÖNÜŞÜM TEM.NAK.TUR.VE TİC.LTD.ŞTİ.	EKO 1 PLASTİK GERİ DÖNÜŞÜM SAN.TİC.LTD.ŞTİ.	ÖZDÖRTD İVAN SANATSAL ÇERCEVE VE MACUN SAN.TİC.LTD.ŞTİ-KAZAN ŞUBESİ	ÖZGÜR GERİ KAZANIM VE YAĞ SANAYİ TİCARET LİMİTED ŞİRKETİ.	ENGİN GERİ KAZANIM TESİSLERİ PETROL ÜRN. SAN.VE TİC.LTD.ŞTİ.	ÇÖZÜM END. ATIK İŞLEME SAN. A.Ş.,		ÇETİNKAYA OTO YEDEKPARÇA VE LASTİK TAAH TİC.A.Ş.		ITC Invest Trading Consulting AG

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	İÇANADOLU NAKLİYECİLİK HURDA MET. VE KAĞ.SAN.İNŞ.İTH.	DÖRTDİVAN ÇERÇEVE VE MACUN SAN. TİC. LTD. ŞTİ. (YENİMAHALLE TESİSİ),	LİMAK BATI ÇİMENTO SANAYİ VE TİCARET ANONİM ŞİRKETİ ANKARA ŞUBESİ,		DENGE PETROL SAN. VE TİC.İTH.İHR. PAZ.LTD.ŞTİ.	ÜLKEM METAL GERİ DÖNÜŞÜM VE KAZANIM (ÖZLEM MEMİCİOĞLU),				Sincan Çadırtepe Position-Solid Waste Landfill Area
	ITC INVEST TRADING AND CONSULTING AG TÜRKİYE ANKARA ŞUB	GÖLBAŞI PLASTİK AMB.İNŞ.TURZ.NAK.OTO GIDA SAN. VE TİC. LTD. ŞTİ.	ŞEFKAT METAL GERİ DÖNÜŞÜM İMALAN. VE TİC. LTD. ŞTİ.			HAMZAOĞULLARI METAL NAK. HURDA OTO. İNŞ. İTH. İHR. SAN. VE TİC. LTD. ŞTİ.				Şereflikoçhisar district and Evren municipality-Solid Waste Landfill

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	TARHAN GERİ DÖNÜŞÜM VE TAŞIMACILIK SANAYİ VE TİCARET LİMİTED ŞİRKETİ -ANKARA ŞUBESİ	ABRA ATIK İLETİŞİM MAK. A.Ş.	VOTORAN TİM ÇİMENTO SAN. VE TİC. A.Ş. HASANOĞLAN ŞUBESİ,			DERYA KİMYA METAL SANAYİİ-MURAT DOĞAN,				Beypazarı district- Solid Waste Landfill
	ANKARA ATIK VE MAKİNA TİCARET SANAYİ LTD.ŞTİ.-YENİMAHALLE ŞB.	Er Grup Plastik Str. Katı Atık Geri Dönş. İth. İhr. San. Tic. Ltd. Şti.	ABAK TİC. VE SAN. ADİ KOMANDİT ŞTİ. ENDER GALİP İŞLER VE ORTAĞI,			SAHA METAL SANAYİ TİCARET LİMİTED ŞTİ. (SİNCAN ŞUBESİ),				ETİ SODA ÜRETİM PAZANAK.VE ELEKT.ÜRE SAN.VE TİC.A.Ş.,

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	ANKASAN GERİ DÖNÜŞÜM TURİZM İNŞAAT VE TİCARET LİMİTED ŞİRKETİ	BİRCANLAR KATI ATIK GERİ DÖNÜŞÜM TEM.NAK.TUR. VE TİC.LTD.ŞTİ.	ERLAS GERİ DÖNÜŞÜM TESİSİ İMALAT SANAYİ TİCARET LTD.ŞTİ,			GÜM SAN GÜMÜŞ PAZARLAMA NAKLİYAT ATIK SAN.VE TİC.LTD.ŞTİ,				PARK TERMİK ELEKTRİKSANAYİ VE TİCARE T A.Ş.(SANTRAL VE MÜŞTEMİLATI)
	ÇINAR KAĞIT AMBALAJATIK İNŞ.GIDA SAN.TİC.LTD.ŞTİ.	ÖZDÖRTDİVAN SANATSAL ÇERCEVE VE MACUN SAN.TİC.LTD.ŞTİ-KAZAN ŞUBESİ	KATILAR İNŞAAT MAHRUKAT HURDA TİC. SAN. LTD. ŞTİ.			GÖLBAŞI PLASTİK AMB.İNŞ.TURZ. NAK.OTO GIDA SAN. VE TİC. LTD. ŞTİ.				

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	ALKIN KAĞITÇILIK VE GERİ DNŞ. HİZ. İNŞ. SAN. VE TİC. LTD. ŞTİ.	MİTTO PLASTİK GERİ DÖNÜŞÜM İTH. İHR. SAN. VE TİC. LTD. ŞTİ.	YILMAZLAR HURDACILIK GERİ DÖNÜŞÜM SANAYİ VE TİCARET LİMİTED ŞİRKETİ,			SON-KA GERİ DÖNÜŞÜM VE BERTERAF MÜŞAVİRLİK MAKİNA LOJİSTİK LİMİTED ŞİRKETİ-KAZAN ŞUBESİ,				
			BİRCANLAR KATI ATIK GERİ DÖNÜŞÜM TEM.NAK. TUR.VE TİC.LTD.ŞTİ.			ABRA ATIK İLETİŞİM MAK. A.Ş.,				

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			Er Grup Plastik Str. Katı Atık Geri Dönş. İth. İhr. San. Tic. Ltd. Şti.			KOYUNCU SOYMETAL SAN. TİC. LTD. ŞTİ.				
			DÖRTDİVAN ÇERÇEVE VE MACUN SAN. TİC. LTD. ŞTİ. (YENİMAHALLE TESİSİ),			EVCİLER KİMYA MADENCİLİK VE DEĞ. MET.SAN. TİC. LTD. ŞTİ.				

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			KARTAL OKSİT ANONİM ŞİRKETİ,			ABAK TİC. VE SAN. ADİ KOMANDİT ŞTİ. ENDER GALİP İŞLER VE ORTAĞI,				
			ÇÖZÜM END. ATIK İŞLEME SAN. A.Ş.,			ŞEFKAT METAL GERİ DÖNÜŞÜM İMAL AN. VE TİC. LTD. ŞTİ.				
			HAMZA ÇİNKAYA,			ŞAHİN ÖZTEKİN-BATUHAN GERİ KAZANIM HURDACILIK VE TAŞIMACILIK				

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			BAŞTAŞ-BAŞKENT ÇİMENTO SANAYİ VE TİC A.Ş.,							
			BULDAÇ YAPI SİSTEMLERİ İNŞ.MADENCİLİK SAN.VE TİC.LTD.ŞTİ. POLATLI ŞUBESİ							

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
ESKİŞEHİR	TÜREL GERİ DÖNÜŞÜMCÜLÜK YAPI TAŞ.HİZ .SAN VE TİC.LT.ŞTİ.	İSMET KOYUNCU KOYUNCU PLASTİK	DOĞANER MAHRUKAT TARIM ÜRÜNLERİ VE NAKLİYE SANAYİ TİCARET LİMİTED ŞİRKETİ-KOBİ ORGANİZE ŞUBESİ			ÖZVAR ENDÜSTRİYEL ATIKLAR GERİ DÖNÜŞ SAN TİC LTD ŞTİ	ARY LTD.ŞTİ .-ECO LTD.ŞTİ. İŞ ORTAKLIĞI (ESKİŞEHİR BÜYÜKŞEHİR BEL. TIBBİ ATIK STERİLİZASYON TESİSİ)			Eskişehir-Solid Waste Disposal Facility

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	İSMET KOYUNCU KOYUNCU PLASTİK	İBRAHİM ZENGİN-EREN TİCARET İNÖNÜ ŞUBESİ	ÇİMSA ÇİMENTO SAN. VE TİC. A.Ş. ESKİŞEHİR ÇİMENTO FABRİKASI ŞUBESİ							KOZA ALTIN İŞLETMELERİ A.Ş. KAYMAZ İŞLETMESİ
	İBRAHİM ZENGİN-EREN TİCARET İNÖNÜ ŞUBESİ		SONER TÜYSÜZ KARPLAS							
BİLECİK	ÖZ GERİ DÖNÜŞÜM NAKLİYE İNŞAAT SANAYİ VE TİCARET LİMİTED ŞİRKETİ	Marmara Kağıt ve Ambalaj Sanayii ve Ticaret A.Ş.	HEPŞEN KİMYA SANAYİ VE TİCARET LİMİTED			DEMİSAŞ DÖKÜM EMAYE MAMÜLLERİ SANAYİ ANONİM ŞİRKETİ				,

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			ŞİRKETİ							
			DEMİSAŞ DÖKÜM EMAYE MAMÜLLERİ SANAYİ ANONİM ŞİRKETİ			EVREN METAL SANAYİ VE TİCARET ANONİM ŞİRKETİ BİLECİK ŞUBESİ				
			Marmara Kağıt ve Ambalaj Sanayii ve Ticaret A.Ş.							

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			EVREN METAL SANAYİ VE TİCARET ANONİM ŞİRKETİ BİLECİK ŞUBESİ							
KÜTAHYA	ŞAHİN KAĞITÇILIK	GÜRSEL SİCİM				ETİ GÜMÜŞ ANONİM ŞİRKETİ KÜTAHYA ŞUBESİ				ETİ GÜMÜŞ ANONİM ŞİRKETİ KÜTAHYA ŞUBESİ, Hazardous Waste Landfill

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	HALİL KAYIKÇI KÜTAHYA	ACAR PLASTİK GERİ DÖNÜŞÜM SANAYİ İTH.İHR.TAAH HÜT TİC.LTD.ŞTİ.								
	SİCİM TİCARET - GÜRSEL SİCİM	KOZMOS GERİ DÖNÜŞÜM VE HURDACILIK SANAYİ TİCARET LİMİTED ŞİRKETİ - KÜTAHYA ŞUBESİ								

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	ÇEVTEM TEMİZLİK İNŞAAT NAKLİYE TURİZM GÜVENLİK SİSTEMLERİ SANAYİ VE TİCARET LİMİTED ŞİRKETİ									
BURSA	BAYATLI GERİ DÖNÜŞÜMCÜLÜK DEMİR ÇELİK METAL SAN. TİC. LTD. ŞTİ.	BAYATLI GERİ DÖNÜŞÜMCÜLÜK DEMİR ÇELİK METAL SAN. TİC. LTD. ŞTİ.	BURSA BETON SANAYİ VE TİCARET A.Ş. GÖRÜKLE TESİSİ	BİGPET BİOLOJİK GÜBRE PETROL ENERJİ TAR.SAN.VE TİC. A.Ş		CİVAN GERİ DÖNÜŞÜM İZOLASYON PLASTİK METAL İNŞ. TAAH. SAN. VE TİC. LTD. ŞTİ.	ERA ÇEVRE TEKNOLOJİLERİ A.Ş. (BURSA BÜYÜK ŞEHİR BELEDİYESİ TIBBİ ATIK STERİLİ			Landfilling of domestic waste, non-hazardous industrial waste and medical waste.

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
							ZASYON TESİSİ)			
	ULVİ İSLAMOĞLU-BURSA GEÇİT 1 ŞUBESİ	ULVİ İSLAMOĞLU-BURSA GEÇİT 1 ŞUBESİ	BURSA BETON SANAYİ VE TİCARET A.Ş. GEÇİT TESİSİ			İTİMAT ATIK YÖNETİMİ GERİ DÖNÜŞÜM METAL AMBALAJ ATIKLARI NAKLİYE SAN. VE TİC.LTD.ŞTİ.				
	BURKASAN PLASTİK KİMYA AMBALAJ ATIK GERİ DÖNÜŞÜM İNŞ. SAN. VE TİC. LTD. ŞTİ.	ERERDEM PLASTİK İMALAT İTH.İHR.SAN.VE TİC.LTD.ŞTİ.	BAYATLI GERİ DÖNÜŞÜMCÜLÜK DEMİR ÇELİK			GENKİM GENEL ENDÜSTRİYEL KİMYEVİ MADDELER SAN.VE TİC.LTD.ŞTİ				

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			METAL SAN. TİC. LTD. ŞTİ.							
	İTİMAT ATIK YÖNETİMİ GERİ DÖNÜŞÜM METAL AMBALAJ ATIKLARI NAKLİYE SAN. VE TİC.LTD.ŞTİ.	BURKASAN PLASTİK KİMYA AMBALAJ ATIK GERİ DÖNÜŞÜM İNŞ. SAN. VE TİC. LTD. ŞTİ.	ULVİ İSLAMOĞLU-BURSA GEÇİT 1 ŞUBESİ			SCHOLZ METAL NAKLİYE GERİ DÖNÜŞÜM SAN. VE TİC. LTD. ŞTİ				
	ER-KA KAĞIT VE AMBALAJ SANAYİ TİCARET LİMİTED ŞİRKETİ	CEVRE IZINLERI DENEME TESISI	ERERDEM PLASTİK İMALAT İTH.İHR.SAN.VE TİC.LTD.Ş			ER-KA KAĞIT VE AMBALAJ SANAYİ TİCARET LİMİTED ŞİRKETİ				

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			Tİ.							
	KARATAŞ DEMİR ÇELİK SANAYİ VE TİCARET LİMİTED ŞİRKETİ	ER-KA KAĞIT VE AMBALAJ SANAYİ TİCARET LİMİTED ŞİRKETİ	BURSA BETON SANAYİ VE TİCARET A.Ş. KARACABEY ŞUBESİ			KARATAŞ DEMİR ÇELİK SANAYİ VE TİCARET LİMİTED ŞİRKETİ				
	BURGEM METAL MAKİNA NAKLİYE GERİ DÖNÜŞÜM LTD. ŞTİ.	ERTONA TEKSTİL PLASTİK KİMYA GERİ DÖNÜŞÜM SAN. VE TİC.	BURSA BETON SANAYİ VE TİCARET A.Ş.			RUDOLF DURANER KİMYEVİ MADDELER TİC.VE SAN.A.Ş.				

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
		LTD. ŞTİ.	GEMLİK TESİSİ							
	BAKS BURSA AMBALAJ KAĞIT SANAYİ VE TİCARET LTD.ŞTİ.	EMAŞ PLASTİK SANAYİVE TİCARET A.Ş.	BURKASAN PLASTİK KİMYA AMBALAJ ATIK GERİ DÖNÜŞÜM İNŞ. SAN. VE TİC. LTD. ŞTİ.							
	ERKAGIT SAN.TIC.LTD.STI. OSB ŞUBESİ	BEYZA GERİ DÖNÜŞÜM SANAYİ VE TİCARET LİMİTED	CUMALİ YURTSEVEN KOMPOZİT PANEL							

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
		ŞİRKETİ	AYRIŞTIRMA GERİ DÖNÜŞÜM VE ALÜMİNYUM GERİ KAZANIM							
	KARACABEY HURDA PLAS. PVC DOĞRAMA İNŞ. TAAH. GIDA ZİRAI VE ORM. ÜR.SANAYİ VE TİCARET LİMİTED ŞİRKETİ	TUĞ PLASTİK GERİ DÖNÜŞÜM SANAYİ VE TİCARET LTD. ŞTİ.	MİD GRUP YATIRIM VE DIŞ TİCARET LTD. ŞTİ.							
	KIZIL METAL NAKLİYAT PETROL İNŞ.ZAHİRECİLİK HURDA METAL OTO.İTH.İHR.SAN.TİC.	BAHADIRPLAST KONFEKSİYON SANAYİ VE T İCARET	B-PLAS BURSA PLASTİK, METAL, İNŞAAT,							

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	LTD.ŞTİ	LTD.ŞTİ.	ENERJİ, MADENCİLİK, JEOTERMAL VE TURİZM SAN. VE TİC. A.Ş.							
	AVET GIDA TARIM ÜRÜNLERİ HAY.NAK.TEKS.HURDACILIK VE İNŞ. SAN.LTD.ŞTİ.	POLİNER PLASTİK AMBALAJ GERİ DÖNÜŞÜM VE DERİ SAN.TİC.LTD.ŞTİ.	METALİMPEX GERİ DÖNÜŞÜM VE TAŞIMACILIK SANAYİ VE TİCARET ANONİM ŞİRKETİ -							

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			BURSA ŞUBESİ							
	SİSTEM ATIK YÖNETİMİ GERİ DÖNÜŞÜM KAĞIT METAL PLASTİK HURDA NAKLİYE SANAYİ VE TİCARET LTD.ŞTİ	ERKAGIT SAN.TIC.LTD.STI. OSB ŞUBESİ	ER-KA KAĞIT VE AMBALAJ SANAYİ TİCARET LİMİTED ŞİRKETİ							
	MURAT YAZICI-İNEGÖL GERİ DÖNÜŞÜM	ÖZKANLAR GRANÜL-SADETTİN ÖZKAN	ERTONA TEKSTİL PLASTİK KİMYA GERİ DÖNÜŞÜM SAN.							

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			VE TİC. LTD. ŞTİ.							
	İŞCAN PLASTİK GERİ	AYKAN AMBALAJ SANAYİVE TİCARET LİMİT ED ŞİRKETİ	ASSAHRA MAKİNA, GERİ DÖN., PLASTİK LEV.İM., OTO YAN SANAYİİ VE TİC.LTD.ŞTİ.							
	DÖNÜŞÜM ATIK METAL AMBALAJ NAKLİYE SANAYİ VE TİCARET LTD.ŞTİ.	ÇEVRECİ PLASTİK GERİ DÖNÜŞÜM YAŞAR NİĞDELİOĞLU	EMAŞ PLASTİK SANAYİVE TİCARET							

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			A.Ş.							
	M.A.T İNŞAAT TEM.HİZPEYZAJ TAAH.END.OKU. NAK.ATIK GERİ DÖN.PET.TİC.LTD.ŞTİ	VARLI PLASTİK ALİ VARLI	BEYZA GERİ DÖNÜŞÜM SANAYİ VE TİCARET LİMİTED ŞİRKETİ							
	İNPLAST PLASTİK ÜRÜNLERİ VE MAKİNELERİ İMALAT PAZARLAMA VE DIŞ TİCARET LİMİTED ŞİRKETİ	SEDTAR MADENCİLİK HURDACILIK İNŞ.T.S VE T.LTD.ŞTİ.								

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
		KONDU PLASTİK MALZEMELERİ İMALATI								
		MURAT YAZICI-İNEGÖL GERİ DÖNÜŞÜM								
		İNPLAST PLASTİK ÜRÜNLERİ VE MAKİNELERİ İMALAT PAZARLAMA VE DIŞ TİCARET LİMİTED ŞİRKETİ								

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
BALIKESİR	ÖZNAK HURDACILIK GERİ DÖNÜŞÜMLÜ ATIK DEĞ.MÜH.HİZ.ORM.ÜR.İNŞ.İŞL.MAD.PET.ÜR.OTOM.SAN.TİC.LTD.ŞTİ	İLKER CANKURT	İLKER CANKURT	SÜLEYMAN ALKAN BİTKİSEL ATIK YAĞ GERİ KAZANIM TESİSİ		ÖZNAK HURDACILIK GERİ DÖNÜŞÜMLÜ ATIK DEĞ.MÜH.HİZ.ORM.ÜR.İNŞ.İŞL.MAD.PET.ÜR.OTOM.SAN.TİC.LTD.ŞTİ				Balıkesir, Altınoluk and Gönen Municipalities waste storage areas.
	ÇYÇ KATI ATIK YÖNETİMİ SAN. TİC. LTD. ŞTİ.	ÖZNAK HURDACILIK GERİ DÖNÜŞÜMLÜ ATIK DEĞ.MÜH.HİZ.ORM.ÜR.İNŞ.İŞL.MAD.PET.ÜR.OTOM.SAN.	ÖZNAK HURDACILIK GERİ DÖNÜŞÜMLÜ ATIK DEĞ.MÜH.HİZ.ORM.ÜR.İNŞ.İŞL.MAD.PE	TUNA KİMYA SAN. VE TİC.A.Ş. HAVRAN ŞUBESİ						

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
		TİC.LTD.ŞTİ	T.ÜR.OTOM.SAN.TİC.LTD.ŞTİ							
	BANPLAS GERİ DÖNÜŞÜM İNŞ. HAFR. SAN. TİC. LTD. ŞTİ.	HACI AHMET KANDİL-KANDİL HURDA TİCARET								
	BAHM GERİ DÖNÜŞÜM SANAYİ VE TİCARET LİMİTED ŞİRKETİ	UGS-UĞUR GERİ DÖNÜŞÜM VE ELYAF SAN.TİC.LTD.ŞTİ.								
	ÖRKASAN HURDA SANAYİ VE TİCARET LİMİTED ŞİRKETİ	İSMAİL KARTAL-KARTAL								

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
		PLASTİK								
		ALİ ODABAŞI-ÖZALTIN PLASTİK								
ÇANAKKALE	ÖZTEK GENEL TEMİZLİK TİC. SAN. LTD. ŞTİ.(ŞUBE)	PGT POLİMER GELİŞTİRME TEKNOLOJİLERİ ANONİM ŞİRKETİ	İÇDAŞ ÇELİK ENERJİ TERSANE VE ULAŞIM SAN.A.Ş. DEĞİRMENCİK ENTEGRE TESİSİ			METİN TAYLI-META BOYA	ÇANAKKALE TIBBİ ATIK STERİLİZASYON VE BERTARAF TESİSİ(İŞLT ALTAŞ YAPI			Çanakkale Solid Waste Management Console-Solid Waste Regular Landfill Area

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
							SAN. ve TEM.HİZ.TİC.A.Ş)			
	İÇDAŞ ÇELİK ENERJİ TERSANE VE ULAŞIM SAN. A.Ş. AMBALAJ ATIK TAT		METİN TAYLI-META BOYA							İÇDAŞ ÇELİK ENERJİ TERSANE VE ULAŞIM SAN.A.Ş. DEĞİRMENCİK ENTEGRE TESİSİ,
			SAMET VİNÇ VE HURDACILIK TAŞIMACILIK TİC.							GELİBOLU LANDFILL SITES

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			PAZ. DIŞ TİC. SAN. LTD. ŞTİ.							
			PGT POLİMER GELİŞTİRME TEKNOLOJİLERİ ANONİM ŞİRKETİ							
EDİRNE	ŞAFAK TEMİZLİK İNŞ. SAN. TİC. LTD. ŞTİ EDİRNE ŞUBESİ	OLMUKSAN INTERNATIONAL PAPER AMBALAJ SANAYİ VE TİCARET A.Ş.-EDİRNE	Çimentaş İzmir Çimento Fabrikası Türk A.Ş. Trakya Şubesi				ŞAFAK TEMİZLİK İNŞ. SAN. TİC. LTD. ŞTİ			

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
		FABRİKASI					EDİRNE ŞUBESİ			
TEKİRDAĞ	UGS-UĞUR GERİ DÖNÜŞÜM VE ELYAF SAN.T İC.LTD.ŞTİ.	Pehlivanoğlu Kağıt, Kağıt Mamullaeri ve Ambalaj San. Tic. A.Ş.-Çerkezköy Şubesi	GÜLCAN METAL SANAYİ VE TİCARET LTD. ŞTİ.	DİKTAŞ YAĞ-SABUN SAN.VE TİC.A.Ş.	KOZA SINAİ YAĞLAR SANAYİ VE TİCARET LİMİTED ŞİRKETİ	ÇİÇEK KATI ATIKLAR GERİ DÖNÜŞÜM SANAYİ VE NAKLİYAT TİCARET LİMİTED ŞİRKETİ	ATIK ÇEVRE TEKN. İNŞ. SAN. VE TİC. A.Ş.-TEKİRDAĞ ŞUBESİ (TEKİRDAĞ TIBBİ ATIK STERİLİZASYO			

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
							N TESİSİ)			
	MURATLI GERİ DÖNÜŞÜM NAKLİYAT SAN.TİC.LTD ŞTİ.	UGS-UĞUR GERİ DÖNÜŞÜM VE ELYAF SAN.TİC.LTD.ŞTİ.	DÜNDAR TEKSTİL - AHMET BİLGEHAN DÜNDAR	PROMETA YEM VE ENDÜSTRİYEL YAĞ SAN.TİC.A.Ş. TEKİRDAĞ ŞB.		HAKAN ÇAKIROĞLU PAY PLASTİK GERİ DÖNÜŞÜM VE GERİ KAZANIM				
	EYYUPOĞLU TİC. TEKSTİL GERİ DÖN. İTHALAT İHRACAT NAKLİYE TAŞIMACILIĞI HARFİYAT VE	MİLKAY TEKNİK TEKSTİL SANAYİ A.Ş	ŞİTAP TEKSTİL TURİZM İNŞAAT SANAYİ VE	BESTAŞ BİODİZEL ENERJİ SAN. VE TİC. A.Ş.		AY-YIL PLASTİK HURDAMET.NAK.İÇ VE DI Ş TİC.LTD.ŞTİ.				

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	İNT.İŞLETMECİLİĞİ		TİC.LTD.ŞTİ.							
	EMRE METAL VE PLASTİK GERİ DÖNÜŞÜM SALİH KÖSENLİ	FIRAT KİMYEVİ MADDE PLASTİK HURDA GERİ DÖNÜŞÜM İNŞAAT NAKLİYE PAZARLAMA SANAYİ TİCARET LİMİTED ŞİRKETİ	ALTEKS TEKSTİL ÜRÜN.İML T.İTH.İHR. SAN VE TİC.LTD.ŞTİ.	HGD YAĞ VE GIDA SAN.TİC.LTD. ŞTİ.		GÜLCAN METAL SANAYİ VE TİCARET LTD. ŞTİ.				

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	ÖZKÖSE TİCARET HALİL KÖSE	REPET PLASTİK SAN.VETİC.LTD.ŞTİ.	DENİZ OTOMOTİV İNŞAAT TEKSTİL SAN. VE TİC. LTD. ŞTİ.			LUNA GERİ DÖNÜŞÜM PLASTİK SAN.VE TİC.LTD.ŞTİ.				
	KAHRAMAN HURDA METALVE NAKLİYE TİCAR ET LİMİTED.ŞTİ.	YENİYURT GERİ DÖN. ULUSLARARASI NAK. TUR. VE TİC. LTD. ŞTİ.	DERBY KONVEYÖR BANTSAN.VE TİC.A.Ş.			AĞAOĞLU KATI ATIKLARGERİ DÖN.SAN.VE TİC.LTD.ŞTİ.				
	YURT TİCARET-DAVUT YENİYURT	TEPSAN TEKİRDAĞ PLASTİK SAN. VE TİC.LTD.ŞTİ.	FIRAT ELYAF SANAYİ VE TİCARET			SARBAK METAL TİCARET VE SANAYİ A.Ş.				

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			A Ş							
	DURMUŞ SALĞAR - SALĞAR GERİ DÖNÜŞÜM VE NAKLİYE	İPEK HURDA PLASTİK İMALAT SANAYİ VE TİCARET LTD.ŞTİ.	ARL PLASTİK TEKSTİL SANAYİ İNŞAAT VE GERİ DÖNÜŞÜM LİMİTED ŞİRKETİ			ALTUN METAL PLASTİKAMBALAJ SANAYİ VE TİC LTD ŞTİ				
	TUNÇ GERİ DÖNÜŞÜM VEMETAL SAN.TİC.LT D.ŞTİ.	SELİM PEK - PEK AĞAÇ ÜRÜNLERİ AHŞAP AMBALAJ GERİ DÖNÜŞÜM VE	Pehlivanoğlu Kağıt, Kağıt Mamullaeri ve Ambalaj San. Tic. A.Ş.-							

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
		GERİ KAZANIM	Çerkezköy Şubesi							
	FIRAT KİMYEVİ MADDE PLASTİK HURDA GERİ DÖNÜŞÜM İNŞAAT NAKLİYE PAZARLAMA SANAYİ TİCARET LİMİTED ŞİRKETİ	EFSANE PLASTİK METALELEKTRİK SAN.VE TİC.LTD.ŞTİ.	ÖZER METAL SANAYİ ANONİM ŞİRKETİ-ÇERKEZKÖY ŞUBESİ							
	ERKA HURDACILIK VE TUHAFİYE KADİR ERDOĞAN		ADOÇİM ÇİMENTO BETON SAN VE TİC. A.Ş.							
	OLUŞUM GERİ DÖNÜŞÜM VE TEMİZLİK SANAYİ TİCARET LİMİTED									

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	ŞİRKETİ.									
	YENİYURT GERİ DÖN. ULUSLARARASI NAK. TUR. VE TİC. LTD. ŞTİ.		SARBAK METAL TİCARET VE SANAYİ A.Ş.							
	ARSLANLAR PET.ÜR.TUR.NAK.HURDA MET.SAN.TİC.LTD.ŞTİ.		UĞUR BETON METAL VE PLASTİK SAN. TUR. TİC. LTD.ŞTİ.							

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	GÜÇLÜ NAKLİYAT VE GERİ DÖNÜŞÜM ALİ GÜÇLÜ		UGS-UĞUR GERİ DÖNÜŞÜM VE ELYAF SAN.TİC.LTD.ŞTİ.							
	ULAŞ GERİDÖNÜŞÜM TEKS.İNŞ.VE SOS.Hİ. SAN.TİC.LTD.ŞTİ.									
	YUNİ TEKSTİL GERİ DÖNÜŞÜM KİMYASAL MADDE SAN.VE TİC.LTD.ŞTİ									

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
	ÇERKEZKÖY GERİ DÖNÜŞÜM-SERDAR CERAN									
	MALKARA BELEDİYESİ AMBALAJ ATIĞI TOPLAMA VE AYIRMA TESİSİ									
KIRKLARELİ	YILDER TEKSTİL GERİ DÖNÜŞÜM İNŞAAT TAAHHÜT SANAYİ VE TİCARET LİMİTED ŞİRKETİ	KÖKNAR KAĞIT KARTONSANAYİ VE TİCARET A.Ş.	YILDER TEKSTİL GERİ DÖNÜŞÜM İNŞAAT TAAHHÜT SANAYİ VE TİCARET LİMİTED			BOZKURTLAR METAL SAN.VE TİC.LTD.ŞTİ.-KIRKLARELİ ŞUBESİ				KIRK-KAP 1 Kırklareli Local Authority Solid Waste Landfill

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			ŞİRKETİ							
	KILIÇLAR GERİDÖNÜŞÜMHURDACILIK TAŞ.SAN.TİC.LTD.ŞTİ.	BOZPLAST PLASTİK AMBALAJ VE KİM TEKS SAN TİC LTD.ŞTİ	TRAÇİM ÇİMENTO SANAYİ TİCARET A.Ş.VİZE ŞUBESİ							
			TALEN TEKSTİL VE KİMYA SANAYİ TİCARET ANONİM ŞİRKETİ							

Province	Collection/Separation Facility for Packaging Waste	Recycle Facility for Packaging Waste	Recycle Facility for Non-Hazardous Waste	Recovery Facility for Vegetative Oil	Recycle Facility for Mineral Oil Waste	Recovery Facility for Hazardous Waste	Sterilization Facility for Medical Waste	Recovery Facility for End-of-Life Tires	Temporary Storage Units for End-of-Life Tires	Landfill
			KÖKNAR KAĞIT KARTONSANAYİ VE TİCARE T A.Ş.							
			BOZKURTLAR METAL SAN.VE TİC.LTD.ŞTİ.-KIRKLARELİ ŞUBESİ							

2.Wastewater Treatment Facilities along the route

No	Name of Wastewater Treatment Plant (WWTP)	Province	District	Nearest Location	Distance to AGI	Nearest AGI	AGI Location
1	BIL PT2 Pump Station	Erzurum	Pasinler	Çögender Village	25 km	fly camp spread 2, KP 253	Köprüköy
2	BIL PT2 Pump Station	Erzurum	Pasinler	Çöğender Village	30 km	Central pipe yard spread 2 (lot 1), KP 250	Köprüköy
3	Aşkale Cement Plant	Erzurum	Aşkale	Yeşilova Quarter	16 km	main camp spread 2, KP 342	Aşkale
4	Aşkale Cement Plant	Erzurum	Aşkale	Yeşilova Quarter	16 km	pipe yard spread 2, KP 342	Aşkale
5	Aşkale Cement Plant	Erzurum	Aşkale	Yeşilova Quarter	3 km	pipe yard spread 2, KP356,5	Aşkale
6	Erzincan Municipality WWTP	Erzincan	Centrum	Centrum	50 km	fly camp spread 2, KP 420	Otlukbeli
7	Erzincan Municipality WWTP	Erzincan	Centrum	Centrum	8,5 km	pipe yard spread 3, Erzincan	near Erzincan Railway station

No	Name of Wastewater Treatment Plant (WWTP)	Province	District	Nearest Location	Distance to AGI	Nearest AGI	AGI Location
8	Yozgat WWTP	Yozgat	Sorgun	Adnan Menderes Boulevard	58 km	pipe yard spread 4, KP 876	Saraykent
9	Yozgat WWTP	Yozgat	Sorgun	Adnan Menderes Boulevard	29 km	fly camp spread 4, KP 959 (alternative)	Yerköy
10	Yozgat WWTP	Yozgat	Sorgun	Adnan Menderes Boulevard	36 km	fly camp spread 4, KP 964	Yerköy
11	Elmadağ WWTP	Ankara	Elmadağ	Centrum	40 km	fly camp spread 5, KP 1079	Bala
12	Ayaş-Sinanlı WWTP	Ankara	Ayaş	Centrum	58 km	fly camp spread 5, KP 1134.5	Gölbaşı
13	Eskişehir WWTP	Eskişehir	Centrum	Alpu Road	63 km	main camp + pipe yard spread 5, KP 1230.5	Sivrihisar
14	Eskişehir WWTP	Eskişehir	Centrum	Alpu Road	35 km	fly camp spread 5, KP 1324	Odunpazarı
15	Tatlar WWTP	Ankara	Sincan	Tatlar	30 km	central pipe yard (1) spread 5 (Yenidogan	Polatlı

No	Name of Wastewater Treatment Plant (WWTP)	Province	District	Nearest Location	Distance to AGI	Nearest AGI	AGI Location
						railway stat)	
16	Kütahya WWTP	Kütahya	Centrum	Perli	56 km	fly camp spread 6, KP 1427.5	Domaniç
17	Bursa East WWTP	Bursa	Osmangazi	Osmangazi/Centrum	61 km	main camp spread 6, KP 1537	Mustafa Kemalpaşa
18	Balıkesir WWTP	Balıkesir	Halalca	Between Halalca and Ovaköy	57 km	Central pipe yard spread 6, KP 1576	Bandırma
19	Eskişehir WWTP	Eskişehir	Alpu	Alpu/Centrum	26 km	Eskişehir Offtake	Eskişehir Offtake
20	Yozgat WWTP	Yozgat	Sorgun	Adnan Menderes Boulevard	54 km	Kırıkkale-Yozgat CS Alternative	Kırıkkale-Yozgat CS Alternative
21	BIL PT2 Pump Station	Erzurum	Pasinler	Çögender Village	9 km	CST-02-A2	Pasinler
22	BIL PT2 Pump Station	Erzurum	Pasinler	Çögender Village	5 km	CST-02-A3	Pasinler
23	BIL PT2 Pump Station	Erzurum	Pasinler	Çögender Village	3 km	CST-02-A4	Pasinler
24	Cumhuriyet University	Sivas	Centrum	Centrum	37 km	CST-04-A1	Yıldızeli
25	Cumhuriyet University	Sivas	Centrum	Centrum	42 km	CST-04-A3	Yıldızeli

No	Name of Wastewater Treatment Plant (WWTP)	Province	District	Nearest Location	Distance to AGI	Nearest AGI	AGI Location
26	Cumhuriyet University	Sivas	Centrum	Centrum	46 km	CST-04-A4	Yıldızeli
27	Eskişehir WWTP	Eskişehir	Centrum	Alpu Road	25 km	CST-06-A1	Mahmudiye
28	Eskişehir WWTP	Eskişehir	Centrum	Alpu Road	28 km	CST-06-A3	Mahmudiye
29	Eskişehir WWTP	Eskişehir	Centrum	Alpu Road	33 km	CST-06-A2	Odunpazarı

8 EMERGENCY RESPONSE PLAN

8.1 Purpose and Scope

The Emergency Response Plan (ERP) is prepared to define the actions and procedures which will be applied to prevent the emergencies or to response in a planned manner to minimize the respective potential damages owing to emergencies during construction and operation phases of the project. This document is providing supportive to the project Emergency Response Plan prepared for the project.

TANAP has already prepared an implemented an emergency response plan for the activities at this stage of the project. TANAP will take the necessary actions to revise and implement the Emergency Response Plan for the following phases of the project.

8.2 Roles and Responsibilities

TANAP are fully committed to maintaining a high level of emergency preparedness, the objectives of which are to:

- Establish and maintain a trained and exercised emergency response organisation;
- Ensure that emergency response team members understand their role and responsibilities;
- Review the Emergency Response Procedures regularly to ensure their effectiveness in the containment of an emergency;
- Provide suitable resources and expertise to respond to an emergency situation.

All the contractors and subcontractors are expected to be complied with these commitments during their activities.

All contractors and subcontractor personnel and those personnel under the control of contractors in the event of an emergency shall be familiarised with the Emergency Response Procedures.

For the work activities involving client, subcontractors and other parties, manager of these activities shall ensure that interface documents for the TANAP overall emergency Response Plan are produced to define the actions in case of emergency;

Contractor will develop, implement and maintain a project-specific ERP and procedures;

Contractors will make sure that the subcontractors are working in compliance with the requirements of the ERP;

Contractors will make sure that all the members of the workforce received required training.

8.3 Minimum Requirements of Emergency Response Plan

Campsites will be provided with health facilities equipped to deal with emergency procedures and routine medical operations, so as to avoid pressure on existing healthcare facilities to the extent possible;

Assessment of all healthcare facilities in the AoI will be performed by the Contractor to determine which facilities should be used for emergencies and medical treatments that cannot be dealt by internal healthcare facilities; attention will be paid so as to avoid impacts on users of these facilities;

The Company will liaise with local health authorities to ensure that any critical issues are communicated promptly and that agreed solutions are found;

Access to settlements will always be guaranteed either through diversions or by allowing the passage of vehicles at certain hours through the use of steel plates over the trenches;

Local authorities and local communities will be informed and consulted on impacts on health services and facilities due to project activities and planned mitigation measures during the pre-construction and construction meetings and related Stakeholder Engagement Activities;

A Grievance Mechanism will be set up for communities and individuals to formally communicate their concerns, complaints and grievances to the company and facilitate resolutions that are mutually acceptable by the parties;

The contractor will provide at site spill response equipment appropriate for the type of the potential spills at the individual sites. Special emphasis will be given to the river crossing sites and appropriate spill equipment will be at site to response spill from diesel tankers carrying diesel to camp and construction sites.

The emergency response plan of the contractors will include as a minimum

- Potential emergency cases are defined for the project
- Communication requirements in case of an emergency are defined
- Emergency response teams are defined with clear responsibilities and training requirements as a minimum in compliance legislative requirements.

- Emergency evacuation routes are identified and announced
- Emergency response equipment is identified as a minimum with legislative requirements.
- Location of the emergency response equipment on site is clearly marked on drawings and announced to the work force.
- Emergency drill frequency as a minimum on six monthly bases is defined.
- Recording and reporting procedures for emergency cases are defined.
- All wastes are segregated and recycling procedures are in place.
- Licensed domestic solid waste disposal areas are identified through communication with the local authorities.
- Licensed hazardous waste disposal areas are identified through communication with the local authorities.
- Temporary site waste storage areas are identified and arranged in compliance with local regulations.

8.4 Key Performance Indicators

- Number of emergency drills
- Having appropriate spill response equipment at site
- Good housekeeping
- Training records on emergency response

8.5 References

- Community Safety Plan (CSP) (App-5.2 of ESIA)
- Community Relations Plan (CRP) (App-5.3 of ESIA)
- Employment and Training Plan (App-5.4 of ESIA)
- Pollution Prevention Plan (PPP) (Section 6)
- Waste Management Plan (WMP) (Section 7)
- Annex 2 of Environmental Monitoring Plan.

ENVIRONMENTAL ACTION PLAN
ANNEX 5 SENSITIVE BIODIVERSITY AREAS

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P3-A	DIC	24.11.2014	Discipline Internal Check
P3-B	IDC	24.12.2014	Interdisciplinary Check
P3-0	IAA	15.01.2015	Issued As Approved
P3-1	Re-IAA	25.11.2015	Re-Issued As Approved
P3-2	Re-IAA	20.07.2016	Re-Issued As Approved

HOLDS

No.	Section	Description	Input From	Planned Date

CONTENTS

1 FRESHWATER CRITICAL HABITAT ASSESSMENT

CRITICAL HABITAT NO	CRITICAL HABITAT NAME (RIVER NAME)	KP	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	EUNIS HABITAT	PRIORITY	SCC (IF ANY)	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)	MITIGATION MEASURES
FCH1	Kura River	71+710-71+755	Ardahan	PUTKA-GÖLBAŞI BUFFER ZONE	C2.2	M	-	-	Criterion 4	-	L	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH2	Unknown Creek	166+450-166+571	Kars	-	C2.3	L	-	-	-	-	L	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH3	Süngütaşı River	220+177-220+211	Erzurum	-	C2.3	L	-	-	-	-	L	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH4	Kızıllararkı River	269+680-269+696	Erzurum		C2.3	M	-	-	-	-	L	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.

CRITICAL HABITAT NO	CRITICAL HABITAT NAME (RIVER NAME)	KP	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	EUNIS HABITAT	PRIORITY	SCC (IF ANY)	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)	MITIGATION MEASURES
FCH5	Büyükdere River	280+401-280+414	Erzurum	-	C2.3	L	-	-	-	-	L	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH6	Abıtçayırlığı River	332+830-332+845	Erzurum	-	C2.3	L	-	-	-	-	L	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH7	Baş River	353+584-353+613	Erzurum	-	C2.3	L	-	-	-	-	L	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH8	Karasu River	372+760-372+903	Erzurum	-	C2.3	M	-	-	-	-	L	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.

CRITICAL HABITAT NO	CRITICAL HABITAT NAME (RIVER NAME)	KP	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	EUNIS HABITAT	PRIORITY	SCC (IF ANY)	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)	MITIGATION MEASURES
FCH9	Değirmendere River	504+756-504+770	Gümüşhane	-	C2.3	L	-	-	-	-	L	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH10	Unknown Creek-Öğütlü village	508+498-508+510	Gümüşhane	-	C2.3	M	*Oxyneomacheilus kosswigi* **(Fish)**	M	Criterion 2	Tier 2 (b)	L	*No activities should be carried out for Salmonid between December-November; for Oxynemacheilus kosswigi between May-June in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
							Salmo macrostigma **Macrostigma trout (Fish)**	M	Criterion 2	Tier 2 (b)		
FCH11	Hafik	709+815-709+897	Sivas	HAFİK ZARA HILLS (KBA, IPA, IBA)	C2.3	L	*Gobio obtusirostris* **(Fish)**	M	Criterion 2, 4	Tier 2 (b)	L	*No activities should be carried out in the spawning periods (April-July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH12	Yıldız River	763+361-763+381	Sivas	-	C2.3	L	-	-	-	-	L	*No activities should be carried out in the spawning periods (April-July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.

CRITICAL HABITAT NO	CRITICAL HABITAT NAME (RIVER NAME)	KP	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	EUNIS HABITAT	PRIORITY	SCC (IF ANY)	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)	MITIGATION MEASURES
FCH13	Delice Stream	983+388-983+432	Yozgat	-	C2.3	M	*Cobitis simplicispinna* **(Fish)**	M	Criterion 2	Tier 2 (b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH14	Kılıçözü River	1035+368-1035+377	Kırıkkale	-	C2.3	L	*Cobitis simplicispinna* **(Fish)**	-	-	-	L	*No activities should be carried out in the spawning periods (April-June) *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.
FCH15	Kızılırmak River	1087+890+1087+980	Kırıkkale	-	C2.2	M	-	-	-	-	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH16	Sakarya River	1214+260-1214+290	Eskişehir	ACIKIR STEPPES (KBA, IPA)	C2.3	M	-	-	Criterion 4	-	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.

CRITICAL HABITAT NO	CRITICAL HABITAT NAME (RIVER NAME)	KP	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	EUNIS HABITAT	PRIORITY	SCC (IF ANY)	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)	MITIGATION MEASURES
FCH17	Seydi Stream	1315+643-1315+665	Eskişehir	-	C2.3	L	*Cobitis simplicispinna* **(Fish)**	M	Criterion 2	Tier 2 (b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
							Gobio obtusirostris **(Fish)**	M	Criterion 2	Tier 2 (b)		
FCH18	Seydi Stream	1323+270-1323+300	Eskişehir	-	C2.3	L	*Cobitis simplicispinna* **(Fish)**	M	Criterion 2	Tier 2 (b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
							Gobio obtusirostris **(Fish)**	M	Criterion 2	Tier 2 (b)		
							Chondrostoma angoranse **(Fish)**	M	Criterion 2	Tier 2 (b)		
FCH19	Tributary of Uludere	1396+221-1396+237	Eskişehir	-	C2.3	L	*Gobio obtusirostris* **(Fish)**	M	Criterion 2	Tier 2 (b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH20	Tributary of Kocasu Stream-Soğucak	1461+293-1461+349	Kütahya	-	C2.3	M	*Oxyneomacheilus simavica* **(Fish)**	H	Criterion 1	Tier 1 (a/b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.
									Criterion 2	Tier 2 (b)		

CRITICAL HABITAT NO	CRITICAL HABITAT NAME (RIVER NAME)	KP	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	EUNIS HABITAT	PRIORITY	SCC (IF ANY)	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)	MITIGATION MEASURES
FCH21	Aliova Stream	1553+697-1553+730	Bursa	-	C2.3	M	*Oxyneomacheilus simavica* **(Fish)**	H	Criterion 1	Tier 1 (a/b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
									Criterion 2	Tier 2 (b)		
FCH22	Sarp Creek	1565+865-1565+885	Bursa	-	C2.3	L	*Cobitis fahirae* **Aegean spined loach (Fish)**	M	Criterion 2	Tier 2 (b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.
FCH23	Simav Stream	1590+290-1590+362	Balıkesir	-	C2.3	M	*Oxyneomacheilus simavica* **(Fish)**	H	Criterion 1	Tier 1 (a/b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.
									Criterion 2	Tier 2 (b)		
FCH24	Mürvetler Stream	1605+400-1605+425	Balıkesir	-	C2.3	M	*Oxyneomacheilus simavica* **(Fish)**	H	Criterion 1	Tier 1 (a/b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
									Criterion 2	Tier 2 (b)		
							Cobitis puncticulata **(Fish)**	H	Criterion 1	Tier 1 (a/b)		
									Criterion 2	Tier 1 (a)		
							Cobitis fahirae **Aegean spined loach (Fish)**	M	Criterion 2	Tier 2 (b)		

CRITICAL HABITAT NO	CRITICAL HABITAT NAME (RIVER NAME)	KP	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	EUNIS HABITAT	PRIORITY	SCC (IF ANY)	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)	MITIGATION MEASURES
FCH25	Manyas-Kocacay Stream	1613+360-1613+419	Balıkesir	-	C2.3	M	*Cobitis puncticulata* **(Fish)**	H	Criterion 1	Tier 1 (a/b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.
									Criterion 2	Tier 1 (a)		
							Cobitis fahirae **Aegean spined loach (Fish)**	M	Criterion 2	Tier 2 (b)		
FCH26	Gönen Stream	1651+548-1651+598	Balıkesir	-	C2.3	M	*Anguilla Anguilla* **European eel (Fish)**	H	Criterion 1 Criterion 3	Tier 2 (c) Tier 2 (b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.
FCH27	Biga Stream	1689+784-1689+838	Çanakkale	-	C2.3	M	*Cobitis fahirae* **Aegean spined loach (Fish)**	M	Criterion 2	Tier 2 (b)	L	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.

2 TERRESTRIAL CRITICAL HABITAT ASSESSMENT

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
CH1	003+000-003+735	0,735	M	Ardahan	POSOF WDA + POSOF PBA+POSOF FOREST (KBA)	Criterion 4	G1.A	H	*Zygaena armena* **(Arthropoda)**	M	Criterion 2	Tier 2 (b)	Criterion 2 & 4	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Reseda armena var. armena*)** * The top soil between 003+000-003+735 KP's should be scraped at a depth of 10-15 cm and should be stored near the ROW. The seeds of *Reseda armena var. armena* shall be collected near the ROW between 15 July-30 August. **For Arthropoda species (*Zygaena armena*)** * The seeds of Coronilla and Onobrychis species, which are the feeding plants of *Zygaena armena* shall be collected near the ROW between 15 July-30 August. **For Amphibia Species (*Mertensiella caucasica*)** * At the beginning of April, a field study should be carried out by experts, and if *Mertensiella caucasica* will be observed, individuals should be carried to the appropriate and close aquatic areas by specialists according to the methodology. * If *Mertensiella caucasica* species will be observed in the ROW, the construction works cannot be done before the April, because this species is going to hibernation. * If *Mertensiella caucasica* species is observed in the area, it should be ensured that the habitat is restored by restoring the stones and rocks in and near the aquatic environment after construction. **For Habitat** * The top soil between 003+000-003+735 KP's should be scraped at a depth of 10-15 cm and
							G1.1	M	*Reseda armena var. armena* **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Mertensiella caucasica Caucasian Salamander **(Amphibia)**	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															should be stored near the ROW. * The seeds of the non-endemic native plants of the region shall be collected. * The seeds of non-endemic native plants shall be planted on the ROW for erosion control in dip slopes after construction works.
CH2	003+940-004+051	0,111	M	Ardahan	POSOF WDA + POSOF PBA+POSOF FOREST (KBA)	Criterion 4	G1.A G1.1 E4.4	H M M	*Zygaena armena* **(Arthropoda)** *Reseda armena var. armena* **(Flora)** *Mertensiella caucasica* Caucasian Salamander **(Amphibia)**	M M M	Criterion 2 Criterion 2 Criterion 2	Tier 2 (b) Tier 2 (b) Tier 2 (b)	Criterion 2 & 4	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Reseda armena var. armena*)** * The top soil between 003+000-003+735 KP's should be scraped at a depth of 10-15 cm and should be stored near the ROW. The seeds of *Reseda armena var. armena* shall be collected near the ROW between 15 July-30 August. **For Arthropoda species (*Zygaena armena*)** * The seeds of Coronilla and Onobrychis species, which are the feeding plants of *Zygaena armena* shall be collected near the ROW between 15 July-30 August. **For Amphibia Species (*Mertensiella caucasica*)** * At the beginning of April, a field study should be carried out by experts, and if *Mertensiella caucasica* will be observed, individuals should be carried to the appropriate and close aquatic areas by specialists according to the methodology. * If *Mertensiella caucasica* species will be observed in the ROW, the construction works cannot be done before the April, because this

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															species is going to hibernation. * If *Mertensiella caucasica* species is observed in the area, it should be ensured that the habitat is restored by restoring the stones and rocks in and near the aquatic environment after construction. * The seeds of non-endemic native plants shall be planted on the ROW for erosion control in dip slopes after construction works. **For Habitat** * The top soil between 003+940-004+051 KP's should be scraped at a depth of 10-15 cm and should be stored near the ROW. * The seeds of the non-endemic native plants of the region shall be collected. * The seeds of non-endemic native plants shall be planted on the ROW for erosion control in dip slopes after construction works.
CH3	20+700-23+000	2,3	H	Ardahan	POSOF WDA + POSOF FOREST (KBA)	Criterion 4	G1.9	H	*Tipula n. sp* **(Arthropoda)**	H	Criterion 2	Tier 1 (a)	Criterion 2 & 4	L	* Closed construction period: 1 June-1 July because of the vegetation period of flora species. **For Flora Species (*Centaurea macrocephala and Lilium kesselringianum*)** * The top soil shall be scraped at a depth of 10-15 cm between 20+700-23+000 KP's and shall be stored near the ROW. * The seeds of *Centaurea macrocephala* species shall be collected near the ROW between 15 July-30 August. * The bulbs of *Lilium kesselringianum* shall be collected between (21+529-22+070) KP's before or during the top soil scraping and shall be stored near the ROW. **For Arthropoda Species (*Erebia ottomana*)** * The areas which Poaceae is very dense (between 20+725-21+078 / 22+235-22+615 KP's) shall be harvested and shall be stored near the ROW. **For Habitat** * The top soil shall be scraped at a depth of 10-
							E2.1	M	*Centaurea macrocephala* **(Flora)**	M	Criterion 2	Tier 2 (b)			
							E4.4	M	*Erebia ottomana* **Ottoman Ringlet** **(Arthropoda / Butterfly)**	M	Criterion 2	Tier 2 (b)			
									Lilium kesselringianum **(Flora)**	H	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															15 cm between 20+700-23+000 KP's and shall be stored near the ROW.
CH4	23+670-27+081	3,411	M	Ardahan	POSOF WDA + POSOF FOREST (KBA)	Criterion 4	E4.4	M	*Prometheomys schaposchnikowi* **Long-clawed Mole Vole** **(Mammalia)**	H	Criterion 2	Tier 2 (b)	Criterion 2 & 4	L	* Closed construction period: 15 May-15 August because of breeding period for *Prometheomys schaposchnikowi* **For Mammalian Species (*Prometheomys schaposchnikowi*)** * The top soil shall be scraped at a depth of 10-15 cm between 23+670-27+081KP's and shall be stored near the ROW. * *Prometheomys schaposchnikowi* individuals shall be carried to the appropriate and close areas by specialists according to the methodology. * When the nest gallery system is being excavated, the nest material and the stored food found in the nest should also be carried to the new transferred nesting area and should be placed inside the gallery entrance so that the members can take them in their new nests they are building. **For Habitat** * The top soil shall be scraped at a depth of 10-15 cm between 23+670-27+081KP's and shall be stored near the ROW.
CH5	62+320-63+140	0,82	H	Ardahan	ARDAHAN FOREST (IBA, KBA)	Criterion 4	E4.4	M	*Lathyrus karsianus* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 1, 2 & 4	L	* Closed construction period: 1 June-15 July because of the vegatation period of flora species **For Flora Species (*Lathyrus karsianus, Tanacetum coccineum ssp. chamaemelifolium*)** * The top soil between 62+320-63+140 KP's shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba* sp.), and shall be stored near the ROW, and shall be irrigated once every two weeks. *The seeds of *Lathyrus karsianus* species shall be collected near the ROW between 1 July-1 August; the seeds of *Tanacetum coccineum ssp. chamaemelifolium* species shall be collected
							G1.9	H	*Tanacetum coccineum ssp. chamaemelifolium* **(Flora)**	M	Criterion 2	Tier 2 (b)			
							G3.F	L	*Phengaris nausithous* **Dusky Large Blue** **(Arthropoda / Butterfly)**	H	Criterion 1	Tier 2 (e)			
											Criterion 2	Tier 2 (b)			
							G3.4	H	*Tipula n.sp* **(Arthropoda)**	H	Criterion 2	Tier 1 (a)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
							E2.1	M	*Erebia ottoman* **Ottoman Ringlet** **(Arthropoda)**	M	Criterion 2	Tier 2 (b)			near the ROW between 15 July-15 August. **For Arthropoda Species (*Phengaris nausithous, Erebia ottomana, Tipula n.sp*)** * The top soil between 62+320-63+140 KP's shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba* sp.), and shall be stored near the ROW, and shall be irrigated once every two weeks. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil. * Herbaceous plants shall be harvested and stored near the ROW. **For Habitat** * The top soil between 62+320-63+140 KP's shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba* sp.), and shall be stored near the ROW, and shall be irrigated once every two weeks. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.
CH6	84+758-	2,242	H	Ardahan	-	-	E4.4	M	*Phengaris nausithous*	H	Criterion 1	Tier 2 (e)	Criterion 1 &	L	**For Arthropoda Species (*Phengaris***

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
	87+000								**Dusky Large Blue** **(Arthropoda / Butterfly)**		Criterion 2	Tier 2 (b)	2		***nausithous*)** * The top soil between 84+758-87+000 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Sanguisorba*, which is the feeding plant of *Phengaris nausithous*, shall be collected near the ROW. * Top soil shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba* sp.), and shall be stored near the ROW, and shall be irrigated once every two weeks if the construction works start at summer. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil. **For Habitat** * The top soil between 84+758-87+000 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.
CH7	115+393-116+000	0,607	H	Kars	ALLAHUEKBER MOUNTAINS (KBA)	Criterion 4	E4.4	M	*Phengaris nausithous* **Dusky Large Blue**	H	Criterion 1	Tier 2 (e)	Criterion 1, 2 & 4	L	**For Arthropoda Species (*Phengaris nausithous*)** * The top soil between 115+393-116+000 KP's

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
							E3.4	M	**(Arthropoda / Butterfly)**		Criterion 2	Tier 2 (b)			shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Sanguisorba*, which is the feeding plant of *Phengaris nausithous*, shall be collected near the ROW. * Top soil shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba* sp.), and shall be stored near the ROW, and shall be irrigated once every two weeks if the construction works start at summer. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil. **For Habitat** * The top soil between 115+393-116+000 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.
CH8	116+069-116+637	0,568	H	Kars	ALLAHUEKBER MOUNTAINS (KBA)	Criterion 4	E4.4	M	*Phengaris nausithous* **Dusky Large Blue** **(Arthropoda / Butterfly)**	H	Criterion 1	Tier 2 (e)	Criterion 1, 2 & 4	L	**For Arthropoda Species (*Phengaris nausithous*)** * The top soil between 116+069-116+637 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Sanguisorba*, which is the feeding plant of *Phengaris nausithous*, shall be collected near the ROW. * Top soil shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba* sp.), and shall be stored near the ROW, and shall be irrigated once every two weeks if the construction works start at summer. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site,

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
							E3.4	M			Criterion 2	Tier 2 (b)			without mixing them with the top soil. **For Habitat** * The top soil between 116+069-116+637 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.
							E2.1	M							
CH9	164+345-164+566	0,221	M	Kars	-	-	E1.2E	H	*Darevskia uzzelli* **Uzzell's Lizard** **(Reptilia)**	H	Criterion 1	Tier 2 (e)	Criterion 1 & 2	L	* Closed prior to 15th of July because of the species hibernation period **For Reptilian Species (*Darevskia uzzelli, Darevskia unisexualis*)** * The top soil between 164+345-164+566 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * *Darevskia uzzelli* and *Darevskia unisexualis* individuals shall be carried to the appropriate and close areas by specialists according to the methodology at the beginning of the July. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil **For Habitat** * The top soil between 164+345-164+566 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil
											Criterion 2	Tier 2 (b)			
									Darevskia unisexualis ***Unisexual Lizard*** **(Reptilia)**	H	Criterion 2	Tier 2 (b)			
CH10	167+000-167+154	0,154	M	Kars	-	-	E1.2E	H	*Darevskia uzzelli* **Uzzell's Lizard** **(Reptilia)**	H	Criterion 1	Tier 2 (e)	Criterion 1 & 2	L	* Closed prior to 15th of July because of the species hibernation period **For Reptilian Species (*Darevskia uzzelli,***
											Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Darevskia unisexualis ***Unisexual Lizard*** **(Reptilia)**	H	Criterion 2	Tier 2 (b)			***Darevskia unisexualis*)** * The top soil between 167+000-167+154 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * *Darevskia uzzelli* and *Darevskia unisexualis* individuals shall be carried to the appropriate and close areas by specialists according to the methodology at the beginning of the July. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil **For Habitat** * The top soil between 167+000-167+154 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil
CH11	169+000-174+000	5	M	Kars	SARIKAMIŞ FOREST (IBA, KBA)	Criterion 4	E3.4 G3.4 G3.F	M H L	*Otis tarda* **The great bustard** **(Bird)**	M	Criterion 1	Tier 2 (d)	Criterion 1 & 4	L	**For Bird Species (*Otis tarda*)** * If the *Otis tarda* individuals will be seen, they shall be removed from the area by specialists. * If the nest, eggs or mature individuals in the incubation will be seen, the construction works shall be stopped until the chicks feed themselves. * The top soil between169+000 - 174+000 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If adult *Otis tarda* individuals are observed, they shall be removed by specialist. * If incubating adults or nests or eggs of *Otis tarda* are observed, construction shall be stopped and is prohibited until eggs hatch and the chicks feed themselves * If adult *Otis tarda* individuals are observed, they shall be removed by specialist. * If incubating adults or nests or eggs of *Otis tarda* are observed, construction shall be stopped and is prohibited until eggs hatch and the chicks feed themselves **For Habitat** * The top soil between169+000 - 174+000 shall

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH12	174+412-176+000	1,588	H	Kars	SARIKAMIŞ FOREST (IBA, KBA)	Criterion 4	G3.4	H	*Eulasia chrysopyga* **(Arthropoda)**	M	Criterion 2	Tier 2 (b)	Criterion 1, 2 & 4	L	* Closed construction period: 1 June-1 July because of vegetation period of flora species **For Flora Species (*Hieracium sarykamyschense*)** * The top soil between 174+412-176+000 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Hieracium sarykamyschense* species shall be collected near the ROW between 15 July-15 August. **For Arthropod Species (Eulasia chrysopyga) and for habitat** * The top soil between 174+412-176+000 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
							G3.F	L	*Hieracium sarykamyschense* **(Flora)**	H	Criterion 1	Tier 2 (d)			
CH13	187+557-193+000	5,443	M	Kars	SARIKAMIŞ FOREST (IBA, KBA)	Criterion 4	E4.4	M	*Lathyrus karsianus* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 1, 2 & 4	L	* Closed construction period: 1 June-1 July because of vegetation period of the flora species **For Flora Species (*Lathyrus karsianus*, *Hieracium sarykamyschense*)** * The top soil between 187+557 - 193+000 shall be scraped at a depth of 10-15 cm and shall be
							G3.4	H	*Eulasia chrysopyga* **(Arthropoda)**	M	Criterion 2	Tier 2 (b)			
							E2.1	M	*Phengaris nausithous*	H	Criterion 1	Tier 2 (e)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Dusky Large Blue **(Arthropoda / Butterfly)**		Criterion 2	Tier 2 (b)			stored near the ROW. * The seeds of *Lathyrus karsianus* and *Hieracium sarykamyschense* species shall be collected near the ROW between 1 July-1 August **For Fauna Species (*Eulasia chrysopyga, Phengaris nausithous, , Zonitis nigriventris*)** * The top soil between 187+557 - 193+000 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW * Tall plants belonging to the *Compositae*, *Labiatae*, *Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period from the between (191+117-191+251 / 191+690-191+947) KP's and shall be stored nearby the construction site. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil **For Habitat** * The top soil between 187+557 - 193+000 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil
							E3.4	M	*Zonitis nigriventris* **(Arthropoda)**	M	Criterion 2	Tier 2 (b)			
							G3.F	L	*Hieracium sarykamyschense* **(Flora)**	H	Criterion 1	Tier 2 (d)			
CH14	202+930-203+709	0,779	M	Kars	-	-	E4.4	M	*Zonitis nigriventris* **(Arthropoda)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	**For Arthropoda species (*Zygaena armena*)** * The top soil between 202+930-203+709 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae*, *Labiatae*, *Leguminosae* families in the area shall be harvested at the end of the vegetation period from the between (202+930-203+709) KP's and shall be stored nearby the construction site. **For Habitat** * The top soil between 202+930-203+709 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW
CH15	214+885-	5,641	M	Erzurum	-	-	E1.2E	H	*Montivipera wagneri*	H	Criterion 1	Tier 2 (c)	Criterion 1 &	L	* Closed construction period: 1 March – 15 July

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
	219+641								**Wagner's Viper (Reptilia)**				2		because of the vegatition period of flora species and hibernation period of reptilian species **For Flora Species (Salvia huberi, *Cephalaria sparsipilosa, Eryngium wanaturi, Cousinia bicolor*)** * The top soil between 214+885-219+641 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Salvia huberi species shall be collected from the ROW between 1 July-1 August and the seeds of *Cephalaria sparsipilosa, Eryngium wanaturi* and *Cousinia bicolor* species shall be collected from the ROW between 15 July-15 August. **For Reptilia Species (*Montivipera wagneri*)** * *Montivipera wagneri* individuals shall be carried to the appropriate and close areas by specialists according to the methodology and to the (38 T 268212.00-4446232.00) coordinates at the begining of the July. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil. **For Arthropoda Specie (*Polyommatus merhaba*)** * The seeds of *Onobrychis* and *Astragalus* flora species shall be collected from the ROW between 15 July – 30 August. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil. **For Habitat** * The top soil between 214+885-219+641 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil. * In the regions between the (219+415-219+540) KP's terracing shall be carried out to
							E2.1	M	*Salvia huberi* **(Flora)**	H	Criterion 2	Tier 2 (b)			
							E4.4	M	*Cephalaria sparsipilosa* **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Eryngium wanaturi **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Polyommatus merhaba **Hi Blue (Arthropoda – Butterfly)**	H	Criterion 1	Tier 2 (e)			
									Cousinia bicolor **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															prevent erosion.
CH16	232+172-232+787	0,615	M	Erzurum	-	-	E1.2E	H	*Cousinia bicolor* **(Flora)**	H	Criterion 1 Criterion 2	Tier 2 (d) Tier 2 (b)	Criterion 1 & 2	L	**For Flora Specie (*Cousinia bicolor*)** * The top soil between 232+172-232+787 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. *The seeds of *Cousinia bicolor* species shall be collected near the ROW between 15 July-15 August. **For Habitat** * The top soil between 232+172-232+787 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH17	306+365-312+319 (except highway)	5,873	H	Erzurum	ERZURUM MARSHES BUFFER ZONE (WETLAND, KBA)	Criterion 4	E6.2	M	*Hilara n. sp. 1* **(Arthropoda)**	H	Criterion 2	Tier 1 (a)	Criterion 1, 2, 3 & 4	L	* Closed construction period: March and between 15 September-30 October because of the migration period of bird specie **For Flora Species (*Lepidium caespitosum*)** * The top soil between 306+365-312+319 (except highway, 0,081 m) shall be scraped at a depth of 10-15 cm and shall be stored near the ROW with harvested wet meadows with their soil if construction works starts in spring. * The top soil between the (306+365-306+460) KP's shall be removed in layers of 10-15 cm depth, together with the plants on it, and shall be stored nearby the construction site and shall be irrigated once every two weeks if construction works start at spring or autumn. * The seeds of *Lepidium caespitosum* species shall be collected between 15 July-15 August. **For Arthropod Species (*Hilara n. sp. 1*)** * The top soil between 306+365-312+319 (except highway, 0,081 m) shall be scraped at a depth of 10-15 cm and shall be stored near the ROW with harvested wet meadows with their
							E1.2E	H	*Vanellus gregarious* **The sociable lapwing** **(Bird)**	H	Criterion 1 Criterion 3	Tier 2 (c) Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
							E3.4	M	*Lepidium caespitosum* **(Flora)**	M	Criterion 2	Tier 2 (b)			soil if construction works starts in spring. * The top soil between the (306+365-306+460) KP's shall be removed in layers of 10-15 cm depth, together with the plants on it, and shall be stored nearby the construction site and shall be irrigated once every two weeks if construction works start at spring or autumn. **For Bird Species (*Vanellus gregarius*)** No construction activities should be carried out in March and between 15 September-30 October, when it is the migration periods. **For Habitat** * The top soil between 306+365-312+319 (except highway, 0,081 m) shall be scraped at a depth of 10-15 cm and shall be stored near the ROW with harvested wet meadows with their soil if construction works starts in spring. * The top soil between the (306+365-306+460) KP's shall be removed in layers of 10-15 cm depth, together with the plants on it, and shall be stored nearby the construction site and shall be irrigated once every two weeks if construction works start at spring or autumn.

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
CH18	369+037-369+126	0,089	H	Erzurum	-	-	E1.00	H	*Thymus canoviridis* **(Flora)**	H	Criterion 2	Tier 2 (b)	Criterion 2	L	**For Flora Species (*Thymus canoviridis*)** * The top soil between 369+037-369+126 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * *Thymus canoviridis* species shall be collected near the ROW between 15 July-15 August. * The *Thymus canoviridis* species individuals shall be collected as tufts and shall be transferred to the (37 S 642551.00-423058.00) coordinates between 15 July-15 August. **For Habitat** * The top soil between 369+037-369+126 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site.
CH19	385+169-	4,831	M	Erzurum	-	-	E1.2E	H	*Polyommatus antidolus*	H	Criterion 2	Tier 2 (b)	Criterion 2	L	**For Arthropoda Species (*Polyommatus***

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
	390+000						G1.7	M	**Anatolian Furry Blue** **(Arthropoda – Butterfly)**						***antidolus*)** * 20 cm of top soil between 385+169-390+000 KP's of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * The stones and rocks shall be stored nearby the construction site. * The seeds of the plants of the *Onobrychis* and *Astragalus* genus, which are the food plants of the larvae, shall be collected between 15 July – 30 August. **For Habitat** * 20 cm of top soil between 385+169-390+000 KP's of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * The stones and rocks shall be stored nearby the construction site.
CH20	393+489-394+339	0,85	M	Erzincan	-	-	E1.2E	H	*Zonitis nigriventris* **(Arthropoda)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	**For Arthropoda Species (*Zonitis nigriventris*)** * The top soil between 393+489-394+339 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae*, *Labiatae*, *Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period and shall be stored nearby the construction site. **For Habitat** * The top soil between 393+489-394+339 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH21	432+592-434+819	2,227	M	Erzincan	-	-	E1.2E	H	*Salvia huberi* **(Flora)**	H	Criterion 2	Tier 2 (b)	Criterion 2	L	**For Flora Species (*Salvia huberi, Cousinia halysensis*)**

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Cousinia halysensis **(Flora)**	M	Criterion 2	Tier 2 (b)			* The top soil between 432+592-434+819 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Salvia huberi* species shall be collected between 1 July-1 August, the seeds of *Cousinia halyensis* species shall be collected between 15 July-15 August. **For Habitat** * The top soil between 432+592-434+819 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW
CH22	451+458-454+120	2,662	M	Erzincan	-	-	E1.2E	H	*Isatis glauca ssp. sivasica* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	**For Flora Species (*Isatis glauca ssp. sivasica*)** * 20 cm of top soil between451+458-454+120 KP's of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW. * The seeds of *Isatis glauca ssp. sivasica, Onobrychis* and *Astragalus* species shall be collected between 15 July-15 August. **For Arthropoda Species (*Polyommatus actis*)** * 20 cm of top soil between451+458-454+120 KP's of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW. **For Habitat** * 20 cm of top soil between451+458-454+120 KP's of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW. * Terracing shall be carried out at the (451+966-452+070/ 453+894-454+000) KP's to prevent erosion.
									Polyommatus actis **Actis Blue** **(Arthropoda – Butterfly)**	H	Criterion 2	Tier 2 (b)			
CH23	518+154-521+487	3,333	M	Gümüşhane	-	-	E1.2E	H	*Tanacetum densum ssp. sivasicum* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	* Closed construction period: 1 May – 1 June because of the vegetation period of flora species

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Polyommatus actis **Actis Blue** **(Arthropoda – Butterfly)**	H	Criterion 2	Tier 2 (b)			**For Flora Species (*Tanacetum densum ssp. sivasicum*)** * The seeds of *Tanacetum densum ssp. sivasicum, Onobrychis* and *Astragalus* species shall be collected between 1 July-1 August. * 20 cm of top soil between 518+154-521+487 KP's of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW. **For Arthropa Species (*Polyommatus actis)*** * 20 cm of top soil between 518+154-521+487 KP's of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW. **For Habitat** * 20 cm of top soil between 518+154-521+487 KP's of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW. * The seeds of non-endemic native plants shall be collected and planted on the ROW for erosion control in dip slopes after construction.
CH24	537+806-543+711	5,905	M	Erzincan-Gümüşhane	-	-	E1.2E	H	*Tanacetum albipannosum* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	* Closed construction period: 1 May – 1 June because of the vegetation period of flora species **For Flora Species (*Tanacetum albipannosum*)** * The top soil between 537+806-543+711 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Tanacetum albipinnosum* species shall be collected between 1 July-1 August. **For Habitat** * The top soil between 537+806-543+711 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH25	564+425-	0,7	M	Erzincan	-	-	X18	L	*Isatis undulata*	M	Criterion 1	Tier 2 (d)	Criterion 1 &	L	* Closed construction period: 1 May – 1 June

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
	565+125								**(Flora)**		Criterion 2	Tier 2 (b)	2		because of the vegetation period of flora species **For Flora Species (*Isatis undulata*)** * The top soil between 564+425-565+125 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* species shall be collected between 1 July-1 August **For Habitat** * The top soil between 564+425-565+125 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW
CH26	588+880-590+358	1,478	M	Erzincan	REFAHİYE FOREST (KBA)	Criterion 4	G3.F E1.2B	L H	*Cochlearia sintenisii* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2 & 4	L	* Closed construction period: 1 June – 1 July because of the vegetation period of flora species **For Flora Species (*Cochlearia sintenisii*)** * The top soil between 588+880- 590+358 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August. **For Habitat** * The top soil between 588+880- 590+358 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW
CH27	604+940-608+000	03.Haz	M	Erzincan-Sivas	REFAHİYE FOREST (KBA)	Criterion 4	E1.2B G3.4 F2.2 E2.5	H H M H	*Cochlearia sintenisii* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2 & 4	L	* Closed construction period: 1 June – 1 July because of the vegetation period of flora species **For Flora Species (*Cochlearia sintenisii*)** * The top soil between 604+940-608+000 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August **For Habitat** * The top soil between 604+940-608+000 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
CH28	614+648-626+000	11,352	H (E1.2B), M (G3.4, F2.2, G1.7)	Sivas	REFAHİYE FOREST (KBA)	Criterion 4	E1.2B	H	*Bellevalia crassa* **(Flora)**	H	Criterion 1	Tier 2 (d)	Criterion 1, 2 & 4	L	* Closed construction period: 1 June – 1 July because of the vegetation period of flora species **For Flora Species (*Bellevalia crassa, Asperula capitellata, Cochlearia sintenisii, Thymus cappadocicus var. pruinosus, Achillea sintenisii)*** * The top soil between614+648-626+000 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The bulbs of *Bellevalia crassa* species shall be collected near the ROW and carried to out of the ROW. * The seeds of the *Asperula capitellata, Cochleria sintenisii*, and *Thymus cappadocicus var. pruinosus* species shall be collected near the ROW between 1 July-1 August; the seeds of the *Achillea sintenisii* species shall be collected near the ROW between 15 July-15 August. **For Habitat** * The top soil between614+648-626+000 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
											Criterion 2	Tier 2 (b)			
							G3.4	H	*Asperula capitellata* **(Flora)**	M	Criterion 2	Tier 2 (b)			
							F2.2	M	*Cochlearia sintenisii* **(Flora)**	M	Criterion 2	Tier 2 (b)			
							G1.7	M	*Thymus cappadocicus var. pruinosus* **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Achillea sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
CH29	632+635-634+183	1,548	M	Sivas	-	-	E1.2E	H	*Isatis undulata* **(Flora)**	M	Criterion 1	Tier 2 (d)	Criterion 1 & 2	L	* Closed construction period: 1 June – 1 July because of the vegetation period of flora species **For Flora Species (*Isatis undulata, Cochlearia sintenisii,)*** 632+635 - 634+183 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected near the ROW, from the (37 S 431034.20-4418698.72) coordinates between 1 July-1 August. **For Habitat** 632+635 - 634+183 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Terracing shall be carried out at the (633+257-633+562) KP's to prevent erosion on the dip slopes after construction works.
											Criterion 2	Tier 2 (b)			
									Cochlearia sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
CH30	634+285-634+864	0,579	M	Sivas	-	-	E1.2E	H	*Isatis undulata* **(Flora)**	M	Criterion 1	Tier 2 (d)	Criterion 1 & 2	L	* Closed construction period: 1 June – 1 July because of the vegetation period of flora species **For Flora Species (*Isatis undulata, Cochlearia sintenisii*)** 634+285- 634+864KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected between 1 July-1 August. **For Habitat** 634+285- 634+864KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Terracing shall be carried out at the (634+736-634+858) KP's to prevent erosion on the dip slopes after construction.
											Criterion 2	Tier 2 (b)			
									Cochlearia sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
CH31	634+906-634+932	0,026	H	Sivas	-	-	G1.3	M	*Hexatoma n. sp.* **(Arthropoda)**	H	Criterion 2	Tier 1 (a)	Criterion 2	L	**For Arthropoda Species (*Hexatoma n. sp., Tipula n.sp*) and for Habitat** * The top soil between 634+906- 634+932 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
							E1.2E	H	*Tipula n.sp* **(Arthropoda)**	H	Criterion 2	Tier 1 (a)			
CH32	652+000-654+878	2,878	H	Sivas	-	-	E1.00	H	*Gypsophila heteropoda ssp. minutiflora* **(Flora)**	H	Criterion 1	Tier 2 (d)	Criterion 1 & 2	L	* Closed construction period: 1 May – 1 June because of the vegetation period of flora species **For Flora Species (*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides)*** * The top soil between 652+000-654+878 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between1 June-20 July; the
											Criterion 2	Tier 2 (b)			
									Astragalus zaraensis **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Chrysocamela noeana **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Minuartia corymbulosa var. gypsophiloides	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									(Flora)						seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. **For Arthropoda Species (*Tipula n.sp*)** * The top soil between 652+000-654+878 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site. **For Habitat** * The top soil between 652+000-654+878 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site.
									Achillea sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Centaurea sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Gypsophila aucheri **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Isatis glauca ssp. sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Scorzonera aucherana **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Scrophularia lepidota **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Thesium stelleroides **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Tipula n.sp **(Arthropoda)**	H	Criterion 2	Tier 1 (a)			
CH33	656+000-	0,431	H	Sivas	-	-	E1.00	H	*Gypsophila heteropoda ssp.*	H	Criterion 1	Tier 2 (d)	Criterion 1 &	L	* Closed construction period: 1 May – 1 June

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
	656+431								*minutiflora* **(Flora)**		Criterion 2	Tier 2 (b)	2		because of the vegetation period of flora species **For Flora Species (*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides)*** * The top soil between 656+000-656+431 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. **For Arthropoda Species (*Tipula n.sp*)** * The top soil between 656+000-656+431 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site. **For Habitat** * The top soil between 656+000-656+431 shall be scraped at a depth of 10-15 cm and shall be
									Astragalus zaraensis **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Chrysocamela noeana **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Minuartia corymbulosa var. gypsophiloides **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Achillea sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Centaurea sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Gypsophila aucheri **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Isatis glauca ssp. sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Scorzonera aucherana **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Scrophularia lepidota **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Thesium stelleroides **(Flora)**	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Tipula n.sp **(Arthropoda)**	H	Criterion 2	Tier 1 (a)			stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site.
CH34	660+353-660+456	0,103	H	Sivas	-	-	E1.00	H	*Gypsophila heteropoda ssp. minutiflora* **(Flora)**	H	Criterion 1	Tier 2 (d)	Criterion 1 & 2	L	* Closed construction period: 1 May – 1 June because of the vegetation period of flora species **For Flora Species (*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides)*** * The top soil between 660+353 - 660+456 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila*
											Criterion 2	Tier 2 (b)			
									Astragalus zaraensis **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Chrysocamela noeana **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Minuartia corymbulosa var. gypsophiloides **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Achillea sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Centaurea sivasica	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									(Flora)						*aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. **For Arthropoda Species (*Tipula n.sp*)** * The top soil between 660+353 - 660+456 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site. **For Habitat** * The top soil between 660+353 - 660+456 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site.
									Gypsophila aucheri **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Isatis glauca ssp. sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Scorzonera aucherana **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Scrophularia lepidota **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Thesium stelleroides **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Tipula n.sp **(Arthropoda)**	H	Criterion 2	Tier 1 (a)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
CH35	661+206-661+709	0,503	H	Sivas	-	-	E1.00	H	*Gypsophila heteropoda ssp. minutiflora* **(Flora)**	H	Criterion 1	Tier 2 (d)	Criterion 1 & 2	L	* Closed construction period: 1 May – 1 June because of the vegetation period of flora species **For Flora Species (*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides*)** * The top soil between 661+206 - 661+709 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected near the ROW between 15 June-15 July. * The *Astragalus zaraensis, Achillea sintenisii, Scorzonera aucherana, Thymus pectinatus, Gypsophila eriocalyx* species individuals shall be removed as tufts from the (661+236-661+267 / 661+353-661+387 / 661+432-661+461 / 661+531-661+576) KP's and shall be transferred to the (37 S 407182.00-4414267.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. **For Arthropoda Species (*Tipula n.sp*)** * The top soil between 661+206 - 661+709 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site. **For Habitat** * The top soil between 661+206 - 661+709 KP's
											Criterion 2	Tier 2 (b)			
									Astragalus zaraensis **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Chrysocamela noeana **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Minuartia corymbulosa var. gypsophiloides **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Achillea sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Centaurea sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Gypsophila aucheri **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Isatis glauca ssp. sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Scorzonera aucherana **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Scrophularia lepidota **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Thesium stelleroides **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Tipula n.sp **(Arthropoda)**	H	Criterion 2	Tier 1 (a)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site. *Thymus pectinatus, Gypsophila eriocalyx* species individuals shall be removed as tufts from the (661+236-661+267 / 661+353-661+387 / 661+432-661+461 / 661+531-661+576) KP's and shall be transferred to the (37 S 407182.00-4414267.00) coordinates. * Terracing shall be carried out between the (661+448-661+704) KP's.
CH36	683+613-683+648	0,035	H	Sivas	HAFİK ZARA HILLS (IBA, KBA, IPA)	Criterion 4	E1.00	H	*Dysmachus safranboluticus* **(Arthropoda)**	H	Criterion 2	Tier 2 (b)	Criterion 1, 2 & 4	L	* Closed construction period: 1 May – 1 June because of the vegetation period of flora species **For Flora Species (*Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Minuartia corymbulosa var. gypsophiloides)*** * The top soil between 683+613-683+648 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea*
									Astragalus zaraensis **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Achillea sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Astragalus aytatchii **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Centaurea sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			*sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana*, *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis* species individuals shall be removed as tufts from the (37 S 386761.62 4408728.69) coordinates and shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * The individuals of the *Achillea sintenisii* species shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. **For Arthropoda Species (*Dysmachus safranboluticus*)** * The top soil between 683+613-683+648 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site **For Habitat** * The top soil between 683+613-683+648 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site
									Chrysocamela noeana **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Gypsophila heteropoda ssp. minutiflora **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Minuartia corymbulosa var. gypsophiloides **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
CH37	683+924-	0,039	H	Sivas	HAFİK ZARA	Criterion 4	E1.00	H	*Dysmachus safranboluticus*	H	Criterion 2	Tier 2 (b)	Criterion 1, 2	L	* Closed construction period: 1 May – 1 June

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
	683+963				HILLS (IBA, KBA, IPA)				**(Arthropoda)**				& 4		because of the vegetation period of flora species **For Flora Species (*Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Minuartia corymbulosa var. gypsophiloides)*** * The top soil between 683+613-683+648 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of A*stragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana*, *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species individuals shall be removed as tufts between the (683+934-683+954) KP's and shall be transferred to the (37 S 386463.44-4408686.64) * Some of the collected seeds of *Chrysocamela*
									Astragalus zaraensis **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Achillea sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Astragalus aytatchii **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Centaurea sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Chrysocamela noeana **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Gypsophila heteropoda ssp. minutiflora **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Minuartia corymbulosa var.	H	Criterion 1	Tier 2 (d)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									gypsophiloides **(Flora)**		Criterion 2	Tier 2 (b)			*noeana* species must be given to the seed gene bank. **For Arthropoda Species (*Dysmachus safranboluticus*)** * The top soil between 683+613-683+648 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site. **For Habitat** * The top soil between 683+613-683+648 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site.
CH38	700+549-701+087	0,538	H	Sivas	MAĞARA LAKE BUFFER ZONE (WETLAND) + HAFİK ZARA HILLS (IBA,	Criterion 4	E1.00	H	*Astragalus aytatchii* **(Flora)**	H	Criterion 1	Tier 2 (d)	Criterion 1, 2 & 4	L	* Closed construction period: 1 May – 1 June because of the vegetation period of flora species **For Flora Species (*Astragalus aytatchii,***
											Criterion 2	Tier 2 (b)			
									Gypsophila heteropoda ssp.	H	Criterion 1	Tier 2 (d)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
					KBA, IPA)				*minutiflora* **(Flora)**		Criterion 2	Tier 2 (b)			***Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica)*** * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus aytatchii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora, Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank.
									Astragalus zaraensis **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Chrysocamela noeana **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Minuartia corymbulosa var. gypsophiloides **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Onobrychis stenostcahya ssp. krausei **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Achillea sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Achillea sipikorensis **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Centaurea sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Isatis glauca ssp. sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			**For Habitat** * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the ROW. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species as tufts shall be planted at the (700+757-701+006) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again after construction works.
CH39	708+677-708+890	0,213	H	Sivas	BATAKLIKDÜZÜ 2 BUFFER ZONE (WETLAND) + HAFİK ZARA HILLS (IBA, KBA, IPA)	Criterion 4	E1.00	H	*Achillea sintenisii* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 1, 2 & 4	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Achillea sintenisii, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides)*** * The top soil between 708+677-708+890 KP's should be scraped at a depth of 10-15 cm and should be stored near the ROW. * The seeds of *Achillea sintenisii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene
									Astragalus zaraensis **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Chrysocamela noeana **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Minuartia corymbulosa var. gypsophiloides **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															bank. **For Habitat** * The top soil between 708+677-708+890 KP's should be scraped at a depth of 10-15 cm and should be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the ROW.
CH40	713+855-713+956	0,101	H	Sivas	ÇETME LAKE BUFFER ZONE (WETLAND) + HAFİK ZARA HILLS (IBA, KBA, IPA)	Criterion 4	E1.00	H	*Achillea sintenisii* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 1, 2 & 4	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Achillea sintenisii, Gypsophila aucheri, Gypsophila heteropoda ssp. minutiflora, Onosma sintenisii, Centaurea sivasica)*** * The top soil between 713+855- 713+956 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of
									Gypsophila aucheri **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Gypsophila heteropoda ssp. minutiflora **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Onosma sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Centaurea sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			*Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. **For Habitat** * The top soil between 713+855- 713+956 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the ROW.

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
CH41	720+035-720+290	0,255	H	Sivas	TUZLU LAKE BUFFER ZONE (WETLAND) + HAFİK ZARA HILLS (IBA, KBA, IPA)	Criterion 4	E1.00	H	*Gypsophila heteropoda ssp. minutiflora* **(Flora)**	H	Criterion 1	Tier 2 (d)	Criterion 1, 2 & 4	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii)*** * The top soil between 720+035-720+290 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. *The seeds of *Gypsophila heteropoda* ssp. *minutiflora* species shall be collected near the ROW between 1 June-20 June; the seeds of *Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides*, *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be collected near the ROW between 15 June-15 July. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. **For Habitat** * The top soil between 720+035-720+290 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the ROW. * Terracing shall be carried out at the (720+035-720+083) KP's to prevent erosion after construction.
											Criterion 2	Tier 2 (b)			
									Astragalus zaraensis **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Minuartia corymbulosa var. gypsophiloides **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Achillea sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Gypsophila aucheri **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Onosma sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			
CH42	729+485-729+571	0,086	H	Sivas	BALIKLIKAYA BUFFER ZONE (WETLAND) +	Criterion 4	E1.00	H	*Astragalus zaraensis* **(Flora)**	H	Criterion 1	Tier 2 (d)	Criterion 1, 2 & 4	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora
											Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
					HAFİK ZARA HILLS (IBA, KBA, IPA)				*Achillea sintenisii* **(Flora)**	M	Criterion 2	Tier 2 (b)			species **For Flora Species (*Astragalus zaraensis, Achillea sintenisii)*** * The top soil between 729+485-729+571 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The species individuals shall be removed as tufts between the (729+485-729+571) KP's and shall be transferred to the (37 S 343055.79-4409365.90) coordinates. **For Habitat** * The top soil between 729+485-729+571 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW." * Gypsum rocks excavated during activity shall be stored nearby the ROW.
CH43	733+201-733+366	0,165	H	Sivas	HAFİK ZARA HILLS (IBA, KBA, IPA)	Criterion 4	E1.00	H	*Onosma sintenisii* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2 & 4	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Onosma sintenisii, Isatis glauca ssp. sivasica, Achillea sintenisii)***
									Isatis glauca ssp. sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Achillea sintenisii **(Flora)**	M	Criterion 2	Tier 2 (b)			* The top soil between 733+201- 733+366 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be collected between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP's and shall be transferred to the (37 S 339751.11-4407877.07) coordinates. * Some of the collected seeds of *Onosma sintenisii* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * The removed individuals of the *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again after construction works **For Habitat** * The top soil between 733+201- 733+366 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the ROW. * The removed individuals of the *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again after construction works
CH44	741+301-	0,145	H	Sivas	-	-	E1.00	H	*Achillea sintenisii*	M	Criterion 2	Tier 2 (b)	Criterion 1 &	L	* Closed construction period: 1 May-15 July

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
	741+446								**(Flora)**				2		because of the vegetation period of flora species **For Flora Species (*Chrysocamela noeana, I Astragalus zaraensis, Achillea sintenisii, Cousinia sivasica)*** * The top soil between 741+301-741+446 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW (for erosion control) between 15 June-15 July, the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis*, *Gypsophila eriocalyx*, *Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates. * Some of the collected seeds of *Cousinia sivasica* and *Chrysocamela noeana* species must be given to the seed gene bank. **For Habitat** * The top soil between 741+301-741+446 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW (for erosion control) between 15 June-15 July, the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis*, *Gypsophila eriocalyx*, *Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates. * Gypsum rocks excavated during activity shall be stored nearby the ROW.
									Chrysocamela noeana **(Flora)**	H	Criterion 1 Criterion 2	Tier 2 (d) Tier 2 (b)			
									Astragalus zaraensis **(Flora)**	H	Criterion 1 Criterion 2	Tier 2 (d) Tier 2 (b)			
									Cousinia sivasica **(Flora)**	M	Criterion 2	Tier 2 (b)			
CH45	746+599-749+672	3,073	M	Sivas	-	-	E1.2E	H	*Dysmachus safranboluticus* **(Arthropoda)**	H	Criterion 2	Tier 2 (b)	Criterion 2		**For Arthropoda Species (*Dysmachus safranboluticus*)** * The top soil between 746+599-749+672 shall be scraped at a depth of 10-15 cm and shall be

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW. **For Habitat** * The top soil between 746+599-749+672 shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH46	802+361-802+428	0,067	H	Sivas	-	-	E2.5	H	*Hexatoma n. sp.* **(Arthropoda)**	H	Criterion 2	Tier 1 (a)	Criterion 2	L	* Closed construction period: 1 May-15 July because of the vegetation period of flora species **For Flora Species (*Cousinia halysensis)*** * The top soil between 802+361-802+428 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July. **For Arthropoda Species (*Hexatoma n. sp.*)** * The top soil between 802+361-802+428 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * *Juncus* species individuals between the (802+409-802+422) KP's shall be removed and transferred at the (37 S 276993.99-4415718.69) coordinates. **For Habitat** * The top soil between 802+361-802+428 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
							E1.2E	H	*Cousinia halysensis* **(Flora)**	M	Criterion 2	Tier 2 (b)			
CH47	802+454-802+755	0,301	H	Sivas	-	-	E1.2E	H	*Hexatoma n. sp.* **(Arthropoda)**	H	Criterion 2	Tier 1 (a)	Criterion 2	L	* Closed construction period: 1 May-15 July because of the vegetation period of flora species **For Flora Species (*Cousinia halysensis)*** * The top soil between 802+454-802+755 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July. **For Arthropoda Species (*Hexatoma n. sp.*) and for habitat**
									Cousinia halysensis **(Flora)**	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															* The top soil between 802+454-802+755 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH48	815+368-815+380	0,012	H	Sivas	-	-	E1.2E E3.4	H M	*Hilara n. sp. 3* **(Arthropoda)**	H	Criterion 2	Tier 1 (a)	Criterion 2	L	**For Arthropoda Species (*Hilara n. sp 3*) and for habitat** * The top soil between 815+368-815+380KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The riparian vegetation at the creek bank between the (815+368-815+380) KP's shall be scraped at a depth of 10-15 cm as a layer and stored at the creek side.
CH49	846+021-846+224	0,203	H	Yozgat	-	-	G1.7	M	*Dioctria n. sp. 2* **(Arthropoda)**	H	Criterion 2	Tier 1 (a)	Criterion 2		**For Arthropoda Species (*Dioctria n. sp. 2, Dysmachus safranboluticus*)** * The top soil between 846+021-846+224 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested at the (846+021-846+224) KP's and stored near the ROW. **For Habitat** * The top soil between 846+021-846+224 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
									Dysmachus safranboluticus **(Arthropoda)**	H	Criterion 2	Tier 2 (b)			
CH50	945+058-945+445	0,387	M	Yozgat	-	-	E1.2E	H	*Cousinia halysensis* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Cousinia halysensis*)** * The top soil between 945+058-945+445 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. *The seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July. **For Habitat** * The top soil between 945+058-945+445 KP's shall be scraped at a depth of 10-15 cm and

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															shall be stored near the ROW.
CH51	993+073-993+795	0,722	M	Yozgat	-	-	E1.2E	H	*Cousinia halysensis* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2		* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Cousinia halysensis*)** * The top soil between 993+073-993+795 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July **For Habitat** * The top soil between 993+073-993+795 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH52	1029+605-1029+804	0,199	M	Yozgat	-	-	E1.00	H	*Thymus leucostomus* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Cousinia halysensis, Thymus leucostomus*)** * The top soil between 1029+605-1029+804 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus and Cousinia halysensis* species shall be collected between 15 June-15 July. **For Habitat** * The top soil between 993+073-993+795 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
									Cousinia halysensis **(Flora)**	M	Criterion 2	Tier 2 (b)			
CH53	1030+091-1030+310	0,219	M	Yozgat	-	-	E1.00	H	*Thymus leucostomus* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Cousinia halysensis, Thymus leucostomus*)** * The top soil between 1030+091-1030+310 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* and
									Cousinia halysensis **(Flora)**	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															Cousinia halysensis species shall be collected between 15 June-15 July. **For Habitat** * The top soil between 1030+091-1030+310 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH54	1139+490-1140+300	0,81	M	Ankara	-	-	E1.2E	H	*Cousinia halysensis* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Cousinia halysensis*)** * The top soil between 1139+490 -1140+300 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July. **For Habitat** * The top soil between 1139+490 -1140+300 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH55	1149+730-1149+900	0,17	M	Ankara	-	-	E1.01	H	*Thymus leucostomus* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Cousinia halysensis, Thymus leucostomus*)** * The top soil between 1149+730-1149+900 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be collected between 15 June-15 July. **For Habitat** * The top soil between 1149+730-1149+900 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
									Cousinia halysensis **(Flora)**	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
CH56	1208+945-1209+108	0,163	M	Ankara	-	-	E1.01	H	*Thymus leucostomus* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Thymus leucostomus*)** * The top soil between 1208+945 - 1209+108 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* species shall be collected between 15 June-15 July. **For Habitat** * The top soil between 1208+945 - 1209+108 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH57	1223+54-1223+506	0,452	H	Eskişehir	ACIKIR STEPPE (KBA, IPA)	Criterion 4	E1.01	H	*Neolycaena soezen* **Soezen's Pseudocopper** **(Arthropoda – Butterfly)**	H	Criterion 2	Tier 2 (b)	Criterion 1, 2 & 4	L	* Closed construction period: 1 May-30 June because of the vegetation period of flora species **For Flora Species (*Scutellaria yildirimli, Achillea ketenoglui, Astragalus physodes ssp. acikirensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochakii, Cyathobasis fruticulosa, Onobrychis paucijuga, Thymus leucostomus)*** * The top soil between 1223+54 -1223+506 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Scutellaria yildirimli, Achillea ketenoglui , Astragalus kochakii, Onobrychis paucijuga* species shall be collected near the ROW between 1 June- 1 July; the seeds of *Astragalus physodes ssp. acikirensis* species shall be collected near the ROW between 15 May-15 June; the seeds of *Thymus leucostomus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 July-15 August; the seeds of *Cyathobasis fruticulosa* species shall be collected near the ROW between 1 July-1 August. * Some of the collected seeds of *Achillea ketenoglui, Astragalus physodes ssp. acikirensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochakii, Cyathobasis fruticulosa, Onobrychis paucijuga* species must be given to
									Scutellaria yildirimli **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Achillea ketenoglui **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Astragalus physodes ssp. acikirensis **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Minuartia corymbulosa var. gypsophiloides **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Astragalus kochakii **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Cyathobasis fruticulosa **(Flora)**	M	Criterion 2	Tier 2 (b)			
									Onobrychis paucijuga	M	Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									(Flora)						the seed gene bank. **For Arthropoda Species (*Neolycaena soezen)*** * The top soil between 1223+54 -1223+506 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the *Caragana grandiflora* species which is a food plant of *Neolyceana soezen*, shall be collected. * *Caragana grandiflora* individuals shall be collected with their soils and planted near the ROW at the (36 S 405664.19-4363111.56) coordinates. **For Habitat** * The top soil between 1223+54 -1223+506 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The area shall be surrounded by a wire mesh or fence to protect the area from grazing and other pressures after construction works.
									Thymus leucostomus **(Flora)**	M	Criterion 2	Tier 2 (b)			
CH58	1362+917-1363+753	0,836	L	Eskişehir	-	-	E1.2E	H	*Thymus leucostomus* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Thymus leucostomus*)** * The top soil between 1362+917- 1363+753 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Thymus leucostomus species shall be collected between 15 June-15 July. **For Habitat** * The top soil between 1362+917- 1363+753 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
CH59	1366+493-1366+692	0,199	M	Eskişehir	-	-	G1.7	M	*Salvia tchihatcheffii* **(Flora)**	M	Criterion 1	Tier 2 (d)	Criterion 1 & 2	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Salvia tchihatcheffii*)** * The top soil between 1366+493 - 1366+692 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Salvia tchihatcheffii* species shall be collected near the ROW between 1 June-1 July. * The *Salvia tchihatcheffii* species individuals shall be collected as tufts between the (1366+512-1366+537) KP's and shall be transferred to the (36 S 276899.00-4396448.00) coordinates. * The translocated individuals of the Salvia tchihatcheffii species as tufts shall be planted at the (1366+512-1366+537) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again after construction works. **For Habitat** * The top soil between 1366+493 - 1366+692 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The *Salvia tchihatcheffii* species individuals shall be collected as tufts between the (1366+512-1366+537) KP's and shall be transferred to the (36 S 276899.00-4396448.00) coordinates. * The translocated individuals of the Salvia tchihatcheffii species as tufts shall be planted at the (1366+512-1366+537) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again after construction works.
											Criterion 2	Tier 2 (b)			
CH60	1372+340-1372+683	0,343	H	Eskişehir	-	-	E1.01	H	*Dioctria n. sp.* 1 **(Arthropoda)**	H	Criterion 2	Tier 1 (a)	Criterion 1 & 2	L	* Closed construction period: 1 May-15 June because of the vegetation period of flora species **For Flora Species (*Cephalaria aytachii, Gypsophila osmangaziensis, Alyssum niveum, Scabiosa hololeuca, Salvia*
							G3.5	H	*Cephalaria aytachii* **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Gypsophila osmangaziensis **(Flora)**	H	Criterion 1	Tier 2 (d)			***tchihatcheffii*)** * The top soil between 1372+340- 1372+683 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cephalaria aytachii, Gypsophila osmangaziensis, Scabiosa hololeuca species* shall be collected between 1 July-August, the seeds of Alyssum niveum and Salvia tchihatcheffii species shall be collected between 15 July-15 August. **For Habitat** * The top soil between 1372+340- 1372+683 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * In the regions between the (1372+552-1372+683) KP's terracing shall be carried out to prevent erosion after construction works.
											Criterion 2	Tier 2 (b)			
									Alyssum niveum **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Scabiosa hololeuca **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
									Salvia tchihatcheffii **(Flora)**	M	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
CH61	1430+920-1432+305	1,385	M	Kütahya	-	-	G1.7	M	*Erodium sibthorpianum ssp. sibthorpianum* **(Flora)**	H	Criterion 1	Tier 2 (d)	Criterion 1 & 2	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Erodium sibthorpianum ssp. sibthorpianum, Astragalus densifolius ssp. ayashensis*)** * The top soil between 1430+920- 1432+305 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. *The seeds of *Erodium sibthorpianum* ssp. *sibthorpianum* and *Astragalus densifolius ssp. ayashensis* species shall be collected between 1 June-1 July. **For Habitat** * The top soil between 1430+920- 1432+305 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
											Criterion 2	Tier 2 (b)			
							G3.5	H	*Astragalus densifolius ssp. ayashensis* **(Flora)**	M	Criterion 2	Tier 2 (b)			
CH62	1477+452-1477+833	0,381	M	Bursa	-	-	G4.B	M	*Onosma briquetii* **(Flora)**	M	Criterion 2	Tier 2 (b)	Criterion 2		* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Onosma briquetii*)** * The top soil between 1477+452 - 1477+833 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															*The seeds of *Onosma briquetii* species shall be collected between 1 June-1 July. **For Habitat** * The top soil between 1477+452 - 1477+833 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH63	1491+767-1496+340	4,573	H (G3.75, G4.B), M (E3.4, G3.F)	Bursa	-	-	G3.F	L	*Alyssum dudleyi* **(Flora)**	H	Criterion 1	Tier 2 (d)	Criterion 1 & 2	L	* Closed construction period: 1 May-1 June because of the vegetation period of flora species **For Flora Species (*Alyssum dudleyi, Verbascum n.sp., Dianthus goekayi*)** * The top soil between 1491+767 - 1496+340 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Alyssum dudleyi* species shall be collected between 1 June-1 July; *Dianthus goekayi* species shall be collected between 15 June-15 July, *Verbascum n.sp.* species shall be collected from the (35 S 679080.00-4403701.00/35 S 679921.00-4403502.00/35 S 679810.00-4403499.00/35 S 679185.00-4403189.00) coordinates between 15 June-15 July. **For Habitat** * The top soil between 1491+767 - 1496+340 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
							G3.75	M			Criterion 2	Tier 2 (b)			
							E3.4	M	*Verbascum n.sp.* **(Flora)**	H	Criterion 1	Tier 1 (b)			
											Criterion 2	Tier 1 (a)			
							G4.B	M	*Dianthus goekayi* **(Flora)**	H	Criterion 1	Tier 2 (d)			
											Criterion 2	Tier 2 (b)			
CH64	1736+000-1738+300	2,3	M	Çanakkale	-	-	Modified habitats (I1.1, I1.4, I1.2, J5.4)	L	*Phalacrocorax carbo* **The great cormorant** **(Bird)**	M	Criterion 3	Tier 2 (e)	Criterion 3	L	* Closed construction period: 1 February-30 March because of the flood season which constitute a wetland for congregatory bird species. **For Bird Species (*Phalacrocorax carbo, Phalacrocorax pygmeus*)** * The top soil between 1736+000 - 1738+300 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the activity is intensive on the construction site and if the construction works have the risk of disturbing the members of the populations, construction should be stopped until the
									Phalacrocorax pygmeus **Pygmy cormorant** **(Bird)**	M	Criterion 3	Tier 2 (e)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
															species leave the site. **For Habitat** * The top soil between 1736+000 - 1738+300 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH65	1741+100-1741+500	0,4	M	Çanakkale	-	-	E1.22	H	*Spermophilus citellus* **The European ground squirrel** **(Mammalia)**	L	Criterion 2	Tier 2 (b)	Criterion 2	L	**For Mammalian Species (*Spermophilus citellus*)** * The top soil between 1741+100 - 1741+500 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If *Spermophilus citellus* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology. **For Habitat** * The top soil between 1741+100 - 1741+500 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH66	1788+300-1788+500	0,2	M	Edirne	-	-	G2.1	M	*Myomimus roachi* **Mouse-tailed Dormouse** **(Mammalia)**	L	Criterion 2	Tier 2 (b)	Criterion 2	L	**For Mammalian Species (*Spermophilus citellus*)** * The top soil between 1788+300 - 1788+500 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If *Spermophilus citellus* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology. **For Habitat** * The top soil between 1788+300 - 1788+500 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
CH67	1800+600-1805+000	4,4	H	Edirne	-	-	G1.3	M	*Phalacrocorax carbo* **The great cormorant** **(Bird)**	M	Criterion 3	Tier 2 (e)	Criterion 3	L	* Closed construction period: 1 February-30 March because of the flood season which constitute a wetland for congregatory bird species. **For Bird Species (*Phalacrocorax carbo, Phalacrocorax pygmeus, Cygnus olor, Cygnus*
									Phalacrocorax pygmeus	M	Criterion 3	Tier 2 (e)			

CRITICAL HABITAT NO	KP	TOTAL LENGTH (km)	PRIORITY*	PROVINCE	PROTECTED AREA / HIGH BIODIVERSITY AREA (IF INTERSECTS)	CRITERION	EUNIS HABITAT	HABITAT SENSITIVITY*	SCC SPECIES	PRIORITY	CRITERION	INDICATIVE TIER (QUANTITATIVE ASSESSMENT)	FINAL CRITERION	IMPACT LEVEL (QUANTITATIVE ASSESSMENT)*	MITIGATION MEASURES
									Pygmy cormorant **(Bird)**						***Cygnus, Pelecanus onocrotalus*)** * The top soil between 1800 + 600 -1805+000 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the activity is intensive on the construction site and if the construction works have the risk of disturbing the members of the populations, construction should be stopped until the species leave the site. **For Habitat** * The top soil between 1800 + 600 -1805+000 KP's shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.
									Cygnus olor **The mute swan** **(Bird)**	M	Criterion 3	Tier 2 (e)			
									Cygnus cygnus **The whooper swan** **(Bird)**	M	Criterion 3	Tier 2 (e)			
									Pelecanus onocrotalus **The great white pelican** **(Bird)**	M	Criterion 3	Tier 2 (e)			

3 RECOMMENDED ACTIONS FOR TERRESTRIAL CRITICAL HABITATS

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 1	003+000-003+735	0,735	*Zygaena armena, Reseda armena var. armena, Mertensiella caucasica*	August-February	* If the construction works start in March 2015, the seeds of *Coronilla* and *Onobrychis* species, which are the feeding plants of *Zygaena armena*, and the seeds of *Reseda armena var. armena* shall be collected near the ROW between 15 July-30 August. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the non-endemic native plants of the region shall be collected. * If *Mertensiella caucasica* species will be observed in the ROW, the construction works cannot be done before the April, because this species is going to hibernation. * At the beginning of April, a field study should be carried out by experts, and if this species will be observed, individuals should be carried to the appropriate and close aquatic areas by specialists according to the methodology.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Coronilla*, *Onobrychis* and *Reseda armena var. armena* species shall be planted according to the methodology and to the (38 T 318801.90-4603885.95/ 38 T 318738.00-4603635.00/38 T 318773.00-4603531.00/38 T 318649.00-4603478.00) coordinates between September-November. * The seeds of non-endemic native plants shall be planted on the ROW for erosion control in dip slopes. * If *Mertensiella caucasica* species is observed in the area, it should be ensured that the habitat is restored by restoring the stones and rocks in and near the aquatic environment.	* The seeds of *Coronilla* and *Onobrychis* species, which are the feeding plants of *Zygaena armena*, and the seeds of *Reseda armena var. armena* shall be collected from the ROW between 15 July-30 August. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the non-endemic native plants of the region shall be collected.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Coronilla*, *Onobrychis* and *Reseda armena var. armena* species shall be planted according to the methodology and to the (38 T 318801.90-4603885.95/ 38 T 318738.00-4603635.00/ 38 T 318773.00-4603531.00/ 38 T 318649.00-4603478.00) coordinates between September-November. * The seeds of non-endemic native plants shall be planted on the ROW for erosion control in dip slopes.	* The seeds of *Coronilla* and *Onobrychis* species (feeding plants of *Zygaena armena*) and the seeds of *Reseda armena var. armena* shall be collected near the ROW between 15 July-30 August. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the non-endemic native plants of the region shall be collected.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Coronilla*, *Onobrychis* and *Reseda armena var. armena* species shall be planted according to the methodology and to the (38 T 318801.90-4603885.95/ 38 T 318738.00-4603635.00/ 38 T 318773.00-4603531.00/ 38 T 318649.00-4603478.00) coordinates between September-November. * The seeds of non-endemic native plants shall be planted on the ROW for erosion control in dip slopes.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints
CH 2	003+940-004+051	0,111	*Zygaena armena, Reseda armena var. armena, Mertensiella caucasica*	August-February	* If the construction works start in March 2015, the seeds of *Coronilla* and *Onobrychis* species, which are the feeding plants of *Zygaena armena*, and the seeds of *Reseda armena var. armena* shall be collected near the ROW between 15 July-30 August. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the non-endemic native plants of the region shall be collected. * If *Mertensiella caucasica* species will be observed in the ROW, the construction works cannot be done before the April, because this species is going to hibernation. * At the beginning of April, a field study should be carried out by experts, and if this species will be observed, individuals should be carried to the appropriate and close aquatic areas by specialists according to the methodology.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Coronilla*, *Onobrychis* and *Reseda armena var. armena* species shall be planted according to the methodology and to the (38 T 318421.00-4603425.00 / 38 T 318351.00-4603438.00) coordinates between September-November. * The seeds of non-endemic native plants shall be planted on the ROW for erosion control in dip slopes. * If *Mertensiella caucasica* species is observed in the area, it should be ensured that the habitat is restored by restoring the stones and rocks in and near the aquatic environment.	* The seeds of *Coronilla* and *Onobrychis* species, which are the feeding plants of *Zygaena armena*, and the seeds of *Reseda armena var. armena* shall be collected from the ROW between 15 July-30 August. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the non-endemic native plants of the region shall be collected.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Coronilla*, *Onobrychis* and *Reseda armena var. armena* species shall be planted according to the methodology and to the (38 T 318421.00-4603425.00 / 38 T 318351.00-4603438.00) coordinates between September-November. * The seeds of non-endemic native plants shall be planted on the ROW for erosion control in dip slopes.	* The seeds of *Coronilla* and *Onobrychis* species, which are the feeding plants of *Zygaena armena*, and the seeds of *Reseda armena var. armena* shall be collected from the ROW between 15 July-30 August. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the non-endemic native plants of the region shall be collected.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Coronilla*, *Onobrychis* and *Reseda armena var. armena* species shall be planted according to the methodology and to the (38 T 318421.00-4603425.00 / 38 T 318351.00-4603438.00) coordinates between September-November. * The seeds of non-endemic native plants shall be planted on the ROW for erosion control in dip slopes.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 3	20+700-23+000	2,3	*Centaurea macrocephala, Lilium kesselringianum, Erebia ottomana, Tipula n.sp*	August-February	* If the construction works start in March 2015; the seeds of *Centaurea macrocephala* species shall be collected near the ROW between 15 July-30 August. * The bulbs of *Lilium kesselringianum* shall be collected between (21+529-22+070) KP's before or during the top soil scraping and shall be stored near the ROW. * The areas which *Poaceae* is very dense (between 20+725-21+078 / 22+235-22+615 KP's) shall be harvested and shall be stored near the ROW. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The habitat shall be rehabilitated. * The collected seeds of *Centaurea macrocephala* species shall be planted according to the methodology and to the (38 T 315863.00-4592192.00 / 38 T315851.00-4592099.00 / 38 T 315844.00-4591982.00) coordinates between September-November. * The bulbs of *Lilium kesselringianum* shall be planted to the ROW according to the methodology and to the (21+529-22+070) KP's, after the construction. * Harvested herbaceous plants shall be laid on the ROW.	* The seeds of *Centaurea macrocephala* species shall be collected between 15 July-30 August. * The bulbs of *Lilium kesselringianum* shall be collected between (21+529-22+070) KP's before or during the top soil scraping and shall be stored near the ROW. * The areas which *Poaceae* is very dense (between 20+725-21+078 / 22+235-22+615 KP's) shall be harvested and shall be stored near the ROW. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The habitat shall be rehabilitated. * The collected seeds of *Centaurea macrocephala* species shall be planted according to the methodology and to the (38 T 315863.00-4592192.00 / 38 T315851.00-4592099.00 / 38 T 315844.00-4591982.00) coordinates between September-November. * The bulbs of *Lilium kesselringianum* shall be planted to the ROW according to the methodology and to the (21+529-22+070) KP's, after the construction. * Harvested herbaceous plants shall be laid on the ROW.	* The seeds of *Centaurea macrocephala* species shall be collected between 15 July-30 August. * The bulbs of *Lilium kesselringianum* shall be collected between (21+529-22+070) KP's before or during the top soil scraping and shall be stored near the ROW. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The habitat shall be rehabilitated. * The collected seeds of *Centaurea macrocephala* species shall be planted according to the methodology and to the (38 T 315863.00-4592192.00 / 38 T315851.00-4592099.00 / 38 T 315844.00-4591982.00) coordinates between September-November. * The bulbs of *Lilium kesselringianum* shall be planted to the ROW according to the methodology and to the (21+529-22+070) KP's, after the construction.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints
CH 4	23+670-27+081	3,411	*Prometheomys schaposchnikowi*	September-February	* If the construction works start in March 2015; *Prometheomys schaposchnikowi* individuals shall be carried to the appropriate and close areas by specialists according to the methodology. * The area shall be restricted between 15 May-15 August because this period is a breeding period for this species.	* Topsoil shall be replaced within a maximum of 3 months from removal.	* The area shall be restricted between 15 May-15 August because this period is a breeding period for *Prometheomys schaposchnikowi*. * The top soil shall be scraped at a depth of 10-15 cm after 15 August and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * *Prometheomys schaposchnikowi* individuals shall be carried to the appropriate and close areas by specialists according to the methodology.	* Topsoil shall be replaced within a maximum of 3 months from removal.	15 May-15 August	Construction prohibited from 15 May-15 August
CH 5	62+320-63+140	0,82	*Lathyrus karsianus, Tanacetum coccineum ssp. chamaemelifolium, Phengaris nausithous, Tipula n.sp, Erebia ottomana*	August-February	* The top soil shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba sp.*), and shall be stored near the ROW, and shall be irrigated once every two weeks. * If the construction works start in March 2015; the seeds of *Lathyrus karsianus* species shall be collected near the ROW between 1 July-1 August; the seeds of *Tanacetum coccineum ssp. chamaemelifolium* species shall be collected near the ROW between 15 July-15 August. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The removed individuals of the species as tufts shall be planted on the ROW and shall be irrigated until they root again. * The collected seeds of *Lathyrus karsianus, Tanacetum coccineum ssp. chamaemelifolium* species shall be planted according to the methodology and to the (38 T 314559.00-4563256.00 / 38 T 314462.00-4563212.00 / 38 T 314357.00-4563161.00) coordinates between September-November. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation between the (62+560-62+598 / 62+686-62+724) KP's according to the methodology. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil. * The creek rehabilitation shall be done between the (62+845-62+910) KP's.	* The top soil shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba sp.*), and shall be stored near the ROW, and shall be irrigated once every two weeks. * The seeds of *Lathyrus karsianus* species shall be collected from the ROW between 1 July-1 August; the seeds of *Tanacetum coccineum ssp. chamaemelifolium* species shall be collected near the ROW between 15 July-15 August. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The removed individuals of the species as tufts shall be planted on the ROW and shall be irrigated until they root again. * The collected seeds of *Lathyrus karsianus, Tanacetum coccineum ssp. chamaemelifolium* species shall be planted according to the methodology and to the (38 T 314559.00-4563256.00 / 38 T 314462.00-4563212.00 / 38 T 314357.00-4563161.00) coordinates between September-November. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation between the (62+560-62+598 / 62+686-62+724) KP's according to the methodology. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil. * The creek rehabilitation shall be done between the (62+845-62+910) KP's.	* The top soil shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba sp.*), and shall be stored near the ROW, and shall be irrigated once every two weeks. * The seeds of *Lathyrus karsianus* species shall be collected from the ROW between 1 July-1 August; the seeds of *Tanacetum coccineum ssp. chamaemelifolium* species shall be collected near the ROW between 15 July-15 August. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The removed individuals of the species as tufts shall be planted on the ROW and shall be irrigated until they root again. * The collected seeds of *Lathyrus karsianus, Tanacetum coccineum ssp. chamaemelifolium* species shall be planted according to the methodology and to the (38 T 314559.00-4563256.00 / 38 T 314462.00-4563212.00 / 38 T 314357.00-4563161.00) coordinates between September-November. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation between the (62+560-62+598 / 62+686-62+724) KP's according to the methodology. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil. * The creek rehabilitation shall be done between the (62+845-62+910) KP's.	1 June-15 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 6	84+758-87+000	2,242	*Phengaris nausithous*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Sanguisorba*, which is the feeding plant of *Phengaris nausithous*, shall be collected near the ROW. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* The stored top soil shall be laid back in 3 months at the latest. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation between the (84+758-85+246 / 86+189-87+000) KP's according to the methodology.	* Top soil shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba sp.*), and shall be stored near the ROW, and shall be irrigated once every two weeks. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* The stored top soil shall be laid back in 3 months at the latest. * The removed individuals of the species as tufts shall be planted on the ROW and shall be irrigated until they root again. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation between the (84+758-85+246 /86+189-87+000) KP's according to the methodology.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* The stored top soil shall be laid back in 3 months at the latest. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation between the (84+758-85+246 /86+189-87+000) KP's according to the methodology.	No restriction	None
CH 7	115+393-116+000	0,607	*Phengaris nausithous*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Sanguisorba sp.*, which is the feeding plant of *Phengaris nausithous*, shall be collected near the ROW. *Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* The stored top soil shall be laid back in 3 months at the latest. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation according to the methodology.	* The top soil in the shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba sp.*) between the (115+393-116+000) KP's and shall be stored near the ROW, and shall be irrigated once every two weeks. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* The stored top soil shall be laid back in 3 months at the latest. * The removed individuals of the species as tufts shall be planted on the ROW and shall be irrigated until they root again. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation according to the methodology.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* The stored top soil shall be laid back in 3 months at the latest. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation according to the methodology.	No restriction	None
CH 8	116+069-116+637	0,568	*Phengaris nausithous*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Sanguisorba sp.*, which is the feeding plant of *Phengaris nausithous*, shall be collected near the ROW. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation according to the methodology.	* Top soil shall be scraped at a depth of 10-15 cm with the plants on it as tufts (including *Sanguisorba sp.*) between the (116+097-116+493) KP's and shall be stored near the ROW, and shall be irrigated once every two weeks. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The removed individuals of the species as tufts shall be planted on the ROW and shall be irrigated until they root again. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation according to the methodology.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. *Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The stones and rocks shall be re-organized on top of the soil for ants nesting at the end of the excavation according to the methodology.	No restriction	None
CH 9	164+345-164+566	0,221	*Darevskia uzzelli, D. unisexualis*	Just after the carrying the *Darevskia uzzelli* and *D. unisexualis* individuals (After 15 July)	* The construction works cannot be done in the spring, before the June, because this species are going to hibernation.	* If the *Darevskia uzzelli* and *Darevskia unisexualis* individuals carried to the appropriate and close areas, there is no restriction.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * *Darevskia uzzelli* and *Darevskia unisexualis* individuals shall be carried to the appropriate and close areas by specialists according to the methodology at the beginning of the July. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* The stored top soil shall be laid back in 3 months at the latest. * The stored stones and rocks shall be spread by embedding them in 5-10 cm soil (in accordance with the original)	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* The stored top soil shall be laid back in 3 months at the latest. * The stored stones and rocks shall be spread by embedding them in 5-10 cm soil (in accordance with the original)	Closed prior to 15th of July	Construction is prohibited from starting prior to 15 July
CH 10	167+000-167+154	0,154	*Darevskia uzzelli, D. unisexualis*	Just after the carrying the *Darevskia uzzelli* and *D. unisexualis* individuals (After 15 July)	* The construction works cannot be done in the spring, before the June, because this species are going to hibernation.	* If the *Darevskia uzzelli* and *Darevskia unisexualis* individuals carried to the appropriate and close areas, there is no restriction.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * *Darevskia uzzelli* and *Darevskia unisexualis* individuals shall be carried to the appropriate and close areas by specialists according to the methodology at the beginning of the July. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	• The stored top soil shall be laid back in 3 months at the latest. * The stored stones and rocks shall be spread by embedding them in 5-10 cm soil (in accordance with the original)	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	• The stored top soil shall be laid back in 3 months at the latest. * The stored stones and rocks shall be spread by embedding them in 5-10 cm soil (in accordance with the original)	Closed prior to 15th of July	Construction is prohibited from starting prior to 15 July

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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 11	169+000 - 174+000	5	*Otis tarda*	August-February	* If the *Otis tarda* individuals will be seen, they shall be removed from the area by specialists. * If the nest, eggs or mature individuals in the incubation will be seen, the construction works shall be stopped until the chicks feed themselves. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Reinstate all habitats to baseline conditions existing prior to construction activities.	* If the nest, eggs or mature individuals of the *Otis tarda* in the incubation will be seen, the construction works shall be stopped until the chicks feed themselves. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Reinstate all habitats to baseline conditions existing prior to construction activities.	* If the *Otis tarda* individuals came to the ROW, the construction shall be stopped and the individuals shall be removed. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Reinstate all habitats to baseline conditions existing prior to construction activities.	No restriction	If adult *Otis tarda* individuals are observed, they shall be removed by specialist. * If incubating adults or nests or eggs of *Otis tarda* are observed, construction shall be stopped and is prohibited until eggs hatch and the chicks feed themselves
CH 12	174+412-176+000	1,588	*Eulasia chrysopyga, Hieracium sarykamyschense*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Hieracium sarykamyschense* species shall be collected near the ROW between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Hieracium sarykamyschense* species shall be planted according to the methodology and to the (38 T 295146.00-4471939.00 / 38 T 295058.00-4471934.00 / 38 T 294888.00-4471917.00 / 38 T 294809.00-4471910.00 / 38 T 294403.00-4471874.00) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Hieracium sarykamyschense* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Hieracium sarykamyschense* species shall be planted according to the methodology and to the (38 T 295146.00-4471939.00 / 38 T 295058.00-4471934.00 / 38 T 294888.00-4471917.00 / 38 T 294809.00-4471910.00 / 38 T 294403.00-4471874.00) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Hieracium sarykamyschense* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Hieracium sarykamyschense* species shall be planted according to the methodology and to the (38 T 295146.00-4471939.00 / 38 T 295058.00-4471934.00 / 38 T 294888.00-4471917.00 / 38 T 294809.00-4471910.00 / 38 T 294403.00-4471874.00) coordinates between September-November.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints
CH 13	187+557 - 193+000	5,443	*Lathyrus karsianus, Eulasia chrysopyga, Phengaris nausithous, Zonitis nigriventris, Hieracium sarykamyschense*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Lathyrus karsianus* and *Hieracium sarykamyschense* species shall be collected near the ROW between 1 July-1 August. * Tall plants belonging to the *Compositae, Labiatae, Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period from the between (191+117-191+251 / 191+690-191+947) KP's and shall be stored nearby the construction site. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Lathyrus karsianus* and *Hieracium sarykamyschense* species shall be planted according to the methodology and to the (38 T 283458.00-4464029.00 / 38 T 283095.00-4463628.00 / 38 T 282935.00-4463512.00 / 38 T 282714.00-4463366.00 / 38 T 282416.00-4463214.00) coordinates between September-November. * The stored stones and rocks shall be spread on top of the soil and between to the (190+195-190+250 / 190+818-190+882 / 191+034-191+090 / 191+366-191+422 / 191+619-191+673) KP's for ants nesting at the end of the excavation according to the methodology. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Lathyrus karsianus* and *Hieracium sarykamyschense* species shall be collected from the ROW between 1 July-1 August. * Tall plants belonging to the *Compositae, Labiatae, Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period from the between (191+117-191+251 / 191+690-191+947) KP's and shall be stored nearby the construction site. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Lathyrus karsianus* and *Hieracium sarykamyschense* species shall be planted according to the methodology and to the (38 T 283458.00-4464029.00 / 38 T 283095.00-4463628.00 / 38 T 282935.00-4463512.00 / 38 T 282714.00-4463366.00 / 38 T 282416.00-4463214.00) coordinates between September-November. * The stored stones and rocks shall be spread on top of the soil and between to the (190+195-190+250 / 190+818-190+882 / 191+034-191+090 / 191+366-191+422 / 191+619-191+673) KP's for ants nesting at the end of the excavation according to the methodology. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Lathyrus karsianus* and *Hieracium sarykamyschense* species shall be collected from the ROW between 1 July-1 August. * Tall plants belonging to the *Compositae, Labiatae, Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period from the between (191+117-191+251 / 191+690-191+947) KP's and shall be stored nearby the construction site. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Lathyrus karsianus* and *Hieracium sarykamyschense* species shall be planted according to the methodology and to the (38 T 283458.00-4464029.00 / 38 T 283095.00-4463628.00 / 38 T 282935.00-4463512.00 / 38 T 282714.00-4463366.00 / 38 T 282416.00-4463214.00) coordinates between September-November. * The stored stones and rocks shall be spread on top of the soil and between to the (190+195-190+250 / 190+818-190+882 / 191+034-191+090 / 191+366-191+422 / 191+619-191+673) KP's for ants nesting at the end of the excavation according to the methodology. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints
CH 14	202+930-203+709	0,779	*Zonitis nigriventris*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae, Labiatae, Leguminosae* families in the area shall be harvested at the end of the vegetation period from the between (202+930-203+709) KP's and shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae, Labiatae, Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period from the between (202+930-203+709) KP's and shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae, Labiatae, Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period from the between (202+930-203+709) KP's and shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 15	214+885-219+641	5,641	*Montivipera wagneri, Salvia huberi, Cephalaria sparsipilosa, Eryngium wanaturi, Polyommatus merhaba, Cousinia bicolor*	August-February	* The construction works cannot be done in the first spring, because *Montivipera wagneri* species is going to hibernation.	-	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * *Montivipera wagneri* individuals shall be carried to the appropriate and close areas by specialists according to the methodology and to the (38 T 268212.00-4446232.00) coordinates at the begining of the July. * The seeds of *Salvia huberi* species shall be collected from the ROW between 1 July-1 August and the seeds of *Cephalaria sparsipilosa*, *Eryngium wanaturi* and *Cousinia bicolor* species shall be collected from the ROW between 15 July-15 August. * The seeds of *Onobrychis* and *Astragalus* flora species shall be collected from the ROW between 15 July – 30 August. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The stored stones and rocks shall be spread between the (214+885-217+053 / 218+457-219+000) KP's by embedding them in 5-10 cm soil, in accordance with the methodology. * The collected seeds of *Salvia huberi, Cephalaria sparsipilosa, Eryngium wanaturi, Cousinia bicolor*, species shall be planted according to the methodology and to the (38 T 269181.00-4448569.00 / 38 T 269044.00-4448457.00 / 38 T268916.00-4448352.00 / 38 T 268806.00-4448262.00) coordinates; and *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (38 T 266455.00-4445769.00 / 38 T 267463.00-4446163.00 /38 T 267677.00-4446406.00) coordinates between September-November. * In the regions between the (219+415-219+540) KP's terracing shall be carried out to prevent erosion.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Salvia huberi* species shall be collected from the ROW between 1 July-1 August and the seeds of *Cephalaria sparsipilosa*, *Eryngium wanaturi* and *Cousinia bicolor* species shall be collected from the ROW between 15 July-15 August. * The seeds of *Onobrychis* and *Astragalus* flora species shall be collected from the ROW between 15 July – 30 August. * Stones and rocks of 30 cm or larger on the soil shall be stored nearby the construction site, without mixing them with the top soil.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The stored stones and rocks shall be spread between the (214+885-217+053 / 218+457-219+000) KP's by embedding them in 5-10 cm soil, in accordance with the methodology. * The collected seeds of *Salvia huberi, Cephalaria sparsipilosa, Eryngium wanaturi, Cousinia bicolor*, species shall be planted according to the methodology and to the (38 T 269181.00-4448569.00 / 38 T 269044.00-4448457.00 / 38 T268916.00-4448352.00 / 38 T 268806.00-4448262.00) coordinates; and *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (38 T 266455.00-4445769.00 / 38 T 267463.00-4446163.00 / 38 T 267677.00-4446406.00) coordinates between September-November. * In the regions between the (219+415-219+540) KP's terracing shall be carried out to prevent erosion.	1 March – 15 July	Construction is prohibited from starting prior to 01 March
CH 16 (NEW ONE)	232+172-232+787	0,615	*Cousinia bicolor*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cousinia bicolor* species shall be collected near the ROW between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia bicolor* species shall be planted according to the methodology and to the (38 T 255187.77-4440651.70 / 38 T 255020.00-4440629.00 / 38 T 254965.00-4440596.00 / 38 T 254901.00-4440558.00 / 38 T 254835.00-4440523.00) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia bicolor* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia bicolor* species shall be planted according to the methodology and to the (38 T 255187.77-4440651.70 / 38 T 255020.00-4440629.00 / 38 T 254965.00-4440596.00 / 38 T 254901.00-4440558.00 / 38 T 254835.00-4440523.00) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia bicolor* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia bicolor* species shall be planted according to the methodology and to the (38 T 255187.77-4440651.70 / 38 T 255020.00-4440629.00 / 38 T 254965.00-4440596.00 / 38 T 254901.00-4440558.00 / 38 T 254835.00-4440523.00) coordinates between September-November.	No restriction	None
CH 17	306+365-312+319 (except highway, 0,081 m)	5,873	*Hilara n. sp. 1, Vanellus gregarius, Lepidium caespitosum*	August-February	* The construction cannot be done in the migration season (March) for the *Vanellus gregarius* * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The top soil between the (306+365-306+460) KP's shall be removed in layers of 10-15 cm depth, together with the plants on it, and shall be stored nearby the construction site and shall be irrigated once every two weeks.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The layers removed shall be appropriately spread over the line and the first water shall be given. * The riparian vegetation, aquatic and semi aquatic areas shall be rehabilitated.	* The top soil shall be scraped at a depth of 10-15 cm and stored near the ROW with harvested wet meadows with their soil. * The seeds of *Lepidium caespitosum* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The layers removed shall be appropriately spread over the line and the first water shall be given. * The riparian vegetation, aquatic and semi aquatic areas shall be rehabilitated. * The collected seeds of *Lepidium caespitosum* species shall be planted according to the methodology and to the (310+150-312+319) KP's between September-November.	* The construction cannot be done in the migration season (15 September-30 October) for the *Vanellus gregarius* * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The top soil between the (306+365-306+460) KP's shall be removed in layers of 10-15 cm depth, together with the plants on it, and shall be stored nearby the construction site and shall be irrigated once every two weeks. * The seeds of *Lepidium caespitosum* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The layers removed shall be appropriately spread over the line and the first water shall be given. * The riparian vegetation, aquatic and semi aquatic areas shall be rehabilitated. * The collected seeds of *Lepidium caespitosum* species shall be planted according to the methodology and to the (310+150-312+319) KP's between September-November.	The crossing cannot be done on March, and between 15 September-30 October	March and 15 September-30 October Topsoil shall be removed prior to 01 June

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 18	369+037-369+126	0,089	*Thymus canoviridis*	August-February	* If the construction works start in March 2015; the seeds of *Thymus canoviridis* species shall be collected near the ROW between 15 July-15 August. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus canoviridis* species shall be planted according to the methodology and to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The *Thymus canoviridis* species individuals shall be collected as tufts and shall be transferred to the (37 S 642551.00-423058.00) coordinates between 15 July-15 August. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The translocated individual of the *Thymus canoviridis* species as tufts shall be planted to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The *Thymus canoviridis* species individuals shall be collected as tufts and shall be transferred to the (37 S 642551.00-423058.00) coordinates between 15 July-15 August. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The translocated individual of the *Thymus canoviridis* species as tufts shall be planted to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	No restriction	None
CH 19	385+169-390+000	4,831	*Polyommatus antidolus*	August-February	* 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * The stones and rocks shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Stone and rock restoration shall be done according to the methodology and between the (385+509-385+580/ 385+959-386+009/ 386+570-386+627/ 386+759-386+790/ 387+230-387+288/ 387+753-387+814/ 388+237-388+303/ 388+808-388+872/ 389+255-389+326/ 389+746-389+836) KP's.	* 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * The stones and rocks shall be stored nearby the construction site. * The seeds of the plants of the *Onobrychis* and *Astragalus* genus, which are the food plants of the larvae, shall be collected between 15 July – 30 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Stone and rock restoration shall be done according to the methodology and between the (385+509-385+580/ 385+959-386+009/ 386+570-386+627/ 386+759-386+790/ 387+230-387+288/ 387+753-387+814/ 388+237-388+303/ 388+808-388+872/ 389+255-389+326/ 389+746-389+836) KP's. * The collected seeds of the *Onobrychis* and *Astragalus* plants shall be planted to the ROW and to the (37 S 625818.65-4418259.08 / 37 S 626292.01-4418397.42 / 37 S 626832.86-4418541.91 / 37 S 627342.77-4418689.28 / 37 S 628381.92-4419157.26) coordinates between September-November.	* 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped 15 days before the construction works and shall be stored near the ROW. * Stone and rock restoration shall be done according to the methodology and between the (385+509-385+580/ 385+959-386+009/ 386+570-386+627/ 386+759-386+790/ 387+230-387+288/ 387+753-387+814/ 388+237-388+303/ 388+808-388+872/ 389+255-389+326/ 389+746-389+836) KP's.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Stone and rock restoration shall be done. * The collected seeds of the *Onobrychis* and *Astragalus* plants shall be planted to the ROW and to the (37 S 625818.65-4418259.08 / 37 S 626292.01-4418397.42 / 37 S 626832.86-4418541.91 / 37 S 627342.77-4418689.28 / 37 S 628381.92-4419157.26) coordinates between September-November.	No restriction	None
CH 20	393+489-394+339	0,85	*Zonitis nigriventris*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae*, *Labiatae*, *Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period and shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Tall plants belonging to the *Compositae*, *Labiatae*, *Leguminosae* families in the area shall be harvested at the end of August, at the end of the vegetation period and shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The harvested plants, containing eggs shall be transferred to the area and spread on the soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * No restriction	* Topsoil shall be replaced within a maximum of 3 months from removal. * No restriction	No restriction	None
CH 21	432+592-434+819	2,227	*Salvia huberi, Cousinia halyensis*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Salvia huberi* species shall be collected near the ROW between 1 July-1 August, the seeds of *Cousinia halyensis* species shall be collected near the ROW between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Salvia huberi* and *Cousinia halyensis* species shall be planted according to the methodology and to (37 S 591511.00-4418898.00 / 37 S 590974.00-4418942.00 / 37 S 590452.00-4418838.00/ 37 S 589846.00-4418931.00) coordinates on the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Salvia huberi* species shall be collected between 1 July-1 August, the seeds of *Cousinia halyensis* species shall be collected between 15 July-15 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Salvia huberi* and *Cousinia halyensis* species shall be planted according to the methodology and to (37 S 591511.00-4418898.00 / 37 S 590974.00-4418942.00 / 37 S 590452.00-4418838.00/ 37 S 589846.00-4418931.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Salvia huberi* species shall be collected between 1 July-1 August, the seeds of *Cousinia halyensis* species shall be collected between 15 July-15 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Salvia huberi* and *Cousinia halyensis* species shall be planted according to the methodology and to (37 S 591511.00-4418898.00 / 37 S 590974.00-4418942.00 / 37 S 590452.00-4418838.00/ 37 S 589846.00-4418931.00) coordinates to the ROW between September-November.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 22	451+458-454+120	2,662	*Isatis glauca ssp. sivasica, Polyommatus actis*	August-February	* If the construction works start in March 2015; the seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be collected near the ROW between 15 July-15 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 576028.17-4425766.25 / 37 S 576523.38-4425039.53 / 37 S 576546.39-4423957.85) coordinates on the ROW between September-November. * Terracing shall be carried out at the (451+966-452+070/ 453+894-454+000) KP's to prevent erosion. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (452+490-452+602/ 453+310-453+402) KP's.	* The seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be collected between 15 July-15 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 576028.17-4425766.25 / 37 S 576523.38-4425039.53 / 37 S 576546.39-4423957.85) coordinates to the ROW between September-November. * Terracing shall be carried out at the (451+966-452+070/ 453+894-454+000) KP's to prevent erosion. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (452+490-452+602/ 453+310-453+402) KP's.	* The seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be collected between 15 July-15 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis glauca ssp. sivasica*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 576028.17-4425766.25 / 37 S 576523.38-4425039.53 / 37 S 576546.39-4423957.85) coordinates to the ROW between September-November. * Terracing shall be carried out at the (451+966-452+070/ 453+894-454+000) KP's to prevent erosion. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (452+490-452+602/ 453+310-453+402) KP's.	No restriction	None
CH 23	518+154-521+487	3,333	*Tanacetum densum ssp. sivasicum, Polyommatus actis*	August-February	* If the construction works start in March 2015; the seeds of *Tanacetum densum ssp. sivasicum*, *Onobrychis* and *Astragalus* species shall be collected near the ROW between 1 July-1 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum densum ssp. sivasicum*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 523732.00-4427059.00 / 37 S 523091.00-4426900.00 / 37 S 522478.00-4426726.00 / 37 S 522307.00-4426273.00 / 37 S 521915.00-4425841.00) coordinates to the ROW between September-November. * The seeds of non-endemic native plants shall be collected and planted on the ROW for erosion control in dip slopes. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (518+738-518+818 / 519+242-519+326 / 519+745-519+810 / 520+013-520+111 / 520+742- 520-782 / 521+190-521+243 / 521+403-521+449) KP's.	* The seeds of *Tanacetum densum ssp. sivasicum*, *Onobrychis* and *Astragalus* species shall be collected between 1 July-1 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum densum ssp. sivasicum*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 523732.00-4427059.00 / 37 S 523091.00-4426900.00 / 37 S 522478.00-4426726.00 / 37 S 522307.00-4426273.00 / 37 S 521915.00-4425841.00) coordinates to the ROW between September-November. * The seeds of non-endemic native plants shall be collected and planted on the ROW for erosion control in dip slopes. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (518+738-518+818 / 519+242-519+326 / 519+745-519+810 / 520+013-520+111 / 520+742- 520-782 / 521+190-521+243 / 521+403-521+449) KP's.	* The seeds of *Tanacetum densum ssp. sivasicum*, *Onobrychis* and *Astragalus* species shall be collected between 1 July-1 August. * 20 cm of top soil of the ROW (which is ant's nest depth) shall be scraped together with rocks and stones 15 days before the construction works and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum densum ssp. sivasicum*, *Onobrychis* and *Astragalus* species shall be planted according to the methodology and to the (37 S 523732.00-4427059.00 / 37 S 523091.00-4426900.00 / 37 S 522478.00-4426726.00 / 37 S 522307.00-4426273.00 / 37 S 521915.00-4425841.00) coordinates to the ROW between September-November. * The seeds of non-endemic native plants shall be collected and planted on the ROW for erosion control in dip slopes. * The stones and rocks shall be re-organized on top of the soil according to the methodology and to the (518+738-518+818 / 519+242-519+326 / 519+745-519+810 / 520+013-520+111 / 520+742- 520-782 / 521+190-521+243 / 521+403-521+449) KP's.	1 May-1 June	If all topsoil is removed prior to 1 May, there is no construction time constraint

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 24	537+806-543+711	5,905	*Tanacetum albipinnosum*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Tanacetum albipinnosum* species shall be collected near the ROW between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum albipinnosum* species shall be planted according to the methodology and to the (37 T 507164.00-4428721.00 / 37 T 506251.00-4428878.00 / 37 T 506682.00-4428782.00 / 37 T 506043.00-429193.00 / 37 T 505799.00-4429399.00 / 37 T 505458.00-4429587.00 / 37 T 505096.00-4429820.00 / 37 T 504828.00-429928.00 / 37 T 504424.00-4429977.00 / 37 T 504079.00-4430096.00 / 37 T 503882.00-4430442.00 / 37 T 503699.00-4430709.00 / 37 T 503404.00-4430891.00 / 37 T 503049.00-4431161.00 / 37 T 502769.00-4431335.00 / 37 T 502556.29-4431464.16) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Tanacetum albipinnosum* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum albipinnosum* species shall be planted according to the methodology and to the (37 T 507164.00-4428721.00 / 37 T 506251.00-4428878.00 / 37 T 506682.00-4428782.00 / 37 T 506043.00-429193.00 / 37 T 505799.00-4429399.00 / 37 T 505458.00-4429587.00 / 37 T 505096.00-4429820.00 / 37 T 504828.00-429928.00 / 37 T 504424.00-4429977.00 / 37 T 504079.00-4430096.00 / 37 T 503882.00-4430442.00 / 37 T 503699.00-4430709.00 / 37 T 503404.00-4430891.00 / 37 T 503049.00-4431161.00 / 37 T 502769.00-4431335.00 / 37 T 502556.29-4431464.16) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Tanacetum albipinnosum* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Tanacetum albipinnosum* species shall be planted according to the methodology and to the (37 T 507164.00-4428721.00 / 37 T 506251.00-4428878.00 / 37 T 506682.00-4428782.00 / 37 T 506043.00-429193.00 / 37 T 505799.00-4429399.00 / 37 T 505458.00-4429587.00 / 37 T 505096.00-4429820.00 / 37 T 504828.00-429928.00 / 37 T 504424.00-4429977.00 / 37 T 504079.00-4430096.00 / 37 T 503882.00-4430442.00 / 37 T 503699.00-4430709.00 / 37 T 503404.00-4430891.00 / 37 T 503049.00-4431161.00 / 37 T 502769.00-4431335.00 / 37 T 502556.29-4431464.16) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil is removed prior to 1 May, there is no construction time constraint
CH 25	564+425-565+125	0,7	*Isatis undulata*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Isatis undulata* species shall be collected near the ROW between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis undulata* species shall be planted according to the methodology and to the (37 T 484208.00-4434554.00 / 37 T 484039.00-4434704.00 /37 T 483877.00-4434805.00 /37 T 483732.00-4434817.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis undulata* species shall be planted according to the methodology and to the (37 T 484208.00-4434554.00 / 37 T 484039.00-4434704.00 / 37 T 483877.00-4434805.00 /37 T 483732.00-4434817.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Isatis undulata* species shall be planted according to the methodology and to the (37 T 484208.00-4434554.00 / 37 T 484039.00-4434704.00 / 37 T 483877.00-4434805.00 / 37 T 483732.00-4434817.00) coordinates to the ROW between September-November.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints
CH 26	588+880-590+358	1,478	*Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cochleria sintenisii* species shall be collected near the ROW between 1 July-1 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 467562.00-4423758.00 / 37 S 467327.00-4423540.00 / 37 S 467222.00-4423461.00 / 37 S 467060.00-4423369.00 /37 S 466640.00-4423271.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 467562.00-4423758.00 / 37 S 467327.00-4423540.00 / 37 S 467222.00-4423461.00 / 37 S 467060.00-4423369.00 / 37 S 466640.00-4423271.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 467562.00-4423758.00 / 37 S 467327.00-4423540.00 / 37 S 467222.00-4423461.00 / 37 S 467060.00-4423369.00 / 37 S 466640.00-4423271.00) coordinates to the ROW between September-November.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 27	604+940-608+000	3,06	*Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cochleria sintenisii* species shall be collected near the ROW between 1 July-1 August	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 453088.00-4425551.00 / 37 S 453333.00-4425592.00 / 37 S 454270.00-4426118.00 / 37 S 454520.00-4426018.00 / 37 S 454806.00-4425766.00 / 37 S 454909.00-4425685.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 453088.00-4425551.00 / 37 S 453333.00-4425592.00 / 37 S 454270.00-4426118.00 / 37 S 454520.00-4426018.00 / 37 S 454806.00-4425766.00 / 37 S 454909.00-4425685.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 453088.00-4425551.00 / 37 S 453333.00-4425592.00 / 37 S 454270.00-4426118.00 / 37 S 454520.00-4426018.00 / 37 S 454806.00-4425766.00 / 37 S 454909.00-4425685.00) coordinates to the ROW between September-November.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints
CH 28	614+648-626+000	11,352	*Bellevalia crassa, Asperula capitellata, Cochlearia sintenisii, Thymus cappadocicus var. pruinosus, Achillea sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the bulbs of *Bellevalia crassa* species shall be collected near the ROW and carried to out of the ROW. * The seeds of the *Asperula capitellata, Cochleria sintenisii,* and *Thymus cappadocicus var. pruinosus* species shall be collected near the ROW between 1 July-1 August; the seeds of the *Achillea sintenisii* species shall be collected near the ROW between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Asperula capitellata, Thymus cappadocicus var. pruinosus, Cochleria sintenisii* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 443666.00-4421745.00/ 37 S443405.00-4421480.00/ 37 S 443357.00-4421037.00/ 37 S 442990.00-4420861.00/ 37 S 442507.00-4421031.00/ 37 S 441965.00-4421153.00/ 37 S 441483.00-4421840.00/ 37 S 440156.00-4422101.00/ 37 S 438720.00-4422064.00/ 37 S 439346. 52-4422147.31) coordinates to the ROW between September-November. * The collected individuals or bulbs of the *Bellevalia crassa* species shall be planted on the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The bulbs of *Bellevalia crassa* species shall be collected from the ROW between1 July-1 August. * The seeds of the *Asperula capitellata, Cochleria sintenisii,* and *Thymus cappadocicus var. pruinosus* species shall be collected between 1 July-1 August; the seeds of the *Achillea sintenisii* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Asperula capitellata, Thymus cappadocicus var. pruinosus, Cochleria sintenisii* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 443666.00-4421745.00/ 37 S443405.00-4421480.00/ 37 S 443357.00-4421037.00/ 37 S 442990.00-4420861.00/ 37 S 442507.00-4421031.00/ 37 S 441965.00-4421153.00/ 37 S 441483.00-4421840.00/ 37 S 440156.00-4422101.00/ 37 S 438720.00-4422064.00/ 37 S 439346. 52-4422147.31) coordinates to the ROW between September-November. * The collected individuals or bulbs of the *Bellevalia crassa* species shall be planted planted on the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The bulbs of *Bellevalia crassa* species shall be collected from the ROW between1 July-1 August. * The seeds of the *Asperula capitellata, Cochleria sintenisii,* and *Thymus cappadocicus var. pruinosus* species shall be collected between 1 July-1 August; the seeds of the *Achillea sintenisii* species shall be collected between 15 July-15 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Asperula capitellata, Thymus cappadocicus var. pruinosus, Cochleria sintenisii* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 443666.00-4421745.00/ 37 S443405.00-4421480.00/ 37 S 443357.00-4421037.00/ 37 S 442990.00-4420861.00/ 37 S 442507.00-4421031.00/ 37 S 441965.00-4421153.00/ 37 S 441483.00-4421840.00/ 37 S 440156.00-4422101.00/ 37 S 438720.00-4422064.00/ 37 S 439346. 52-4422147.31) coordinates to the ROW between September-November. * The collected individuals or bulbs of the *Bellevalia crassa* species shall be planted planted on the ROW.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints
CH 29	632+635 - 634+183	1,548	*Isatis undulata, Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected near the ROW, from the (37 S 431034.20-4418698.72) coordinates between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 431163.69-4418762.97 / 37 S 431439.06-4419180.05 / 37 S 431767.75-4419424.63) coordinates to the ROW between September-November. * Terracing shall be carried out at the (633+257-633+562) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected near the ROW, from the (37 S 431034.20-4418698.72) coordinates between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 431163.69-4418762.97 / 37 S 431439.06-4419180.05 / 37 S 431767.75-4419424.63) coordinates to the ROW between September-November. * Terracing shall be carried out at the (633+257-633+562) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected near the ROW, from the (37 S 431034.20-4418698.72) coordinates between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 431163.69-4418762.97 / 37 S 431439.06-4419180.05 / 37 S 431767.75-4419424.63) coordinates to the ROW between September-November. * Terracing shall be carried out at the (633+257-633+562) KP's to prevent erosion on the dip slopes.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 30	634+285-634+864	0,579	*Isatis undulata, Cochlearia sintenisii*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of Isatis undulata and *Cochleria sintenisii* species shall be collected near the ROW between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 430808.10-4418378.12 / 37 S 430612.02-4418232.81) coordinates to the ROW between September-November. * Terracing shall be carried out at the (634+736-634+858) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of Isatis undulata and *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 430808.10-4418378.12 / 37 S 430612.02-4418232.81) coordinates to the ROW between September-November. * Terracing shall be carried out at the (634+736-634+858) KP's to prevent erosion on the dip slopes.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be collected between 1 July-1 August.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Isatis undulata* and *Cochleria sintenisii* species shall be planted according to the methodology and to the (37 S 430808.10-4418378.12 / 37 S 430612.02-4418232.81) coordinates to the ROW between September-November. * Terracing shall be carried out at the (634+736-634+858) KP's to prevent erosion on the dip slopes.	1 June-1 July	If all topsoil removal is complete prior to 1 June, there are no construction time constraints
CH 31	634+906-634+932	0,026	*Hextoma n. sp., Tipula n.sp*	August-February	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The riparian vegetation shall be restored and aquatic and semi-aquatic areas shall be re-created at the (634+906- 634+932) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The riparian vegetation shall be restored and aquatic and semi-aquatic areas shall be re-created at the (634+906- 634+932) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The riparian vegetation shall be restored and aquatic and semi-aquatic areas shall be re-created at the (634+906- 634+932) KP's.	No restriction	None

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 32	652+000-654+878	2,878	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 416467.82-4414801.73/ 37 S 416377.69-4414800.92/37 S 416306.80-4414801.76/37 S 416251.56-4414800.98/37 S 416084.26-4414800.34/37 S 415833.94-4414800.57/ 37 S 415591.47-4414801.24 /37 S 413891.73-4414797.64) coordinates to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 416467.82-4414801.73/ 37 S 416377.69-4414800.92/37 S 416306.80-4414801.76/37 S 416251.56-4414800.98/37 S 416084.26-4414800.34/37 S 415833.94-4414800.57/ 37 S 415591.47-4414801.24 /37 S 413891.73-4414797.64) coordinates to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 416467.82-4414801.73/ 37 S 416377.69-4414800.92/37 S 416306.80-4414801.76/37 S 416251.56-4414800.98/37 S 416084.26-4414800.34/37 S 415833.94-4414800.57/ 37 S 415591.47-4414801.24 /37 S 413891.73-4414797.64) coordinates to the ROW between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 33	656+000-656+431	0,431	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 412591.57-4414507.49/ 37 S 412429.08-4414443.13/ 37 S 412246.27-4414412.27) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 412591.57-4414507.49/ 37 S 412429.08-4414443.13/ 37 S 412246.27-4414412.27) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 412591.57-4414507.49/ 37 S 412429.08-4414443.13/ 37 S 412246.27-4414412.27) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 34	660+353 - 660+456	0,103	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 408394.58-4414398.36/ 37 S 408331.00-4414381.37) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 408394.58-4414398.36/ 37 S 408331.00-4414381.37) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected between 15 June-15 July. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 408394.58-4414398.36/ 37 S 408331.00-4414381.37) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 35	661+206 - 661+709	0,503	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides, Tipula n.sp*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected near the ROW between 15 June-15 July. * The *Astragalus zaraensis, Achillea sintenisii, Scorzonera aucherana, Thymus pectinatus, Gypsophila eriocalyx* species individuals shall be removed as tufts from the (661+236-661+267 / 661+353-661+387 / 661+432-661+461 / 661+531-661+576) KP's and shall be transferred to the (37 S 407182.00-4414267.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 407582.00-4414160.00/ 37 S 407486.00-4414130.00) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out between the (661+448-661+704) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* and *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 July; the seeds of *Astragalus zaraensis* and *Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be collected near the ROW between 15 June-15 July. * The *Astragalus zaraensis, Achillea sintenisii, Scorzonera aucherana, Thymus pectinatus, Gypsophila eriocalyx* species individuals shall be removed as tufts from the (661+236-661+267 / 661+353-661+387 / 661+432-661+461 / 661+531-661+576) KP's and shall be transferred to the (37 S 407182.00-4414267.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana, Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. *The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Centaurea sivasica, Gypsophila aucheri, Isatis glauca ssp. sivasica, Scorzonera aucherana, Scrophularia lepidota, Thesium stelleroides* species shall be planted according to the methodology and to the (37 S 407582.00-4414160.00/ 37 S 407486.00-4414130.00) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out between the (661+448-661+704) KP's.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 36	683+613-683+648	0,035	*Dysmachus safranboluticus, Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Minuartia corymbulosa var. gypsophiloides*	July-March	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis* species individuals shall be removed as tufts from the (37 S 386761.62 4408728.69) coordinates and shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * The individuals of the *Achillea sintenisii* species shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 386751.62-4408725.89) coordinates between September-November. * The transferred individuals of the *Astragalus zaraensis* species shall be planted to the (37 S 386761.62-4408728.69) coordinates. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis* species individuals shall be removed as tufts from the (37 S 386761.62 4408728.69) coordinates and shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * The individuals of the *Achillea sintenisii* species shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 386751.62-4408725.89) coordinates between September-November. * The transferred individuals of the *Astragalus zaraensis* species shall be planted to the (37 S 386761.62-4408728.69) coordinates. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis* species individuals shall be removed as tufts from the (37 S 386761.62 4408728.69) coordinates and shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * The individuals of the *Achillea sintenisii* species shall be transferred to the (37 S 386759.46-4408680.42) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the construction site.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* and *Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 386751.62-4408725.89) coordinates between September-November. * The transferred individuals of the *Astragalus zaraensis* species shall be planted to the (37 S 386761.62-4408728.69) coordinates. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 37	683+924-683+963	0,039	*Dysmachus safranboluticus, Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Minuartia corymbulosa var. gypsophiloides*	July-March	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species individuals shall be removed as tufts between the (683+934-683+954) KP's and shall be transferred to the (37 S 386463.44-4408686.64) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be planted according to the methodology and between the (683+934-683+954) KP's between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species as tufts shall be planted at the (683+934-683+954) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species individuals shall be removed as tufts between the (683+934-683+954) KP's and shall be transferred to the (37 S 386463.44-4408686.64) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be planted according to the methodology and between the (683+934-683+954) KP's between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species as tufts shall be planted at the (683+934-683+954) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* Herbaceous plants shall be harvested and 10-15 cm of top soil of the ROW shall be scraped and stored near the ROW. * The seeds of *Astragalus zaraensis, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica*, and *Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species individuals shall be removed as tufts between the (683+934-683+954) KP's and shall be transferred to the (37 S 386463.44-4408686.64) coordinates. * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried *Dysmachus safranboluticus*'s eggs, shall be laid on the top soil. * The collected seeds of *Astragalus zaraensis, Chrysocamela noeana, Gypsophila heteropoda ssp. minutiflora, Achillea sintenisii, Astragalus aytatchii, Centaurea sivasica, Minuartia corymbulosa var. gypsophiloides* species shall be planted according to the methodology and between the (683+934-683+954) KP's between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Thymus pectinatus* species as tufts shall be planted at the (683+934-683+954) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 38	700+549 - 701+087	0,538	*Astragalus aytatchii, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus aytatchii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora*, *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus aytatchii, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis* and *Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 369839.96-4408605.07/ 37 S 369786.46-4408543.51/37 S 370048.89-4408740.47) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species as tufts shall be planted at the (700+757-701+006) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus aytatchii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora, Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis and Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus aytatchii, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis* and *Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 369839.96-4408605.07/ 37 S 369786.46-4408543.51/37 S 370048.89-4408740.47) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis and Thymus pectinatus* species as tufts shall be planted at the (700+757-701+006) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus aytatchii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora, Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species individuals shall be removed as tufts between the (700+757-701+006) KP's and shall be transferred to the (37 S 370016.63-4408569.92 /37 S 370096.00-4408596.00) coordinates. * Some of the collected seeds of *Chrysocamela noeana* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus aytatchii, Minuartia corymbulosa var. gypsophiloides, Onobrychis stenostcahya ssp. krausei, Achillea sintenisii, Achillea sipikorensis, Centaurea sivasica, Isatis glauca ssp. sivasica, Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis* and *Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 369839.96-4408605.07/ 37 S 369786.46-4408543.51/37 S 370048.89-4408740.47) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Achillea sintenisii, Achillea sipikorensis* and *Thymus pectinatus* species as tufts shall be planted at the (700+757-701+006) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 39	708+677-708+890	0,213	*Achillea sintenisii, Astragalus zaraensis, Chrysocamela noeana, Minuartia corymbulosa var. gypsophiloides*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Achillea sintenisii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Minuartia corymbulosa var. gypsophiloides, Astragalus zaraensis, Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 362348.79-4410413.51/ 37 S 362385.09-4410392.30/37 S 362445.47-4410357.19/37 S 362483.09-4410335.10) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Minuartia corymbulosa var. gypsophiloides, Astragalus zaraensis, Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 362348.79-4410413.51/ 37 S 362385.09-4410392.30/37 S 362445.47-4410357.19/37 S 362483.09-4410335.10) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 June-15 July; the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June * Some of the collected seeds of *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Minuartia corymbulosa var. gypsophiloides, Astragalus zaraensis, Chrysocamela noeana* species shall be planted according to the methodology and to the (37 S 362348.79-4410413.51/ 37 S 362385.09-4410392.30/37 S 362445.47-4410357.19/37 S 362483.09-4410335.10) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
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					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 40	713+855-713+956	0,101	*Achillea sintenisii, Gypsophila aucheri, Gypsophila heteropoda ssp. minutiflora, Onosma sintenisii, Centaurea sivasica*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica, Gypsophila heteropoda ssp. minutiflora* species shall be planted according to the methodology and to the (37 S 357833.67-4411319.36/37 S 357807.42-4411296.16/37 S 357783.72-4411275.56) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, and Centaurea sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica, Gypsophila heteropoda ssp. minutiflora* species shall be planted according to the methodology and to the (37 S 357833.67-4411319.36/37 S 357807.42-4411296.16/37 S 357783.72-4411275.56) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, and Centaurea sivasica* species shall be collected near the ROW between 15 June-15 July; the seeds *of Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii, Centaurea sivasica, Gypsophila heteropoda ssp. minutiflora* species shall be planted according to the methodology and to the (37 S 357833.67-4411319.36/37 S 357807.42-4411296.16/37 S 357783.72-4411275.56) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 41	720+035-720+290	0,255	*Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June; the seeds of *Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be collected near the ROW between 15 June-15 July. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be planted according to the methodology and to the (37 S 352322.75-4408468.34/37 S 352395.20-4408471.60/37 S 352452.02-4408473.12) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out at the (720+035-720+083) KP's to prevent erosion.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June; the seeds of *Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri,* and *Onosma sintenisii* species shall be collected near the ROW between 15 June-15 July. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be planted according to the methodology and to the (37 S 352322.75-4408468.34/37 S 352395.20-4408471.60/37 S 352452.02-4408473.12) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out at the (720+035-720+083) KP's to prevent erosion.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Gypsophila heteropoda ssp. minutiflora* species shall be collected near the ROW between 1 June-20 June; the seeds of *Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be collected near the ROW between 15 June-15 July. * Some of the collected seeds of *Onosma sintenisii* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Gypsophila heteropoda ssp. minutiflora, Astragalus zaraensis, Minuartia corymbulosa var. gypsophiloides, Achillea sintenisii, Gypsophila aucheri, Onosma sintenisii* species shall be planted according to the methodology and to the (37 S 352322.75-4408468.34/37 S 352395.20-4408471.60/37 S 352452.02-4408473.12) coordinates between September-November. * Gypsum rocks stored nearby the construction site shall be spread over the ROW. * Terracing shall be carried out at the (720+035-720+083) KP's to prevent erosion.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 42	729+485-729+571	0,086	*Astragalus zaraensis, Achillea sintenisii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The species individuals shall be removed as tufts between the (729+485-729+571) KP's and shall be transferred to the (37 S 343055.79-4409365.90) coordinates. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be planted according to the methodology between September-November. * The removed individuals of the species as tufts shall be planted at the (729+485-729+571) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The species individuals shall be removed as tufts between the (729+485-729+571) KP's and shall be transferred to the (37 S 343055.79-4409365.90) coordinates. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be planted according to the methodology between September-November. * The removed individuals of the species as tufts shall be planted at the (729+485-729+571) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The species individuals shall be removed as tufts between the (729+485-729+571) KP's and shall be transferred to the (37 S 343055.79-4409365.90) coordinates. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Astragalus zaraensis* and *Achillea sintenisii* species shall be planted according to the methodology between September-November. * The removed individuals of the species as tufts shall be planted at the (729+485-729+571) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 43	733+201-733+366	0,165	*Onosma sintenisii, Isatis glauca ssp. sivasica, Achillea sintenisii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be collected between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP'sand shall be transferred to the (37 S 339751.11-4407877.07) coordinates. * Some of the collected seeds of *Onosma sintenisii and Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 339593.61-4408086.60/ 37 S 339650.73-4408112.15) coordinates between September-November. * The translocated *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be planted between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be collected between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP'sand shall be transferred to the (37 S 339751.11-4407877.07) coordinates. * Some of the collected seeds of *Onosma sintenisii* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 339593.61-4408086.60/ 37 S 339650.73-4408112.15) coordinates between September-November. * The translocated *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be planted between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be collected near the ROW between 15 June-15 July. * The *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be collected between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP'sand shall be transferred to the (37 S 339751.11-4407877.07) coordinates. * Some of the collected seeds of *Onosma sintenisii* and *Isatis glauca ssp. sivasica* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Onosma sintenisii, Isatis glauca ssp. sivasica* and *Achillea sintenisii* species shall be planted according to the methodology and to the (37 S 339593.61-4408086.60/ 37 S 339650.73-4408112.15) coordinates between September-November. * The translocated *Onosma sintenisii* and *Achillea sintenisii* species individuals shall be planted between the (733+205-733+234 / 733+262-733+292 / 733+327-733+350) KP's. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 44	741+301-741+446	0,145	*Achillea sintenisii, Chrysocamela noeana, Astragalus zaraensis, Cousinia sivasica*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Achillea sintenisii*, *Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW between 15 June-15 July, the seeds of *Chrysocamela noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis*, *Gypsophila eriocalyx*, *Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates * Some of the collected seeds of *Cousinia sivasica* and *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Chrysocamela noeana, Cousinia sivasica, Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 332486.75-4408322.38/37 S 332507.73-4408280.80/37 S 332517.23-4408261.61) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis*, *Gypsophila eriocalyx*, *Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW between 15 June-15 July, the seeds of Chrysocamela *noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates * Some of the collected seeds of *Cousinia sivasica* and *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Chrysocamela noeana, Cusinia sivasica, Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 332486.75-4408322.38/37 S 332507.73-4408280.80/37 S 332517.23-4408261.61) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Achillea sintenisii, Cousinia sivasica* and *Astragalus zaraensis* species shall be collected near the ROW between 15 June-15 July, the seeds of Chrysocamela *noeana* species shall be collected near the ROW between 1 June-20 June. * The *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species individuals shall be removed as tufts between the (741+305-741+339) KP's and shall be transferred to the (37 S 332575.24-4408252.16) coordinates * Some of the collected seeds of *Cousinia sivasica* and *Chrysocamela noeana* species must be given to the seed gene bank. * Gypsum rocks excavated during activity shall be stored nearby the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Achillea sintenisii, Chrysocamela noeana, Cousinia sivasica, Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species shall be planted according to the methodology and to the (37 S 332486.75-4408322.38/37 S 332507.73-4408280.80/37 S 332517.23-4408261.61) coordinates between September-November. * The removed individuals of the *Astragalus zaraensis, Gypsophila eriocalyx, Thymus pectinatus* species as tufts shall be planted at the (741+305-741+339) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again. * Gypsum rocks stored nearby the construction site shall be spread over the ROW.	1 May-15 July	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 45	746+599-749+672 (in natural habitats)	3,073	*Dysmachus safranboluticus*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	No restriction	None
CH 46	802+361-802+428	0,067	*Hexatoma n. sp., Cousinia halysensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July. * *Juncus* species individuals between the (802+409-802+422) KP's shall be removed and transferred at the (37 S 276993.99-4415718.69) coordinates.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 277036.02-4415687.53) coordinates ROW between September-November. * *Juncus* species removed individuals shall be transferred on the ROW between the (802+409-802+422) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July. * *Juncus* species individuals between the (802+409-802+422) KP's shall be removed and transferred at the (37 S 276993.99-4415718.69) coordinates.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 277036.02-4415687.53) coordinates ROW between September-November. * *Juncus* species removed individuals shall be transferred on the ROW between the (802+409-802+422) KP's.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July. * *Juncus* species individuals between the (802+409-802+422) KP's shall be removed and transferred at the (37 S 276993.99-4415718.69) coordinates.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 277036.02-4415687.53) coordinates ROW between September-November. * *Juncus* species removed individuals shall be transferred on the ROW between the (802+409-802+422) KP's.	1 May-15 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 47	802+454-802+755	0,301	*Hexatoma n. sp., Cousinia halysensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 276937.99-4415685.90/37 S 276803.30-4415655.66/37 S 276720.58-4415638.33) coordinates ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 276937.99-4415685.90/37 S 276803.30-4415655.66/37 S 276720.58-4415638.33) coordinates ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Riparian vegetation, aquatic and semi aquatic vegetation shall be restored. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (37 S 276937.99-4415685.90/37 S 276803.30-4415655.66/37 S 276720.58-4415638.33) coordinates ROW between September-November.	1 May-15 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 48	815+368-815+380	0,012	*Hilara n. sp. 3*	July-March	* The riparian vegetation at the creek bank between the (815+368-815+380) KP's shall be scraped at a depth of 10-15 cm as a layer and stored at the creek side.	* The stored top soil shall be laid back in 3 months at the latest. * The riparian vegetation shall be restored between the (815+368-815+380) KP's and the creek flow shall be provided again.	* The riparian vegetation at the creek bank between the (815+368-815+380) KP's shall be scraped at a depth of 10-15 cm as a layer and stored at the creek side.	* The stored top soil shall be laid back in 3 months at the latest. * The riparian vegetation shall be restored between the (815+368-815+380) KP's and the creek flow shall be provided again.	* The riparian vegetation at the creek bank between the (815+368-815+380) KP's shall be scraped at a depth of 10-15 cm as a layer and stored at the creek side.	* The stored top soil shall be laid back in 3 months at the latest. * The riparian vegetation shall be restored between the (815+368-815+380) KP's and the creek flow shall be provided again.	No restriction	None
CH 49	846+021-846+224	0,203	*Dioctria n. sp. 2, Dysmachus safranboluticus*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested at the (846+021-846+224) KP's and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested at the (846+021-846+224) KP's and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * Herbaceous plants shall be harvested at the (846+021-846+224) KP's and stored near the ROW.	* Topsoil shall be replaced within a maximum of 3 months from removal. * Harvested herbaceous plants, which carried the eggs of *Dysmachus safranboluticus*, shall be laid on the top soil.	No restriction	None
CH 50	945+058-945+445	0,387	*Cousinia halyensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 663165.43-4391184.04/ 36 S 663018.07-4391201.63/ 36 S 662922.53-4391149.88) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 663165.43-4391184.04/ 36 S 663018.07-4391201.63/ 36 S 662922.53-4391149.88) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 663165.43-4391184.04/ 36 S 663018.07-4391201.63/ 36 S 662922.53-4391149.88) coordinates between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 51	993+073-993+795	0,722	*Cousinia halyensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 617215.12-4393683.66/36 S 616926.44-4393808.19/36 S 616741.98-4393948.53) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 617215.12-4393683.66/36 S 616926.44-4393808.19/36 S 616741.98-4393948.53) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 617215.12-4393683.66/36 S 616926.44-4393808.19/36 S 616741.98-4393948.53) coordinates between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 52	1029+605-1029+804	0,199	*Thymus leucostomus, Cousinia halyensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 584017.01-4395503.88/36 S 583929.05-4395490.21) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 584017.01-4395503.88/ 36 S 583929.05-4395490.21) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 584017.01-4395503.88/ 36 S 583929.05-4395490.21) coordinates between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 53	1030+091-1030+310	0,219	*Thymus leucostomus, Cousinia halyensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 583553.69-4395479.62/36 S 583442.02-4395487.31) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 583553.69-4395479.62/36 S 583442.02-4395487.31) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 583553.69-4395479.62/36 S 583442.02-4395487.31) coordinates between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 54	1139+490 - 1140+300	0,81	*Cousinia halyensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 484883.24-4376744.59/36 S 484666.23-4376765.52/36 S 484422.25-4376788.47) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 484883.24-4376744.59/36 S 484666.23-4376765.52/36 S 484422.25-4376788.47) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 484883.24-4376744.59/36 S 484666.23-4376765.52/36 S 484422.25-4376788.47) coordinates between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 55	1149+730-1149+900	0,17	*Thymus leucostomus, Cousinia halyensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 475038.74-4376991.91/36 S 474951.33-4376999.24) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 475038.74-4376991.91/36 S 474951.33-4376999.24) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* and *Cousinia halysensis* species shall be planted according to the methodology and to the (36 S 475038.74-4376991.91/36 S 474951.33-4376999.24) coordinates between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 56	1208+945 - 1209+108	0,163	*Thymus leucostomus*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Thymus leucostomus* species shall be collected near the ROW between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* species shall be planted according to the methodology and to the (36 S 418710.48-4367664.42/36 S 418619.59-4367673.73) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* species shall be planted according to the methodology and to the (36 S 418710.48-4367664.42/ 36 S 418619.59-4367673.73) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* species shall be collected between 15 June-15 July.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of *Thymus leucostomus* species shall be planted according to the methodology and to the (36 S 418710.48-4367664.42/ 36 S 418619.59-4367673.73) coordinates between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 57	1223+54 - 1223+506	0,452	*Neolyceana soezen, Scutellaria yildirimli, Achillea ketenoglui, Astragalus physodes ssp. acikirensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochakii, Cyathobasis fruticulosa, Onobrychis paucijuga, Thymus leucostomus*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the *Caragana grandiflora* species which is a food plant of *Neolyceana soezen*, shall be collected. * *Caragana grandiflora* individuals shall be collected with their soils and planted near the ROW at the (36 S 405664.19-4363111.56) coordinates * If the construction works start in March 2015; the seeds of *Scutellaria yildirimli, Achillea ketenoglui , Astragalus kochakii, Onobrychis paucijuga* species shall be collected near the ROW between 1 June- 1 July; the seeds of *Astragalus physodes ssp. acikirensis* species shall be collected near the ROW between 15 May-15 June; the seeds of *Thymus leucostomus* species shall be collected near the ROW between 15 June-15 July; the seeds of *Minuartia corymbulosa var. gypsophiloides* species shall be collected near the ROW between 15 July-15 August; the seeds of *Cyathobasis fruticulosa* species shall be collected near the ROW between 1 July-1 August. * Some of the collected seeds of *Achillea ketenoglui, Astragalus physodes ssp. acikirensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochakii, Cyathobasis fruticulosa, Onobrychis paucijuga* species must be given to the seed gene bank.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of the *Caragana grandiflora* species shall be planted on the ROW to the (36 S 405549.00-4363042.00/36 S 405621.85-4363058.29/36 S 405679.83-4363074.44/36 S 405784.91-4363093.32/36 S 405844.76-4363108.21/36 S 405912.62-4363121.76) coordinates. * *Caragana grandiflora* species removed individuals shall be transferred on the ROW. * The area shall be surrounded by a wire mesh or fence to protect the area from grazing and other pressures. * The collected seeds of *Scutellaria yildirimli, Achillea ketenoglui , Astragalus physodes ssp. acikirensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochakii, Cyathobasis fruticulosa, Onobrychis paucijuga, Thymus leucostomus* species shall be planted according to the methodology and to the (36 S 405549.00-4363042.00/36 S 405621.85-4363058.29/36 S 405679.83-4363074.44/36 S 405784.91-4363093.32/36 S 405844.76-4363108.21/36 S 405912.62-4363121.76) coordinates between September-November	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the *Caragana grandiflora* species which is a food plant of *Neolyceana soezen*, shall be collected. * *Caragana grandiflora* individuals shall be collected with their soils and planted near the ROW at the (36 S 405664.19-4363111.56) coordinates * The seeds of *Scutellaria yildirimli, Achillea ketenoglui , Astragalus kochakii, Onobrychis paucijuga* species shall be collected between 1 June- 1 July; the seeds of *Astragalus physodes ssp. acikirensis* species shall be collected between 15 May-15 June; the seeds of *Thymus leucostomus* species shall be collected between 15 June-15 July; the seeds of *Minuartia corymbulosa var. gypsophiloides* species shall be collected between 15 July-15 August; the seeds of *Cyathobasis fruticulosa* species shall be collected between 1 July-1 August. * Some of the collected seeds of *Achillea ketenoglui, Astragalus physodes ssp. acikirensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochakii, Cyathobasis fruticulosa, Onobrychis paucijuga* species must be given to the seed gene bank.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of the *Caragana grandiflora* species shall be planted on the ROW to the (36 S 405549.00-4363042.00/36 S 405621.85-4363058.29/36 S 405679.83-4363074.44/36 S 405784.91-4363093.32/36 S 405844.76-4363108.21/36 S 405912.62-4363121.76) coordinates. * *Caragana grandiflora* species removed individuals shall be transferred on the ROW. * The area shall be surrounded by a wire mesh or fence to protect the area from grazing and other pressures. * The collected seeds of *Scutellaria yildirimli, Achillea ketenoglui , Astragalus physodes ssp. acikirensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochakii, Cyathobasis fruticulosa, Onobrychis paucijuga, Thymus leucostomus* species shall be planted according to the methodology and to the (36 S 405549.00-4363042.00/36 S 405621.85-4363058.29/36 S 405679.83-4363074.44/36 S 405784.91-4363093.32/36 S 405844.76-4363108.21/36 S 405912.62-4363121.76) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of the *Caragana grandiflora* species which is a food plant of *Neolyceana soezen*, shall be collected. * *Caragana grandiflora* individuals shall be collected with their soils and planted near the ROW at the (36 S 405664.19-4363111.56) coordinates * The seeds of *Scutellaria yildirimli, Achillea ketenoglui , Astragalus kochakii, Onobrychis paucijuga* species shall be collected between 1 June- 1 July; the seeds of *Astragalus physodes ssp. acikirensis* species shall be collected between 15 May-15 June; the seeds of *Thymus leucostomus* species shall be collected between 15 June-15 July; the seeds of *Minuartia corymbulosa var. gypsophiloides* species shall be collected between 15 July-15 August; the seeds of *Cyathobasis fruticulosa* species shall be collected between 1 July-1 August. * Some of the collected seeds of *Achillea ketenoglui, Astragalus physodes ssp. acikirensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochakii, Cyathobasis fruticulosa, Onobrychis paucijuga* species must be given to the seed gene bank.	* Topsoil shall be replaced within a maximum of 3 months from removal. * The collected seeds of the *Caragana grandiflora* species shall be planted on the ROW to the (36 S 405549.00-4363042.00/36 S 405621.85-4363058.29/36 S 405679.83-4363074.44/36 S 405784.91-4363093.32/36 S 405844.76-4363108.21/36 S 405912.62-4363121.76) coordinates between September-November. * *Caragana grandiflora* species removed individuals shall be transferred on the ROW. * The area shall be surrounded by a wire mesh or fence to protect the area from grazing and other pressures. * The collected seeds of *Scutellaria yildirimli, Achillea ketenoglui , Astragalus physodes ssp. acikirensis, Minuartia corymbulosa var. gypsophiloides, Astragalus kochakii, Cyathobasis fruticulosa, Onobrychis paucijuga, Thymus leucostomus* species shall be planted according to the methodology and to the (36 S 405549.00-4363042.00/36 S 405621.85-4363058.29/36 S 405679.83-4363074.44/36 S 405784.91-4363093.32/36 S 405844.76-4363108.21/36 S 405912.62-4363121.76) coordinates between September-November.	1 May-30 June	Construction prohibited from 01 May - 30 June
CH 58	1362+917- 1363+753	0,836	*Thymus leucostomus*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Thymus leucostomus* species shall be collected near the ROW between 15 June-15 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Thymus leucostomus* species shall be planted according to the methodology and to the (36 S 279214.33-4394348.83/36 S 278842.86-4394361.93/36 S 278571.49-4394453.64) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* species shall be collected between 15 June-15 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Thymus leucostomus* species shall be planted according to the methodology and to the (36 S 279214.33-4394348.83/36 S 278842.86-4394361.93/36 S 278571.49-4394453.64) coordinates between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Thymus leucostomus* species shall be collected between 15 June-15 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Thymus leucostomus* species shall be planted according to the methodology and to the (36 S 279214.33-4394348.83/36 S 278842.86-4394361.93/36 S 278571.49-4394453.64) coordinates between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

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					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH 59	1366+493 - 1366+692	0,199	*Salvia tchihatcheffii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Salvia tchihatcheffii* species shall be collected near the ROW between 1 June-1 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Salvia tchihatcheffii* species shall be planted according to the methodology and to the (1366+512-1366+537) KP's, to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Salvia tchihatcheffii* species shall be collected between 1 June-1 July. * The *Salvia tchihatcheffii* species individuals shall be collected as tufts between the (1366+512-1366+537) KP's and shall be transferred to the (36 S 276899.00-4396448.00) coordinates.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Salvia tchihatcheffii* species shall be planted according to the methodology and to the (36 S 276971.00-4396421.00/ 36 S 276939.00-4396478.00) coordinates between September-November. * The translocated individuals of the *Salvia tchihatcheffii* species as tufts shall be planted at the (1366+512-1366+537) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Salvia tchihatcheffii* species shall be collected between 1 June-1 July. * The *Salvia tchihatcheffii* species individuals shall be collected as tufts between the (1366+512-1366+537) KP's and shall be transferred to the (36 S 276899.00-4396448.00) coordinates.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Salvia tchihatcheffii* species shall be planted according to the methodology and to the (36 S 276971.00-4396421.00/ 36 S 276939.00-4396478.00) coordinates between September-November. * The translocated individuals of the *Salvia tchihatcheffii* species as tufts shall be planted at the (1366+512-1366+537) KP's, where the terracing shall be carried out to prevent erosion and shall be irrigated until they root again.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH 60	1372+340-1372+683	0,343	*Dioctria n. sp. 1, Cephalaria aytachii, Gypsophila osmangaziensis, Alyssum niveum, Scabiosa hololeuca, Salvia tchihatcheffii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Cephalaria aytachii, Gypsophila osmangaziensis, Scabiosa hololeuca* species shall be collected near the ROW between 1 July-August, the seeds of *Alyssum niveum* and *Salvia tchihatcheffii* species shall be collected near the ROW between 15 July-15 August.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Cephalaria aytachii, Gypsophila osmangaziensis, Scabiosa hololeuca, Alyssum niveum* and *Salvia tchihatcheffii* species shall be planted according to the methodology and between the (1372+552-1372+683) KP's and to the (36 S 272726.00-4399906.00/36 S 272758.00-4399896.00) coordinates between September-November. * In the regions between the (1372+552-1372+683) KP's terracing shall be carried out to prevent erosion.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cephalaria aytachii, Gypsophila osmangaziensis, Scabiosa hololeuca* species shall be collected between 1 July-August, the seeds of *Alyssum niveum* and Salvia *tchihatcheffii* species shall be collected between 15 July-15 August.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Cephalaria aytachii, Gypsophila osmangaziensis, Scabiosa hololeuca, Alyssum niveum* and *Salvia tchihatcheffii* species shall be planted according to the methodology and between the (1372+552-1372+683) KP's and to the (36 S 272726.00-4399906.00/36 S 272758.00-4399896.00) coordinates between September-November. * In the regions between the (1372+552-1372+683) KP's terracing shall be carried out to prevent erosion.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Cephalaria aytachii, Gypsophila osmangaziensis, Scabiosa hololeuca* species shall be collected between 1 July-August, the seeds of *Alyssum niveum* and *Salvia tchihatcheffii* species shall be collected between 15 July-15 August.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Cephalaria aytachii, Gypsophila osmangaziensis, Scabiosa hololeuca, Alyssum niveum* and *Salvia tchihatcheffii* species shall be planted according to the methodology and between the (1372+552-1372+683) KP's and to the (36 S 272726.00-4399906.00/36 S 272758.00-4399896.00) coordinates between September-November. * In the regions between the (1372+552-1372+683) KP's terracing shall be carried out to prevent erosion.	1 May-1 June	Construction prohibited from 1 May-15 June
CH61	1430+920-1432+305	1,385	*Erodium sibthorpianum ssp. sibthorpianum, Astragalus densifolius ssp. ayashensis*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Erodium sibthorpianum ssp. sibthorpianum* and *Astragalus densifolius ssp. ayashensis* species shall be collected near the ROW between 1 June-1 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Erodium sibthorpianum ssp. sibthorpianum* and *Astragalus densifolius ssp. ayashensis* species shall be planted according to the methodology and to the (35 S 732388.00-4404501.00/35 S 732171.00-4404907.00/35 S 731635.00-4405086.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. *The seeds of *Erodium sibthorpianum ssp. sibthorpianum* and *Astragalus densifolius ssp. ayashensis* species shall be collected between 1 June-1 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Erodium sibthorpianum ssp. sibthorpianum* and *Astragalus densifolius ssp. ayashensis* species shall be planted according to the methodology and to the (35 S 732388.00-4404501.00/35 S 732171.00-4404907.00/35 S 731635.00-4405086.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. *The seeds of *Erodium sibthorpianum ssp. sibthorpianum* and *Astragalus densifolius ssp. ayashensis* species shall be collected between 1 June-1 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Erodium sibthorpianum ssp. sibthorpianum* and *Astragalus densifolius ssp. ayashensis* species shall be planted according to the methodology and to the (35 S 732388.00-4404501.00/35 S 732171.00-4404907.00/35 S 731635.00-4405086.00) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH62	1477+452 - 1477+833	0,381	*Onosma briquetii*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Onosma briquetii* species shall be collected near the ROW between 1 June-1 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Onosma briquetii* species shall be planted according to the methodology and to the (35 S 692106.00-4399251.00/35 S 691979.00-4399305.00/35 S 691815.00-4399375.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. *The seeds of *Onosma briquetii* species shall be collected between 1 June-1 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Onosma briquetii* species shall be planted according to the methodology and to the (35 S 692106.00-4399251.00/35 S 691979.00-4399305.00/35 S 691815.00-4399375.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Onosma briquetii* species shall be collected between 1 June-1 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Onosma briquetii* species shall be planted according to the methodology and to the (35 S 692106.00-4399251.00/35 S 691979.00-4399305.00/35 S 691815.00-4399375.00) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints

CRITICAL HABITATS	KP	Total Lenght (km)	CRITICAL SPECIES	THE IDEAL TIME FOR SOIL STRIPPING	MITIGATION MEASURES*						Closed Construction Period	Construction allowed if following condition(s) are met
					IF CONSTRUCTION WORKS STARTS AT SPRING / (March-May)		IF CONSTRUCTION WORKS STARTS AT SUMMER / (June-August)		IF CONSTRUCTION WORKS STARTS AT AUTUMN / (September-November)			
					PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION	PRE-CONSTRUCTION	POST-CONSTRUCTION		
CH63	1491+767 - 1496+340	4,573	*Alyssum dudleyi, Verbascum n.sp., Dianthus goekayi*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; the seeds of *Alyssum dudleyi* species shall be collected near the ROW between 1 June-1 July; *Verbascum n.sp.* and *Dianthus goekayi* species shall be collected near the ROW between 15 June-15 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Alyssum dudleyi* and *Dianthus goekayi* species shall be planted according to the methodology and to the (35 S 677213.00-4403775.00/ 35 S 677793.00-4403410.00) coordinates, and *Verbascum n.sp.* species shall be planted according to the methodology and to the (35 S 678633.00-4403608.00/35 S 678771.00-4403703.00/35 S 678910.00-4403726.00/35 S 679243.00-4403657.00/35 S 679618.00-4403578.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Alyssum dudleyi* species shall be collected between 1 June-1 July; *Dianthus goekayi* species shall be collected between 15 June-15 July, *Verbascum n.sp.* species shall be collected from the (35 S 679080.00-4403701.00/35 S 679921.00-4403502.00/35 S 679810.00-4403499.00/35 S 679185.00-4403189.00) coordinates between 15 June-15 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Alyssum dudleyi* and *Dianthus goekayi* species shall be planted according to the methodology and to the (35 S 677213.00-4403775.00/ 35 S 677793.00-4403410.00) coordinates, and *Verbascum n.sp.* species shall be planted according to the methodology and to the (35 S 678633.00-4403608.00/35 S 678771.00-4403703.00/35 S 678910.00-4403726.00/35 S 679243.00-4403657.00/35 S 679618.00-4403578.00) coordinates to the ROW between September-November.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The seeds of *Alyssum dudleyi* species shall be collected between 1 June-1 July; *Dianthus goekayi* species shall be collected between 15 June-15 July, *Verbascum n.sp.* species shall be collected from the (35 S 679080.00-4403701.00/35 S 679921.00-4403502.00/35 S 679810.00-4403499.00/35 S 679185.00-4403189.00) coordinates between 15 June-15 July.	* The stored top soil shall be laid again in 3 months. * The collected seeds of *Alyssum dudleyi* and *Dianthus goekayi* species shall be planted according to the methodology and to the (35 S 677213.00-4403775.00/ 35 S 677793.00-4403410.00) coordinates, and *Verbascum n.sp.* species shall be planted according to the methodology and to the (35 S 678633.00-4403608.00/35 S 678771.00-4403703.00/35 S 678910.00-4403726.00/35 S 679243.00-4403657.00/35 S 679618.00-4403578.00) coordinates to the ROW between September-November.	1 May-1 June	If all topsoil removal is complete prior to 01 May, there are no construction time constraints
CH64	1736+000 - 1738+300	2,3	*Phalacrocorax carbo, Phalacrocorax pygmeus*	01 July-31 January	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * The construction shalln't be done between February-March because of the flood season which constitute a wetland for congregatory bird species.	* The stored top soil shall be laid again in 3 months. * The habitat shall be rehabilitated.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * No restriction	* The stored top soil shall be laid again in 3 months. * No restriction	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * No restriction	* The stored top soil shall be laid again in 3 months. * No restriction	01 February-30 March	Construction prohibited from February-March
CH65	1741+100 - 1741+500	0,4	*Spermophilus citellus*	July-January	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; and if *Spermophilus citellus* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	* The stored top soil shall be laid again in 3 months. * If *Spermophilus citellus* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If *Spermophilus citellus* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	* The stored top soil shall be laid again in 3 months. * If *Spermophilus citellus* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If *Spermophilus citellus* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	* The stored top soil shall be laid again in 3 months. * If *Spermophilus citellus* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	If the precaution measures taken for *Spermophilus citellus*, there is no restriction	None
CH66	1788+300 - 1788+500	0,2	*Myomimus roachi*	July-March	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If the construction works start in March 2015; and if *Myomimus roachi* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	* The stored top soil shall be laid again in 3 months. * If *Myomimus roachi* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If *Myomimus roachi* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	* The stored top soil shall be laid again in 3 months. * If *Myomimus roachi* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * If *Myomimus roachi* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	* The stored top soil shall be laid again in 3 months. * If *Myomimus roachi* individuals will be seen, they shall be carried to the appropriate and close areas by specialists according to the methodology.	If the precaution measures taken for *Myomimus roachi*, there is no restriction	None
CH67	1800 + 600 - 1805+000	4,4	*Phalacrocorax carbo, Phalacrocorax pygmeus, Cygnus olor, Cygnus cygnus, Pelecanus onocrotalus*	01 July-31 January	* The construction shalln't be done between February-March because of the flood season which constitute a wetland for congregatory bird species. * The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW.	* The stored top soil shall be laid again in 3 months. * The habitat shall be rehabilitated.	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * No restriction	* The stored top soil shall be laid again in 3 months. * No restriction	* The top soil shall be scraped at a depth of 10-15 cm and shall be stored near the ROW. * No restriction	* The stored top soil shall be laid again in 3 months. * No restriction	01 February-30 March	Construction prohibited from February-March

4 RECOMMENDED ACTIONS FOR FRESHWATER CRITICAL HABITATS

CRITICAL HABITATS	CRITICAL HABITAT NAME (RIVER NAME)	KP	CRITICAL SPECIES	TIME CONSTRAINT	MITIGATION MEASURES	
					PRE-CONSTRUCTION	POST-CONSTRUCTION

CRITICAL HABITATS	CRITICAL HABITAT NAME (RIVER NAME)	KP	CRITICAL SPECIES	TIME CONSTRAINT	MITIGATION MEASURES	
					PRE-CONSTRUCTION	POST-CONSTRUCTION
FCH 1	Kura River	71+710-71+755	-	end of April-begining of July	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 2	Unknown Creek	166+450-166+571	-	end of April-begining of July	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 3	Süngütaşı River	220+177-220+211	-	end of April-begining of July	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 4	Kızıllararkı River	269+680-269+696	-	end of April-begining of July	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.

CRITICAL HABITATS	CRITICAL HABITAT NAME (RIVER NAME)	KP	CRITICAL SPECIES	TIME CONSTRAINT	MITIGATION MEASURES	
					PRE-CONSTRUCTION	POST-CONSTRUCTION
FCH 5	Büyükdere River	280+401-280+414	-	end of April-begining of July	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 6	Abıtçayırlığı River	332+830-332+845	-	end of April-begining of July	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 7	Baş River	353+584-353+613	-	end of April-begining of July	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 8	Karasu River	372+760-372+903	-	end of April-begining of July	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.

CRITICAL HABITATS	CRITICAL HABITAT NAME (RIVER NAME)	KP	CRITICAL SPECIES	TIME CONSTRAINT	MITIGATION MEASURES	
					PRE-CONSTRUCTION	POST-CONSTRUCTION
FCH 9	Değirmendere River	504+756-504+770	-	end of April-begining of July	*No activities should be carried out in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 10	Unknown Creek-Öğütlü village	508+498-508+510	*Oxyneomacheilus kosswigi*, *Salmo macrostigma*	May-June; December-November	*No activities should be carried out for Salmonid between December-November; for *Oxynemacheilus kosswigi* between May-June in the spawning periods (end of April-begining of July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 11	Hafik	709+815-709+897	*Gobio obtusirostris*	April-July	*No activities should be carried out in the spawning periods (April-July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 12	Yıldız River	763+361-763+381	-	April-July	*No activities should be carried out in the spawning periods (April-July). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.

CRITICAL HABITATS	CRITICAL HABITAT NAME (RIVER NAME)	KP	CRITICAL SPECIES	TIME CONSTRAINT	MITIGATION MEASURES	
					PRE-CONSTRUCTION	POST-CONSTRUCTION
FCH 13	Delice Stream	983+388-983+432	*Cobitis simplicispinna*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 14	Kılıçözü River	1035+368-1035+377	*Cobitis simplicispinna*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 15	Kızılırmak River	1087+890+1087+980	-	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 16	Sakarya River	1214+260-1214+290	-	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 17	Seydi Stream	1315+643-1315+665	*Cobitis simplicispinna, Gobio obtusirostris*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.

CRITICAL HABITATS	CRITICAL HABITAT NAME (RIVER NAME)	KP	CRITICAL SPECIES	TIME CONSTRAINT	MITIGATION MEASURES	
					PRE-CONSTRUCTION	POST-CONSTRUCTION
FCH 18	Seydi Stream	1323+270-1323+300	*Cobitis simplicispinna, Gobio obtusirostris, Chondrostoma angoranse*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 19	Tributary of Uludere	1396+221-1396+237	*Gobio obtusirostris*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 20	Tributary of Kocasu Stream-Soğucak	1461+293-1461+349	*Oxyneomacheilus simavica*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 21	Aliova Stream	1553+697-1553+730	*Oxyneomacheilus simavica*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 22	Sarp Creek	1565+865-1565+885	*Cobitis fahirae*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 23	Simav Stream	1590+290-1590+362	*Oxyneomacheilus simavica*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.

CRITICAL HABITATS	CRITICAL HABITAT NAME (RIVER NAME)	KP	CRITICAL SPECIES	TIME CONSTRAINT	MITIGATION MEASURES	
					PRE-CONSTRUCTION	POST-CONSTRUCTION
FCH 24	Mürvetler Stream	1605+400-1605+425	*Oxyneomacheilus simavica, Cobitis puncticulata, Cobitis fahirae*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 25	Manyas-Kocaçay Stream	1613+360-1613+419	*Cobitis puncticulata, Cobitis fahirae*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Manage all construction activities to the maximum extent possible in order to avoid or minimize soil erosion, sedimentation and impacts to aquatic and riparian vegetation at the crossing.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 26	Gönen Stream	1651+548-1651+598	*Anguilla anguilla*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.
FCH 27	Biga Stream	1689+784-1689+838	*Cobitis fahirae*	April-June	*No activities should be carried out in the spawning periods (April-June). *Control sediment release into the river bed. *Minimize construction activities to avoid or minimize soil erosion, sedimentation and impacts to riparian vegetation at the crossing. *Avoid impacts and removal to gravel areas at the crossing. *Install silt screens and sediment traps prior to initiating construction crossing activities and maintain the screens and traps during the crossing to prevent or minimize downstream sedimentation.	*Restore channel bottom (materials and topography) and riparian vegetation (along river banks) to baseline conditions present prior to construction.

5 KP'S ACCORDING TO REV H AND REV J

ID	REV H		REV J	
	KP Start	KP End	KP Start	KP End
CH1	3000	3735	3186	3921

ID	REV H		REV J	
	KP Start	KP End	KP Start	KP End
CH2	3940	4051	4126	4237
CH3	20700	23000	20977	23277
CH4	23670	27081	23947	27358
CH5	62320	63140	63303	64123
FCH1	71710	71755	72666	72711
CH6	84758	87000	85741	87983
CH7	115393	116000	116376	116983
CH8	116069	116637	117052	117620
CH9	164345	164566	165360	165581
FCH2	166450	166571	167465	167586
CH10	167000	167154	168015	168169
CH11	169000	174000	170015	175015
CH12	174412	176000	175427	177015
CH13	187557	193000	188572	194015
CH14	202930	203709	203945	204724
CH15	214885	219641	215900	220656
FCH3	220177	220211	221192	221226
CH16	232172	232787	233187	233802
FCH4	269680	269696	270699	270715
FCH5	280401	280414	281421	281434
CH17	306365	312319	307380	313386
FCH6	332830	332845	333917	333932
FCH7	353584	353613	355704	355733
CH18	369037	369126	371311	371400
FCH8	372760	372903	375027	375177
CH19	385169	390000	389036	392485
CH20	393489	394339	395974	396824

ID	REV H		REV J	
	KP Start	KP End	KP Start	KP End
CH21	432592	434819	435077	437304
CH22	451458	454120	453943	456605
FCH9	504756	504770	506877	506891
FCH10	508498	508510	510622	510634
CH23	518154	521487	520252	523585
CH24	537806	543711	539798	545703
CH25	564425	565125	566417	567117
CH26	588880	590358	590940	592418
CH27	604940	608000	607000	610060
CH28	614648	626000	616751	628103
CH29	632635	634183	634738	636286
CH30	634285	634864	636388	636967
CH31	634906	634932	637009	637035
CH32	652000	654878	654103	656981
CH33	656000	656431	658103	658534
CH34	660353	660456	662456	662559
CH35	661206	661709	663309	663812
CH36	683613	683648	687002	687037,1
CH37	683924	683963	687313	687352
CH38	700549	701087	703938	704476
CH39	708677	708890	712066	712279
FCH11	709815	709897	713204	713286
CH40	713855	713956	717244	717345
CH41	720035	720290	723424	723679
CH42	729485	729571	732873	732959
CH43	733201	733366	736589	736754
CH44	741301	741446	744689	744834

ID	REV H		REV J	
	KP Start	KP End	KP Start	KP End
CH45	746599	749672	749987	753060
FCH12	763361	763381	766754	766774
CH46	802361	802428	805749	805816
CH47	802454	802755	805842	806143
CH48	815368	815380	818756	818768
CH49	846021	846224	849409	849612
CH50	945058	945445	948615	949002
FCH13	983388	983432	986945	986989
CH51	993073	993795	996630	997352
CH52	1029605	1029804	1034862	1035061
CH53	1030091	1030310	1035348	1035567
FCH14	1035368	1035377	1040654	1040663
FCH15	1087890	1087980	1093394	1093484
CH54	1139490	1140300	1144988	1145800
CH55	1149730	1149900	1155228	1155398
CH56	1208945	1209108	1214644	1214805
FCH16	1214260	1214290	1222948	1222983
CH57	1223054	1223506	1229052	1229504
FCH17	1315643	1315665	1321758	1321780
FCH18	1323270	1323300	1329399	1329429
CH58	1362917	1363753	1369450	1370286
CH59	1366493	1366692	1373026	1373225
FCH19	1369221	1369237	1375754	1375770
CH60	1372340	1372683	1378873	1379216
CH61	1430920	1432305	1437587	1438972
FCH20	1461293	1461349	1467963	1468019
CH62	1477452	1477833	1484122	1484503

ID	REV H		REV J	
	KP Start	KP End	KP Start	KP End
CH63	1491767	1496340	1500178	1505242
FCH21	1553697	1553730	1562671	1562704
FCH22	1565865	1565885	1574842	1574862
FCH23	1590290	1590362	1599266	1599339
FCH24	1605400	1605425	1614378	1614403
FCH25	1613360	1613419	1622338	1622397
FCH26	1651548	1651598	1661511	1661561
FCH27	1689784	1689838	1699822	1699876
CH64	1736000	1738300	1746722	1748567
CH65	1741100	1741500	1751367	1751767
CH66	1788300	1788500	1798567	1798767
CH67	1800600	1805000	1810871	1815289

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

CULTURAL HERITAGE MANAGEMENT PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	IMS Review by	Approved by
P3-A	DIC	06.06.2016	Discipline Internal Check	COSE/ARID /KILA	POYS		
P3-B	IDC	13.06.2016	Interdisciplinary Check	COSE/ARID /KILA	POYS		
P3-0	IAA	15.06.2016	Issued As Approved	COSE/ARID/ KILA	POYS/RUSP /AYAM	ISIKB	DUZS
P3-1	Re-IAA	19.07.2016	Re-Issued As Approved	COSE/ARID/ KILA	POYS/RUSP /AYAM	ISIKB	DUZS

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P3-A	DIC	06.06.2016	Discipline Internal Check
P3-B	IDC	13.06.2016	Interdisciplinary Check
P3-0	IAA	15.06.2016	Issued As Approved
P3-1	Re-IAA	19.07.2016	Re-Issued As Approved

HOLDS

No.	Section	Description	Input From	Planned Date

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1. CULTURAL HERITAGE MANAGEMENT PLAN

1.1. Purpose and Scope

In general, the Cultural Heritage Management Plan of TANAP assures avoidance of significant cultural and archaeological resources within the pipeline construction corridor of the Project. This Plan explaines the impact and mitigation measures identified for the known archaeological areas within the ESIA report, the impact and mitigations identified during the construction phase with the aim of protecting all unknown cultural resources and includes:

- Chance Find Requirements of TANAP, EPCM;
- Cultural Heritage Manegement Plan of Contractors;
- The Protocol with Turkish Ministry of Culture and Tourism; and
- Scope of Work of Archaeological Consultant.

This Plan will not be issued to IDC.

1.2. Custodian of the Document

The custodian of this document is the Environmental Manager.

The Custodian shall be responsible to organize the regular[1] review of this document in addition to ensure updating of identified improvements.

The Custodian is to be contacted for any reasons of changes.

1.3. Abbreviations, Acronyms

The following additional abbreviations/acronyms may appear within the text of this document and have meaning as described below for the purpose of this document.

Abbreviations / Acronyms / Terms	Meaning
CC	Construction Contractor
CHMP	Cultural Heritage Management Plan
EPC	Engineering, Procurement and Construction
EPCM	Engineering Procurement Construction Management
E/S	Environmental and Social

[1] This document shall be reviewed in the first year after first approval every six months, after the first year, unless the application of the plan has been found requiring further major improvements, the review will be performed once a year

Abbreviations / Acronyms / Terms	Meaning
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management System
HSSE	Health, safety, social, environment
IFC	International Finance Corporation
NCR	Non-Conformance Report
PSs	Performance Standards
TANAP	TANAP Trans Anatolian Natural Gas Transmission Company / TANAP Doğalgaz İletim AŞ

Table 1 Acronyms and Abbreviations

1.4. Definitions

The following additional definitions appear within the text of this document and shall have meaning as described below for the purpose of this document.

Definitions	Meaning
ESIA Report	The Turkish ESIA Documentation which were approved as of 24.07.2014 by Ministry of Environment and Urbanization and the English version of the ESIA Report which was approved by TANAP after public disclosure process.
Archaeology (ical) Consultant	Archaeology experts which provide professional guidance to TANAP on management of archaeological and cultural heritage findings and the related permits
Board of Directors	The Board of Directors of TANAP
Chance Find	Potential cultural heritage objects, features or sites that are identified outside of a formal site reconnaissance, normally as a result of construction monitoring.
Client	TANAP DOĞALGAZ İLETİM A.Ş.
Commitments Register	The register which outlines the requirements committed in ESIA (Appendix 4.7) and its monitoring planning throughout the project life in addition which is currently also Annex 1 of TANAP Environmental Monitoring Plan.
Contractor(s)	The Contractors who provide service, material or goods to TANAP as per Contract including but not limited to EPCM, EPC and CCs.
Contracts	The Contracts established by and between TANAP and Contractors to provide service and/or materials to TANAP
Cultural Assets	Cultural Assets " shall refer to movable and immovable

Definitions	Meaning
	property on the ground, under the ground or under the water pertaining to science, culture, religion and fine arts of before and after recorded history or that is of unique scientific and cultural value for social life before and after recorded history.
Employee(s)	The Employees under payroll of TANAP who are contracted with a labor contract pursuant to relevant Turkish Labor legislation
EPCM Contractor	Namely the WorleyParsons Turkey Limited
General Manager	The General Manager of TANAP
HSSE Group Manager	The HSSE Group Manager of TANAP
LOT	Means those components comprising the onshore pipeline Lot [1, 2, 3 and 4] of the Trans-Anatolian Pipeline System (but expressly excluding offshore pipeline, compressor stations and the SCADA/telecommunications system).
Museum Directorate	A Directorate of the Ministry of Culture and Tourism Ministry responsible for giving advice and direction on archaeological finds. Will follow directions and decisions from Regional Board Directorate of Protection of Cultural Heritage
March Chart	Time-distance charts that are widely used in linear projects such as pipeline, railway system or roadway for planning and scheduling
Performance Standards of International Finance Corporation	IFC 2012 Performance Standards (PSs) are the environmental and social standards issued by World Bank International Financial Institution. There are eight PSs which the projects should meet throughout the life of an investment financed by IFC or other relevant financial institutions
Project	Design, Engineering, Procurement, Construction, Commissioning actions & activities to realize the TANAP gas transmission facilities
Regional Board Directorate Of Protection Of Cultural Heritage (Regional Protection Board)(Protection Board)	A Directorate of the Ministry of Culture and Tourism Ministry responsible for giving advice and direction on archaeological finds
Scope of Work	The division of work to be performed under a contract or subcontract in the completion of a project, typically

Definitions	Meaning
	broken out into specific tasks with deadlines. The Scope of Work (SOW) is a formal document that describes the work activities, deliverables, timelines and milestones, pricing, quality requirements and governance terms and conditions etc.
Site	The Sites where Project's soil investigation, Site survey, material storage, construction and commissioning activities take place.
Site Activities	TANAP Site Activities comprises at minimum but not limited to Project's Site survey, soil investigation, material storage, construction and commissioning processes.
State (Authorities)	All central and local authorities or bodies and any and all instrumentalities, branches and subdivisions of any of the foregoing, and any entity that is directly or indirectly controlled by the State or one or more of its State Authorities;
State	The State bodies, offices, organizations, departments, ministries of Turkish government
TANAP Policies	The Policies of TANAP either approved by Board of Directors or the General Manager
TANAP Managers	All level managers hierarchically existing in TANAP organization chart
Third Party Monitoring	The Consultant Company contracted by TANAP to monitor the compliance of Site Activities with the environmental and social management requirements and commitments of the Project
Work	Shall mean all and any of the WORKs and / or services and / or materials required to be provided by the EPCM under the Contract with Client.
Shall and Must	Indicates mandatory requirements.
Should	Indicates that a provision is not mandatory, but recommended as good practice.

Table 2 Definitions

1.5. References

In this document, references have been made to the following documents:

Reference No	Reference Title
TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	Cultural Heritage Management Plan (Appendix 5.8. of ESIA Report)
TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	Terrestrial Archaeology Baseline Report (Chapter 13, Annex 2.4)
TNP-REP-ENV-GEN-001	ESIA Report (Turkish)
TNP-REP-ENV-GEN-002	ESIA Report (English)
TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	ESIA Chapter 8.3
TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	ESIA Chapter 8.6
TNP-PLN-PRM-GEN-001	Project Execution Plan
TNP-POL-SOC-GEN-001	TANAP Social Policy
TNP-POL-PRM-GEN-001	TANAP IMS Policy
TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	ESIA Report Chapter 13 - App 2.4 Terrestrial Archaeology Baseline Report Constraint Maps of Archaeology
Alignment Sheets	Alignment sheets which are prepared by engineering group shows the route of the pipelines with construction details (depth of cover, wall thickness distributions, coating requirements, crossing locations and mitigation measurements.) Alignment shhet also incoprerate environmenal and sosical requrements mitigation measures which are requried by ESIA
European Bank for Reconstruction and	EBRD Environmental and Social Performance Requirements

Reference No	Reference Title
Development, 2010	
Council of Europe ETS No 143, 1992	European Convention on the Protection of the Archaeological Heritage (Revised) (The Valletta Convention)
Official Gazette; Date: 10.12.1987 and No: 19660	Law no. 2863 - Law on the Conservation of Cultural and Natural Property

Table 3 Referenced documents

1.6. Roles and Responsibilities

Specific roles and responsibilities in CHMP are given below:

Entity	General Role & Responsibility
Project Director	• Ensure this Plan is implemented • Provide necessary resources for proper implementation of this Plan
HSSE Group Manager	• Ensure this Plan is implemented • Provide necessary resources for proper implementation of this Plan
TANAP Managers	Comply with requirements of this Plan
EPCM Contractor	• Manage and monitor the implementation of TANAP's Environmental Requirements for the Contractors, all other commitments in ESIA and ESMS components within the scope of EPCM activities. • Inform TANAP and closest Museum Directorate in case of archaeological chance find. After the notification, The Turkish Ministry and Museum Directorate shall take the due actions as soon as possible as per the provisions of the "Law regarding the Protection of Cultural and Natural Assets".
Contractor (s)	• Submit the Cultural Heritage Management Plan to EPCM/TANAP for approval;
	• get the approval of EPCM/TANAP for the members of the archaeology team to be assigned for the site;
Contractor (s)	• Provide awareness trainings on archaeological and cultural heritage to the personnel;

Entity	General Role & Responsibility
	• Ensure that all personnel participate in all training programs including regular site-specific training sessions on E&S issues, Cultural Heritage Awareness and Protection throughout the course of their contract.
	• Liaise with local Authorities to identify if Project activities can interfere with traditional celebrations or festivities; alternative solutions shall be agreed with local authorities.
	• Ensure that all personnel participate in all Requirements for Intangible Cultural Resources
	• Liaise with local Authorities to identify if Project activities restrict access to elements of traditional culture; alternative solutions shall be agreed with local authorities.
Third Party Monitoring	Third party monitoring for ensuring the compliance of the contractors with defined requirements is under TANAP's responsibility. TANAP has developed a comprehensive Environmental and Social Management Organization to effectively implement, manage, and monitor the project's commitments.

2. OVERVIEW OF CHMP DEVELOPMENT

All Contractors shall fullfil the requirements defined in this CHMP by adapting them to their own activities. Each contractor shall develop their own CHMP and procedures aligned with TANAP Policies, which will explain the way to implement the requirements of this plan. Contractors shall submit their CHMP and related documents to TANAP/EPCM for approval prior to commence construction works. Contractors shall ensure that the subcontractors are also working in compliance with the requirements of their CHMP.

The Contractors shall refer, as a minimum, to the project documentation listed in Section 1.4 References and addressed in the document elsewhere, while developing their CHMP.

The activities shall not commence before approval of Contractor CHMP by TANAP.

As a guidance to the Contractors, TANAP has prepared a "TANAP Chance Find Requirements" document, which is presented in Annex A of this Plan. The available CHMP of Contractors are presented in Annex B. The review process will be ongoing for the upcoming documentation of awarded Contractors.

The Contractors shall regularly review their CHMP to comply withProject requirements or the detailed identification of the Authority requirements.

While developing their CHMP, as detailed in Chapter 4 of the ESIA Report, Contractors shall comply with relevant TurkishLegislation and international standards & practices generally prevailing in the natural gas pipeline projects, including relevant Performance Standards of the International Finance Corporation (IFC 2012 PS). Contractors shall also ensure that their activities comply with all relevant Turkish legislation and international requirements including but not limited to those listed in Chapter 4 and Appendix 4.6 (Legislation Register) of the ESIA Report. The Commitment Register in Appendix 4.7[2] and Chapter 11.3 of the ESIA Report shall be referred to the full details of responsibilities during the implementation of the mitigation measures and monitoring requirements.

3. REQUIREMENTS FOR INTANGIBLE CULTURAL RESOURCES

The Contractors shall liaise with local Authorities to identify whether Project activities interfere with traditional celebrations or festivities, in such case alternative solutions shall be aggreed with local authorities.

Furthermore, the Contractors shall also liaise with local Authorities to identify if Project activities restrict access to elements of traditional culture. In case of any restrictions, alternative solutions shall be aggreed with local Authorities.

4. LEGAL FRAMEWORK

Archaeological team of Contractor responsible from monitoring shall carry out field assessment and inform the related Archaeological Museum in order to start the necessary salvage excavations. Besides the requirements presented in Section 1.6, the following sections describe the legal process in case of a finding during construction phase.

Responsible archaeologist of Contractor shall accompany the excavation works of the pipeline and record any assets found due to conducted trench works. When archaeological strata or remainings encountered, the requirements of following legislation shall apply:

[2] Commitments Register is presented in Environmental Monitoring Plan as Annex 1 (TNP-REP-ENV-GEN-003).

- Turkish Law no 2863 and dated July 23, 1983 regarding Protection of Cultural and Natural Assets;
- Turkish regulation on the "Fixation and Registration of Real Estate Cultural and Natural Assets" that need to be Protected;
- "European Convention on the Protection of Archaeological Heritage";
- "Convention concerning the Protection of World Cultural and Natural Heritage"

Turkish Law no 2863 and dated July 23, 1983 regarding Protection of Cultural and Natural Assets set the following requirements:

- **Law 2863 - Article 4 Obligation to notify:** "Those property owners, who find movable and real estate cultural and natural assets know or have just becme aware of that there are cultural and natural assets on the lands they own or use shall be obliged to inform the closest museum directorate or village headman or local governor in other places maximum in three days. Such assets shall be notified to the proper major command if they are found in the military garrison and forbidden zones. Being notified; village headman, local governor or relevant authorities who directly become aware of such assets shall take the necessary measures for the Protection and security of such assets. The headman shall inform the closest local governor on the same day about the assets as well as the measures taken; the local governor and other authorities shall inform the Ministry of Culture and Tourism and the closest museum directorate in writing within ten days. The Ministry and museum director receiving the notification shall take the due action as soon as possible as per the provisions of this law."
- **Regulation on the Fixation and Registration of Real Estate Cultural and Natural Assets That Need to Be Protected:**

  "The fixation of the real estate cultural and natural assets that need to be protected as well as the natural protected areas shall be made by obtaining the opinions of the relevant institutions and organizations the activities of which are affected in the coordination of the Ministry of Culture and Tourism. The date, art, zone and other properties of the cultural and natural assets shall be taken into consideration during fixation. Adequate works that are similar and reflect the properties of their periods shall be fixed as cultural assets that need to be protected taking account of the possibilities of the state. The fixations regarding the real estate cultural and natural assets that need to be protected shall be registered upon the decision of the regional council of protection. The procedures, principles and criteria regarding fixation and registration shall be set forth in a regulation. The real estate cultural and natural assets owner by the registered and affiliated foundations which are under the management or control of the Directorate General of Foundations; and real estate cultural and natural assets such as mosque, tomb, caravansary, madrassah, bath, prayer room, small Islamic monastery, fountain, dervish lodge, water fountain and etc. that are owned by real and legal entities and need to be protected shall be fixed and recorded in inventory by the Directorate General of Foundations. The

announcement, declaration and land registry of registration decisions shall be stipulated in the regulation."

- **Article 7 of the Law:** "Identification and registration: Legal Necessities before the Impact Mitigation Measures The article stated that the related Regional Board Directorate of Protection of Cultural Heritage is responsible for the registration of the cultural and natural heritage. Therefore, for the registration of the immovable cultural assetsit is required to apply officially and directly to the related Regional Board Directorate of Protection of Cultural Heritage."
- **Article 9 of the Law: Prohibition of unauthorized intervention and use:** "Constructions and physical interventions shall not be allowed on the protected and cultural Substantial repair, construction, installation, drilling, partial or complete demolition, burning, excavation or similar works shall be considered as construction and physical intervention."
- **Article 41 of the Law, Transport of excavated antiquities to museums:** "All movable cultural and natural property that has been excavated shall be transported by the excavation team or institution to a state museum to be determined by the Ministry of Culture and Tourism at the end of the excavation year. Human and animal skeletons and all fossils discovered during excavations and sounding can be given to natural history museums, universities or other Turkish scientific institutions, if deemed appropriate by the Ministry of Culture and Tourism. Moreover, all kinds of movable cultural property relating to military history discovered during excavation works and sounding shall be transferred to military museums by the Ministry of Culture and Tourism with the consent of the General Staff."

The protocol regarding the cultural and natural assets found along the TANAP Project, which outlines the responsibilities to be carried out by TANAP, was signed with the Turkish Ministry of Culture and Tourism. Protocol provided as Annex C;

"European Convention on the Protection of Archaeological Heritage" (Amended) (Valetta, 16/01-1992) is also referred to as Valetta Convention. This convention provides guidelines regarding the funding of publication of findings generated as a result of excavation and exploration works and studies conducted. The Convention also deals especially with making the archaeological sites available to public and actions and activities regarding the training and education that need to be performed in order to raise awareness about the value of the archaeological heritage.

Convention concerning the Protection of World Cultural and Natural Heritage (1972)

Turkey signed the Convention concerning the Protection of World Cultural and Natural Heritage, which is shortly referred to as "World Heritage Convention" and was put into force by "United Nations Education, Science and Culture Organization (UNESCO)" in the capacity of contracting party to the Convention in the meeting held in Paris between October 17 and November 21, 1972.

The parties of the convention agreed clearly and explicitly to ensure that, "the most possible effective and efficient measures shall be taken in order to protect, preserve and promote the cultural and natural heritage" within their territories.

5. REQUIREMENTS FOR TANGIBLE CULTURAL RESOURCES

5.1. Identification of the cultural resources (tangible) and definition of mitigation measures before construction phase:

Pre-Construction Phase: During this phase, in the scope of baseline study, archaeological field surveys have been carried out in order to determine the archaeological potential of the pipeline route. Baseline studies and survey results are terminated with the determination of archaeological Sites within the pipeline route with Regional Protection Boards. Possible impacts are eliminated by decisions of route changes ensuring the avoidance of the Sites within the Project. In those Sites, which route change can not be implemented due to some technical reasons, archaeological test/salvage excavations shall be carried out and according to the excavation results, Regional Protection Boards shall be informed about the construction activities of the Project and their approval shall be awaited. The current status of these studies are presented in Table 6.

The progress of the construction has been followed up by March Charts prepared by construction Contractors in which environmental and archaeological constraints were incorporated as well as the construction sections. Each construction Contractor conducts their own pre-construction surveys considering the environmental and social items throughout the relevant section of the pipeline.

During ESIA Studies, as defined above, Cultural Heritage Managementinvestigation has been conducted on all of the identified Sites by using intensive survey method. 55 of these identified 161 archaeological and cultural heritage sites were registered as Protection Sites by the Ministry of Culture and Tourism, 106 were not previously known or registered. The 106 newly discovered sites were presented to the The Ministry of Culture and Tourism and revisited together with the representatives of "Regional Protection Boards for Cultural Assets", which act as the local authority and approximately 20% of these have been registered. Considering the current status of Cultural Heritage Management activities, 20 Chance Finds were discovered during the construction activities in all Lots in compliance with the legal requirements, of some of which are small settlements, some are ancient cemeteries/graves and/or terra cotta, waterline etc. Corrective actions implemented during this process were as; stopping the site activities, informing relevant museum authority, taking the actions upon their advice, route change if required upon the evaluation of the relevant Regional Protection Board decision. Along the TANAP pipeline route, there is no above ground structure as

Cultural Assets. Both Chance Finds and unavoidable areas are all under the ground.

The archaeological Sites that couldn't be avoided during routing studies are presented in below Table. Within these Sites, either test pit and salvage excavations were conducted and permission were received, or test pit and salvage excavation were conducted and route changes were done.

No	Location	Location	LOT	KP (km)	Name	Status
1	Erzurum /Horasan	Before Take Off 56 inch	LOT 1	220	DEVEAĞILI KURGANI	Test pit and salvage excavations were completed/ Route permission was received.
2	Erzurum / Yakutiye	Before Take Off 56 inch	LOT 1	307	TASMASOR II	Test pit and salvage excavations were conducted/ Then, **Route Change was done.**
3	Erzurum / Pasinler	Before Take Off 56 inch	LOT1	272	DEMİRDÖVEN	Test pit and salvage excavations were completed/ Route permission was received.
4	Eskişehir / Center	After Take Off 48 inch	LOT 4	1369	EMİR ÇİFTLİĞİ-1 (1 st degree)	Test pit and salvage excavations completed/ Route permission was received.
5	Eskişehir / Sivrihisar	Before Take Off 56 inch	LOT 3	1245	ÖRENBAĞLARI	Test pits were opened. Then, route change was done.
4	Eskişehir / Center	After Take Off 48 inch	LOT 4	1369	EMİR ÇİFTLİĞİ-2 (3 rd Degree)	Test pit and salvage excavations were completed/ Route permission was received.
6	Balıkesir / Gönen	After Take Off 48 inch	LOT 4	1671	Kavaktepe 3 rd Degree	Test pit was opened and permission was received.
7	Balıkesir / Manyas	After Take Off 48 inch	LOT 4	1632	Şevketiye 3 rd Degree	Test pit and salvage excavations were conducted/ **Route Change was done.**
8	Erzurum /	Before Take Off 56 inch	LOT 1	300	Dolangez Bastion	Test pits were opened and permission was received.
9	Balıkesir / Manyas	After Take Off 48 inch	LOT 4	1628	Hamamlı 1st and 3 rd Degree	Test pits were opened and **route change was done.**
10	Balıkesir / Manyas	After Take Off 48 inch	LOT 4	1627	Kalebayırı 1st and 2 nd Degree	Test pit and salvage excavations were conducted/ **Route Change was done.**
11	Balıkesir / Gönen	After Take Off 48 inch	LOT 4	1673	Kınalar 1st Degree	Test pits were opened, the archaeological settlement was prevented with a **route change,** remaining still inside the archaeological site. Permission was received.

Table 4 Action status follow-up table in unavoidable archaeological sites before construction phase

As a result, route change was implemented wherever possible. In some of the locations, permissions were received for the areas, which were judged to be not of high value, Site by the Authority, where the excavated sections were closed. For the other locations where route change hasn't been done and route permissions have been received as presented in above table 4, it was identified

that there is no archaeology potential and the borders of the archaeological Site has been kept wider to be on the safe side.

5.2. Overview of Impact Ranking

Detailed information about the Sites determined on the pipeline route w provided in the archaeological baseline report in Appendix 2.4 of the ESIA report and in Table6.

This table demonstrates the results of Project pipeline route archaeological studies during ESIA baseline studies. In this table, there is information about

Ssites located within five hundred (500) meter corridor of the pipeline route, discovered within these archaeological studies and previously registered by the Turkish Ministry of Cultural and Tourism.

The ranking given in Table 5 evaluated according to the below categories:

- Archaeological Site Locations;

  Names and detailed information about location of the Sites;

- Mitigation Suggestions;

  Experts' opinions provided to reduce the impacts on the Sites. Suggestion / Proposal could be unique for each site moreover more than one suggestion may be developeed according to significance, range and distance of the Sites from the construction corridor.

- Ranking of Magnitude of Predicted Impacts On Archaeological Area;

  The distance between the archaeological Sites and the construction corridor with construction zone of above ground facilities are tconsidered. The construction impacts over the archaeological Sites are determined in terms of international criteria[3]. GIS data place key role on determination of the construction impact degree.

- Site Details;

  Registration status of the archaeological Sites, details of the Protection Board decisions and the subjects playing key role on these decisions are summarized

Ranking	Description
1	No material change to the site or feature

3 Department for Transport UK, Design Manual for Roads and Bridges Part 2 HA 208/07 Cultural Heritage, Guidance on Heritage Impact Assessments for Cultural World Heritage Properties A publication of the International Council on Monuments and Sites January 2011

2	Very minor changes to archaeological materials, or setting
3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)
4	Changes to many key archaeological materials, such that the resource is clearly modified (Guide: 30-60% surviving deposits damaged or destroyed). Considerable changes to setting that affect the character of asset
5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide: 60-100% of surviving deposits damaged or destroyed). Comprehensive changes to setting

Table 5 Ranking Table of Archaeological Findings

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
1	Ayaz Gölü	Ardahan	5+780- 6+000	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. It is located within the 500m corridor at a distance of about 79 m. to the main axis. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
2	Tuya	Ardahan	13+950-14+000	No Change	1	No material change to the site or feature		x			The area conceals a "Fortress / Watch Tower". It is located 1 km southwest of Yurtbekler Village, 2 km north of Cambeli Village, 250-300 m north of Posof Creek over a rocky area. It is most probably built in Middle Ages. Part of the walls of a rectangular structure which resembles a small Fortress or Watch Tower is still standing. Registration process has been carried out by Kars Regional Board for Protection of Cultural Assets.It is located within the 500m corridor at a distance of about 136 m. to the main axis. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
3	Alabalık Deresi	Ardahan	50+850-50+950	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. It is located within 500 m. pipeline corridor at a distance of 42 m to the main axis. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
4	Kirmav Şapel	Ardahan	58+470-58+540	No Change	1	No material change to the site or feature		x			The area conceals a building which is most probably a Chapel. It is located 2 km south of Hanak, on the western bank of Cotsuyu Creek, on the north of Kirmav Fortress and about 1.5 km northwest of Cayagzi Village. The building was totally torn down but some rubble stones are observed on the surface. Considering the type of structure and surface findings it can be concluded that it belongs to Middle Ages. The area is located within the 500 m construction corridor at a distance of 69.6 m to the main axis. Registration process has been carried out by Kars Regional Board for Protection of Cultural Assets. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
5	Kirmav Düz Yerleşim	Ardahan	58+500-58+700	No Change	1	No material change to the site or feature		x		x	The area is a "Flat Settlement". It is located 2.5 km south of Hanak, 1 km northwest of Cayagazı Village, 500 m north of Kirmav Fortress. It is most probably a settlement related to Kirmav Fortress. In addition to potsherds, stone foundation belonging to an architectural structure were observed. The patterned pieces belonging to surface ceramics dates the location to Middle Ages. Registration process has been carried out by Kars Regional Board for Protection of Cultural Assets. The site is within the 500 m impact corridor of the pipeline and 185.24 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
6	Kartalpınar	Ardahan	71+400-71+580	No Change	1	No material change to the site or feature		x			The Huyuk is 1 km southwest of Kartalpinar village, 750 m north of Ortagecit Village on the northern slopes of Kura River. Intense potsherds were observed over the Huyuk surface. Some painted and patterned ceramics provide information about date of the area. Based on this information, the settlement is estimated to be used between Late Chalcolithic period to Early Bronze age. Registration process has been carried out by Kars Regional Board for Protection of Cultural Assets. The site is within the 500 m impact corridor of the pipeline and 27 m. away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
7	Ziyaret	Kars	139+500-139+590	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board (Ref. Document No:83416310/36.00.444791). It is located within the 500 m impact corridor. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
8	İnceçayır	Kars	143+580-143+600	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. The area is located within 500 m pipeline corridor 235 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
9	Yassıca Yamaç Yerleşimi	Kars	145+600-145+710	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. The area is a slope settlement. The area is located within 500 m pipeline corridor 38 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
10	Yassıca TepeüstüYerleşimi	Kars	145+720-145+850	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. The area is a slope settlement. The area is located within 500 m pipeline corridor 183 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
11	Koşapınar	Kars	149+750-150+250	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. The area is located within 500 m pipeline corridor 39 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
12	Kaledüzü	Kars	155+400-156+080	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. The area is located within 500 m pipeline corridor 52 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
13	Güllü	Kars	157+300-157+620	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. The area is located within 500 m pipeline corridor 38 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
14	Çatak	Kars	166+290-166+440	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. The area is located within 500 m pipeline corridor 142 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
15	Memorial & Military Trenches	Kars	170+100-182+700	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			Trenches, battlefields and war graves can be frequently seen on the 500 m corridor of the Tanap pipeline route. The trenches consist of square or rectangular shaped ground pits 2-2.5 m in depth and 10-20 m2 in size. The trenches have a single entrance and their inner walls and entrances are reinforced with stones. Tunnels connecting the trenches can also be seen. In the corners of some of these trenches, there are sections that might have been used as guard posts. A monumental tomb dedicated to war heroes is located on the vicinity of the Tanap pipeline route. Many scattered trenches and similar structures were observed on the corridor within the specified boundaries. On the other hand, no traces of such structures were observed on the Sahdeniz pipeline crossing and its surroundings. Therefore, it is recommended to cross the area as close as possible to the Sahdeniz line and conduct the construction Works under archaeological monitoring.
16	Kurt Deresi	Kars	172+400-173+350	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. The area is located within 500 m pipeline corridor 40 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
17	Yazılının	Kars	193+200-193+450	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Protection Board. The area is located within 500 m pipeline corridor 64 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
18	Deveağılı	Erzurum	219+180-219+380	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x	x		It is a "Kurgan" type pile-up tomb. It is located 800 m east of Gokce District, 750 m west of Deveagili Reef. It is about 1 m high and most probably belongs to Iron Age. According to Erzurum Protection Board decision dated 27.09.2013 with no.930, the site is registered as 1st. degree protection site. The board decision dated 19.12.2013 with no. 1002 states that archaeological excavaions are needed for the final decision.
19	Tabya Tepe	Erzurum		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)	x	x			The site is located on 3.5 km northwest of Köprüköy district and 1.5 km southwest of 23 Temmuz Lake in Tabyalar Mevkii. The area is planning to be used as Fly Camp/Pipe Stock Yard and consists of a bastion constructed during 1877-1878 Ottoman - Russian War. On the surface of the bastion constructed as rectangle plan soil masonry, pieces of cartridge were discovered with Ottoman writings on it. According to 28.02.2014 dated and 1084 numbered decision of Erzurum Protection Board of Cultural Assets, the site is stated Historical Site and the Fly Camp/Pipe Stock Yard should be planned outside of the site.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
20	Demirdöven Kilisesi	Erzurum	271+300-271+680	Negligible	2	Very minor changes to archaeological materials, or setting	x	x	x		The area covers an old church and a settlement area. It starts on the edge of the road connecting Pasinler-Demirdoven to the main road. The area is located about 750 m. southwest of the Demirdoven village centre. The church is on the hill located on the left handside of the road to the village and it is partially intact. It is contructed with block stones and rubbles. The area is registered with the Erzurum Presservation Board decision dated 27.09.2013 and numbered 926. With decision 19.12.2013 and numbered 1002, the board further decided that archaeological excavations are needed for final decision.
21	Askeri Beton Korugan 5	Erzurum	289+650-289+700	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 300 m southwest of Cogender Village, 500 m east of Yigittasi Village, 600 m north of highway from Erzurum to Pasinler. They were built during World War II against a possible Soviet invasion. The area is located 72 m away from the main construciton axis. It is recommended to carry out all construction activities in the region under archaeological monitoring.
22	Askeri Beton Korugan 4	Erzurum	289+920-289+950	Negligible	2	Very minor changes to archaeological materials, or setting		x			The Military Concrete Trenches are located 300 m southwest of Cogender Village, 500 m east of Yigittasi Village, 600 m north of highway from Erzurum to Pasinler. They were built during World War II against a possible Soviet invasion. The area is located 15 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
23	Askeri Beton Korugan 3	Erzurum	290+040-290+070	Negligible	2	Very minor changes to archaeological materials, or setting		x			The Military Concrete Trenches are located 300 m southwest of Cogender Village, 500 m east of Yigittasi Village, 600 m north of highway from Erzurum to Pasinler.They were built during World War II against a possible Soviet invasion. The area is located 15 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities physically avoding the trench under archaeological monitoring.
24	Askeri Beton Korugan 8	Erzurum	293+600-293+630	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1.5 km northwest of Ovaköy, 1 km southwest of Golcigez Village and 500 m west of Susuzlar Hill. They were built during World War II against a possible Soviet invasion. The area is located 110 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
25	Askeri Beton Korugan 9	Erzurum	293+650-293+680	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1,300 m north of Ovaköy, 1,500 m southwest of Golcigez Village. They were built during World War II against a possible Soviet invasion.The area is located 243 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
26	Askeri Beton Korugan 10	Erzurum	294+280-294+300	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1,600 m southwest of Saksı Village. They were built during World War II against a possible Soviet invasion. The area is located 89 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
27	Askeri Beton Korugan 11	Erzurum	294+300 - 294+320	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1,500 m southwest of Saksı Village. They were built during World War II against a possible Soviet invasion. The area is located 68 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
28	Askeri Beton Korugan 2	Erzurum	294+400-294+420	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1.5 km northwest of Ovaköy, 1 km southwest of Golcigez Village and 500 m west of Susuzlar Hill. They were built during World War II against a possible Soviet invasion. The area is located 312 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
29	Askeri Beton Korugan 1	Erzurum	294+510-294+530	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1.5 km northwest of Ovaköy, 1 km southwest of Golcigez Village and 500 m west of Susuzlar Hill. They were built during World War II against a possible Soviet invasion. The area is located 427 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
30	Askeri Beton Korugan 6	Erzurum	294+580-294+600	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 2 km south of Saksı Village, 500 m north of Erzurum highway. They were built during World War II against a possible Soviet invasion.The area is located 394 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
31	Askeri Beton Korugan 7	Erzurum	294+700-294+720	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 2 km south of Saksı Village, 500 m north of Erzurum highway. They were built during World War II against a possible Soviet invasion. The area is located 429 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
32	Dolangez	Erzurum	298+850-300+400	Negligible	2	Very minor changes to archaeological materials, or setting	x	x	x		The estate was registered as immovable cultural asset by the Higher Council of Historical Assets and Monuments on 15.05.1976 with decision A-65. Erzurum Board for Protection of Cultural Assets declared the location as protected area on 25.11.2011 with decision 71. The 48 m construction corridor passes through the protected area. On 19.12.2013 with decision no 1002, Erzurum Protection Board decided to conduct archaeological excavations before taking final decision. The board also requires detailed environment protection plan.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
33	Dolangez Yolu	Erzurum	299+700-300+220	Negligible	2	Very minor changes to archaeological materials, or setting		x			It is an old military road leading to Dolangez Bastions and was built by Sultan Abdulaziz in the 1820s. The stone paved road is 2 km long and 5 m wide. It starts on the Tilki Delikleri region near Tetikom and reaches to Dolangez Bastions. It is recommended that, for the section inside the construction corridor, the road pavement plan and other features should be documented before the construction and it should be restored based on the documents following the construction.
34	Değirmentepesi Kalesi	Erzurum	306+100-306+280	No Change	1	No material change to the site or feature		x			The area is a Citadel type of settlement. It is located east of the road from Çayırtepe to Koseahmet, over the Degirmentasi Hill, 1 km east of Tasmasor archaeological area, on the immediate east of Taslik Region settlement. The fortress was build over the terraces made on the hill. Some stone walls are still visible. Illegal excavation pits were observed in the area. Based on the surface findings, it could be concluded that the fortress belongs to middle ages. The area is 243 m away from the construction main axis. and registered as first degree protection site by Erzurum Protection Board decision numbered 27.09.2013, no: 930. As expert opinion it is recommended to conduct all construction activities uner archaeological supervision.
35	Tasmasor II	Erzurum	306+480-307+080	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x	x		The area is a "Flat Settlement" belonging to Middle Ages. It is located 2 km northeast of Cayirtepe Village and 1 km north of Tasmasor archaeological area. Potsherds belonging to Middle Ages were observed on the surface. Traces of structure walls built on a rectangular plan were also observed. Furthermore, illegal excavation pits dug by treasure hunters were noticed. The area is registered as first degree protection site by Erzurum Protection Board decision numbered 27.09.2013, no: 930. On 19.12.2013 with decision no 1002, the board further decided to conducts archaeological excavations before taking a final decision.
36	Ögutlu (Nalbant Köprüsü Yanı) Höyük	Gümüşhane	507+800-508+500	No Change	1	No material change to the site or feature		x			The area is a "Huyuk". Some findings most probably belonging to Neolithic, Chalcolithic, Bronze and Iron Ages were observed on the surface. It is located 1.5 km northwest of Ogutlu Village on the southern slopes of Balahar Creek. Resa Hill is on the west, Değirmen Hill is on the east and Yağlıbabanın Sırtı region is on the north of the Huyuk. It is approximately 13 m high and build over a rock. Potsherds belonging to different periods were observed over the surface. Some architectural traces most probably belonging to a structure were also encountered. The location was declared as the first degree protection zone by Trabzon Protection Board (23.03.2002 dated and 472 numbered board decision) . The area is 32 m away from the construction main axis. As expert opinion it is recommended to conduct all construciton activities under archaeological supervision.
37	Delimahmut Deresi	Sivas	631+490-631+570	No Change	1	No material change to the site or feature		x			The site is a "Slope Settlement" and dating back to Middle Age, located on the northeast of the road connecting the Dalimahmuz and Kapımahmut villages and the Delimahmüz River, and on 550 m South of Kurthamuru Hill. On the slope around the natural rock, some pieces of pottery examples dating to Middle age were discovered. The distance between the site and the construction area is 64m. Accoridng to 30.10.2013 dated and 1167 numbered decision of Sivas Protection Board of Cultural Assets, the site is registered as 1st degree site. Archaeological survey is recommended during all construction activities as an expert opinion.
38	Mezraa Mahallesi	Sivas	634+830-634+880	No Change	1	No material change to the site or feature		x			The area is a "Family Cemetery". It is located northeast of Imranli Dam, 300 m south of Mezra District, 600 m north of Mezarlik Hill, 1.5 km west of Kapimahmut Village. The area is located 94 m away from the construction main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
39	Küçük Söğüşger	Sivas	697+550-697+600	No Change	1	No material change to the site or feature		x			The area conceals a "Huyuk". On the surface, potsherds belonging to Chalcolithic and Bronze ages were observed. It is located 250 m east of Kucuksogusger Region, south of Hollukluk Region, 2 km north of Acisu river and 3 km south of Cimenyenice Village and Kızılırmak river. It is a small size Huyuk and some illegal excavation pits were observed on the surface. The area is declared as first degree protection zone by the decision of Sivas Protection Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
40	Dışkapı (Kemis)	Sivas		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)	x	x			It is a necropolis located in the area which is planned to be used as Sivas-Hafik Fly Camp and stock area. The area is located 1 km east of Hafik subprovince, about 800 m northeast of Diskapi district, on the South of the road from Hafik to Imranli. The area is located in the field belonging to the Agriculture Credit Union. The necropolis is most probably belong to the huyuk located in the Diskapi district. 4 architectural elements were discovered on the area. Three of the pieces are round in shape while the other is in rectangular shape. With height of 30 cm and diameter of 60 cm, these pieces may be basis of some structures. In addition to these elements some bricks made of baked clay were also observed on the surface. Numerous ceramics belonging to late Roman period were also discovered. Pieces of roman period sarcophagus made of baked clay and pieces of human bones are commonly encountered in the area. The area is declared as first degree protection zone by the decision of Sivas Protection Board with decision no 1167 dated 30.10.2013. Therefore no physical intervention is allowed in the area.

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No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
41	Küçük Pilavtepe	Sivas	711+250-711+300	No Change	1	No material change to the site or feature		x			The area conceals a Huyuk having 18 m diameter and 6 m height. It is located 300 m north of Buyukpilav Hill, 1 km south of Hafik - Sivas road. Illegal excavation pits and rubble stones belonging to architectural structures were observed on the southern slopes of the Huyuk. Some potsherds possibly belonging to Chalcolithic period were also observed. The location is 39 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Sivas Protection Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
42	Büyük Pilavtepe	Sivas	711+400-711+750	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Protection Board (decision no 1167 dated 30.10.2013). The area is located within the 500 m impact corridor 71 m away from the main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
43	Atçukuru Tepesi	Sivas	720+200-720+390	No Change	1	No material change to the site or feature		x			The area conceals a Huyuk. It is located 500 m north of Kizilirmak River, 200 m south of Tuzlugöl Lake and 1600 m south of Emre Village. The Huyuk is located on the Sagir Kayasi Region and has a height of 8 m. Intense potsherds belonging to Chalcolithic period were observed on the surface. The location is 177 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Sivas Protection Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
44	Kültepe	Sivas	737+750-738+040	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Protection Board (decision no 1167 dated 30.10.2013). The location is 28 m away from the construction main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
45	Evinüstü Sırtı	Sivas	763+480-763+560	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Protection Board (decision no 1167 dated 30.10.2013). The location is 28 m away from the construction main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
46	Köyözü	Sivas	768+920-769+490	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area is a "Slope Settlement". It is located 1.5 km north of Karacaoren Village, over the eastern slopes of Çomaklı Hill. The area covers both banks of the Köyözü Creek. Potsherds belonging to Roman period were spread over a large area. A pile-up cone probably covering a cairn or a tumulus is located in the area. Based on the findings, all construction activities are recommended to be carried out under archaeological monitoring.
47	Çomaklı Tepe	Sivas	769+750-769+810	No Change	1	No material change to the site or feature		x			This tumulus is used as visiting place in the modern period. It is located 2 km north of Karacaören Village over Çomaklı Hill and currently visited by locals. The location is 157 m away from the construction zone. The area is declared as first degree protection zone by the decision of Sivas Protection Board with decision no 1263 dated 12.12.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
48	Yanıkarmut Tepesi	Sivas	771+050-771+120	No Change	1	No material change to the site or feature		x			This huyuk type settlement is located in the Karacaoren village of Yildizeli district in Sivas province. It is a naturally formed settlement over the Yanıkarmut Hill at an altitute of 1460 m. the area is about 2.5 km northwest of Karacaoren Village and 1.2 km northwest of Karacoren dam. Oluklu creek is about 500 m west of the area. An illegal excavation pit with a depth of around 3 m was observed over the location. Some materials belonging to Chalcolithic period and early and middle bronze ages were observed on the surface. The area is declared as first degree protection zone by the decision of Sivas Protection Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
49	Argaz	Sivas		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)	x	x			It is an archaeological area related to water cult located in the area planned to be Sivas Yildizeli fly camp and stock area. It is located on the road from Yildizeli to Tokat about 2 km northeast of Yildizeli, 400 m North of Argaz farm, 400 m North of Argaz huyuk and 800 m northwest of Tekhuyuk. Ceramics, bone pieces and architectural rubbles belonging to Roman period were discovered on the area. A small water spring, feeding into a modern water channel is located next to the area where the above mentioned artefacts were found. The architectural rubbles (which might have been a result of destruction made during the construction of the channel and a chimney) discovered in the area might belong to an architectural structure related with the water spring (fountain, etc). The area is declared as first degree protection zone by the decision of Sivas Protection Board with decision no 1262 dated 12.12.2013. With the decision of the board further stated that no physical intervention shall be permitted in the area. As expert opinion it is recommended to change the location of the camp area or in case it is not technically possible to do so, ask for permission for construction with a justification letter.

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No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
50	Arpalık 3 (Arpalık Sarnıcı)	Yozgat	876+550-876+810	No Change	1	No material change to the site or feature		x			The area is most probably an open air ritual site. It is located 2 km east of Arpalik Village, 1 km southeast of Yılanlı Hill, 700 m northeast of Asikbaba hill. It is related with Arpalik 1 and Arpalik 2 areas. Human figures and some pits that were most probably dug for water supply were encountered. The area is formed of two pieces of rocks. Some potsherds were observed on the surface. The location is 30 m away from the construction zone. The area is declared as first degree protection zone by the decision of Kayseri Protection Board with decision no 954 dated 07.02.2014. Based on the findings, route change shall be necessary. Following the route change all construction activities have to be carried out under archaeological monitoring.
51	Arpalık 1 (Arpalık Kalesi)	Yozgat	876+980-877+500	No Change	1	No material change to the site or feature		x			The area is a Hilltop Settlement. It is located on the a rock hill which is 100m. north of Belekçehan and Arpalık village road. Painted potsherds belonging to Iron Age and Roman period were encountered on the surface. Potsherds and animal bones were discovered in the three illegal excavation pits made by treasure hunters on top of the hill. The area is 54 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Kayseri Protection Board with decision no 953 dated 07.02.2014. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
52	Alıçlıseki	Yozgat	883+950-884+000	No Change	1	No material change to the site or feature		x			The location is a tumulus dating back to Roman Period. It is located 1.8 km southeast of Ozan, 500 m of Alacaardic Hill, 2 km west of Kucukkizildag Hill over the Alicliseki hilltop. The area is 41 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Kayseri Protection Board with decision no 955 dated 07.02.2014. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
53	Kurupınar	Yozgat	915+060-915+260	Moderate	4	Changes to many key archaeological materials, such that the resource is clearly modified (Guide: 30-60% surviving deposits damaged or destroyed)	x	x			The site is a "Flat Settlement" and located in 1 km south of Sarıhamzalı village, 1 km northeast of Kepirce village, 500m north of Kurupınar Mevkii and just on south of Sarıhamzalı Tumulus. On both sides of the site there are two rivers surrounding. On the field surface of the area, Roman pottery pieces form Roman Period, painted and unpainted potsherds, terra cotta tile pieces and some human bones are discovered. According to 21.02.2014 dated and 974 numbered decision of Kayseri Protection Board of Cultural Assets, the site is registered as 1st degree site and the route change is accepted. After this decision the distance between the site and construction area became 52m. during all construction activities, archaeological survey is recommended as an expert opinion.
54	Yazılıtaş	Yozgat	920+110-920+220	No Change	1	No material change to the site or feature		x			The site is a "Flat Settlement" located within the boundaries of Yazılıtaş village in Sorgun district, Yozgat, on the left of Yazılıtaş-Akoluk road, in the agricultural land. According to surface pottery findings, the site is dated to Roman and Byzantine Periods. The distance between the site and the construction area is 67m. According to 01.03.2013 dated and 762 numbered decision of Sivas Protection Board of Cultural Assets, the site is registered as 2nd degree site. During all construction activities, archaeological survey is recommended as an expert opinion.
55	Kaleycikkaya	Yozgat	920+150-920+200	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Protection Board. The area is 113 m away from the construction area. Construction activities in the vicinity of the region should be carried out under archaeological monitoring.
56	Kaleycikkaya	Yozgat	920+960-921+150	Moderate	4	Changes to many key archaeological materials, such that the resource is clearly modified (Guide: 30-60% surviving deposits damaged or destroyed)	x	x			The site is a "Hilltop Settlement" and located 1km north of Yazılıtaş village, 1.5 km southeast of Boz Tepe and 600 northeast of Bırcalık Tepe, on a rock hill. Potsherds dating to Neolithic and Chalcolithic Periods are the main findings of the surface. Besides potsherds, bone pieces and 1 piece of flint blade are discovered. Also a treasure pit (illegal excavation) discovered within the area. According to 21.02.2014 dated and 971 numbered decision of Kayseri Protection Board of Cultural Assets, the site is registered as 1st degree site. With the same numbered and dated decision the route change is also accepted. After the route change the distance between the site and the construction area became 99m. During all construction activities archaeological survey is recommended as an expert opinion.
57	Karadeli Çeşmesi (Ümmet Tepe)	Yozgat	924+550-924+600	No Change	1	No material change to the site or feature		x			The site is a "Tumulus" and located on 1 km northwest of Peyniryemez village, on the southwest of Ümmet Tepe and 1.5 km northeast of Çakırhacılı village. The tumulus is damaged by treasure hunters. There are few potsherds and remains of architectural elements around the site. The distance between the site and the construction area is 81.5m. According to 01.03.2013 dated and 762 numbered decision of Sivas Protection Board of Cultural Assets, the site is registered as 2nd degree site. During all construction activities around the area, archaeological survey is recommended as an expert opinion.
58	Zekeriye	Yozgat	929+050-929+080	No Change	1	No material change to the site or feature	x	x			The site is registered as 1st degree site by Sivas Protection Board of Cultural Assets. The distance between the site and the construction area is 17m. The construction activities around this site shall be carried out in a reduced area and shall not be disturb the area within which the boundaries are defined. Besides this precaution, during all construction activities around the site, archaeological survey is recommended as an expert opinion.

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No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
59	Yenicederesi	Yozgat	937+630-937+850	No Change	1	No material change to the site or feature		x			The site is "Hilltop Settlement" and located on 1 km south of Tekkeyenicesi village and on the top of two contiguous hills. Potsherds of the surface indicate the Iron Age. The distance between the site and the construction area is 113m. According to 212.02.2014 dated and 973 numbered decision of Kayseri Protection Board of Cultural Assets the site is registered as 1st degree site. During all construction activities around the area, archaeological survey is recommended as an expert opinion.
60	Tekkeyenicesi	Yozgat	937+790-937+950	No Change	1	No material change to the site or feature		x			The area is a Cemetery. It is located on the south of Tekkeyenicesi Village. The area is 41 m away from the construction zone. It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
61	Tekkeyenicesi Tümülüsü (Kuştepesi Tümülüsü)	Yozgat	938+120-938+180	No Change	1	No material change to the site or feature		x			The site is a tumulus registered as 2nd degree site by Sivas Protection Board of Cultural Assets. The distance between the site and the construction area is 86m. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
62	Avgın	Yozgat	940+500-940+600	No Change	1	No material change to the site or feature		x			The area is a slope settlement. Based on the surface findings, it can be concluded that it belongs to Iron Age. It is located 2 km east of the Çalılı Village, 500 m away from the road connecting Çalılı and Tekkeyenicesi Villages. The area is located 25 m away from the construction zone. It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
63	Çalılı 2	Yozgat	942+300-942+400	No Change	1	No material change to the site or feature		x			It is located 650 m southeast of Çalılı Village on the slopes of the hill known as Mezarlık ridge. The area is an "Old Cemetery". It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
64	Çalılı 1	Yozgat	943+280-943+350	No Change	1	No material change to the site or feature		x			It is located 500 m south of Çalılı Village, 100 m north of Taşlıdölek region. The area is an "Old Cemetery". It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
65	Taşlıdölek	Yozgat	944+140-944+500	No Change	1	No material change to the site or feature		x			The site is a "Hilltop Settlement" located on 1,2 km west of Çalılı village, alongside of the road from Kayseri to Yozgat, in 100 m south of Kazanpınarı Tumulus. On the field surface, density of potsherds, terra cotta roofing tiles and remains of architectural elements dating to Late Roman - Byzantine Periods, along with metal and glass artifact pieces and bright glazed potsherds. The distance between the site and the construction area is 220m. According to 21.02.2014 dated and 972 numbered decision of Kayseri Protection Board of Cultural Assets, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
66	Çalılı 2 Tümülüsü	Yozgat	944+350-944+490	No Change	1	No material change to the site or feature	x	x			The site is a "Tumulus dated to Roman Period and located on 1 km west of Çalılı village, alongside of the Çalılı village road from Kayseri-Yozgat main road, and 600m south of Kazanpınarı Mevkii. On the field surface, two treasure pits (illegal excavation) were determined. According to 24.05.2013 dated and 916 numbered decision of Sivas Protection Board of Cultural Assets, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended. If the route can not be cahged, a justified report must be prepared and expert opinion must be requested form authorized institution.
67	Killiarkaç	Yozgat	947+550-947+700	No Change	1	No material change to the site or feature		x			The area is a slope settlement. It is located 1.5 km northeast of Lökköy village, 700 m northeast of Paşalıhöyüğü region, 600 m south of Killiarkaç ridge over the slopes of a dry creek. Potsherds belonging to late Roman period and roof tile pieces were observed on the surface. The area is 48 m away from the construction zone and is in the process of registration by the Kayseri Protection Board. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
68	Erkekli	Yozgat	954+680-955+010	No Change	1	No material change to the site or feature		x			The site is a "Flat Settlement" and located 1 km south of Yozgat-Yerköy main road, 1,8 km southwest of Yukarıelmahacılı village and 600 m east of Kuştepe. On the field surface potsherds dated to Early, Middle and Late Bronze Ages are discovered. The distance between the site and the construction area is 32m. According to 01.03.2013 dated and 762 numbered decision, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
69	Ziyaret Mevkii	Yozgat	956+550-956+650	No Change	1	No material change to the site or feature		x			The area is a flat settlement. Based on the surface findings, it can be concluded that it belongs to Iron Age. It is located about 1.5 km west of Erkekli village, 250 m north of Ziyaretmevkii, 1 km east of Bozoğunhöyüğü Region spread over the banks of Mısırözü Creek. Architectural foundation stones belonging to a 4x4 m structure were observed on the area. The area is in the process of registration by the Kayseri Protection Board. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
70	Yukarıelmahacıl ı	Yozgat	973+960-974+080	Negligible	2	Very minor changes to archaeological materials, or setting		x			The site is a "Flat Settlement" and located 1 km south of Yozgat-Yerköy main road, 1,8 km southwest of Yukarıelmahacılı village and 600 m east of Kuştepe. On the field surface potsherds dated to Early, Middle and Late Bronze Ages are discovered. The distance between the site and the construction area is 32m. According to 01.03.2013 dated and 762 numbered decision, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
71	Yukarıelmahacıl ı	Yozgat	974+050-974+110	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Protection Board. The area is located 95 m away from the construction main axis. Construction activities in the vicinity of the region should be carried out under archaeological monitoring.
72	Çatalarkaç	Yozgat	979+850-979+920	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Protection Board and was declared as first degree protection site.The area is located 235 m away from the main construction axis. Construction activities in the vicinity of the region should be carried out under archaeological monitoring.
73	Külyarma 2	Kırşehir	987+650-987+680	No Change	1	No material change to the site or feature		x			The area is a Tumulus type tomb. It is one of the two tumuli located in Külyarma Region. Traces of illegal excavations of treasure hunters were observed on top of the tumulus. As it is the case with the other tumulus, potsherds belonging to Hellenistic and Roman periods were encountered in the excavated pits. Registration by the Nevsehir Protection Board is in progress. It is recommended to carry out all construction activities under archaeological monitoring.
74	Külyarma 1	Kırşehir	987+650-987+680	No Change	1	No material change to the site or feature		x			The area is a Tumulus type tomb. It is one of the two tumuli located in Külyarma Region. Traces of illegal excavations of treasure hunters were observed on top of the tumulus. Potsherds belonging to Hellenistic and Roman periods were encountered in the excavated pits. Registration by the Nevsehir Protection Board is in progress. It is recommended to carry out all construction activities under archaeological monitoring.
75	Tuzla Köprüsü	Yozgat	1003+380-1003+420	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Protection Board. The area is located 153 m away from the main construction axis. Construction activities in the vicinity of the region have to be carried out under archaeological monitoring.
76	Tuztepe	Yozgat	1005+350-1005+440	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Nevşehir Protection Board (Ref. No. 96743921/ 40.00.0.182). The area is located 95 m away from teh main construction axis. As expert opinion it is recommended to conduct all construction activities in the vicinity of the region under archaeological monitoring
77	Aralısarı	Kırıkkale	1047+700-1048+150	No Change	1	No material change to the site or feature		x			The area is a "Slope Settlement". It is located about 1.5 km northwest of Besler village. A water resource known as Aga Cesmesi is at the south of the area. Intense potsherds belonging to Roman period were observed on the surface. In addition, pieces of bones, other pieces possibly belonging to glass ornaments and architectural block stones were also observed. The location was declared as third degree protection zone by Ankara Protection Board No 2 by decision no 656 dated 24.10.2013. The area is 112m away from the construction main axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
78	Yeniyapan	Kırıkkale	1059+400-1059+500	No Change	1	No material change to the site or feature		x			The area which is located 1 km northwest of Yeniyapan village on the side of Kayseri state road is a flat settlement. Potsherds most probably belonging to Bronze Age were observed on the surface. The area and surroundings are intensely used for agriculture. It is recommended to carry out all construction activities under archaeological monitoring.
79	Maşattepe	Kırıkkale	1063+800-1063+850	No Change	1	No material change to the site or feature		x			The cemetery is located over the Masal hill which is 500 m south of Gülkonak Village. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring avoiding the part of the cemetery remaining in the construction corridor.
80	Roma Su Kanalı	Kırıkkale	1075+250-1075+350	No Change	1	No material change to the site or feature		x			The location was declared as the third degree protection zone by Ankara Protection Board No 2. The area is 213 m away from the Tanap construction axis. Construction activities in the vicinity of the region have to be carried out under archaeological monitoring.
81	Fatmatepesi Sırtı	Ankara	1120+560-1120+590	No Change	1	No material change to the site or feature		x			The tumulus having a diameter of 4.5 m diameter and a height of 1 m. is located at the south of Fatmatepesi Ridge on the area which is currently used for agriculture. Most probably it belongs to the Roman period.The area was declared as first degree protection site by Ankara Protection Board no 2 with the decision 656 dated 24.10.2013. The location is 48 m away from the construction axis. It is recommended to conduct all construction activities under archaeological monitoring.
82	Gölderesi	Ankara	1128+480-1128+600	No Change	1	No material change to the site or feature		x			The slope settlement is located southwest of Yöreli Village. Some architectural remains (column pieces and marble blocks) probably belonging to the Roman period were observed around the canals surrounding the swamp area. One of the column pieces bears an inscription. A marble block has an inscription in Ottoman language. Roof tiles and potsherds were observed on the hill located southwest of the swamp. The location is 136 m away from the construction axis. The area was declared as third degree protection site by Ankara Protection Board no 2 with the decision 656 dated 24.10.2013. It is recommended to conduct all construction activities under archaeological monitoring.

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No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
83	Gavurkale	Ankara	1133+950-1134+050	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Ankara Protection Board No 2. The area is located 231 m away from the construction axis. Construction activities in the vicinity of the region have to be carried out under archaeological monitoring.
84	Kırıklı	Ankara	1141+700-1142+050	No Change	1	No material change to the site or feature		x			The area carries potential archaeological risk. Potsherds having archaeological value were observed within the construction corridor located in the north section of the Kırıklı Huyuk protection site (Chalcolithic, Bronze, Iron Age). The archaeological site may possibly extent (lower settlement, necropolis, etc.) towards the pipeline construction corridor. The area is 131 m away from the construction axis. It is recommended to carry out construction activities under archaeological monitoring.
85	Kırıklı	Ankara	1141+830-1141+850	No Change	1	No material change to the site or feature		x			The location is declared as a first degree protection zone by the decision no 5448 dated 15.10.2010 of the Ankara Protection Board No 1. It is 239 m away from the construction axis. Construction activities in the region has to be implemented under the archaeological monitoring.
86	Çakıllı	Ankara	1154+000-1154+400	No Change	1	No material change to the site or feature		x			The cemetery belonging to Ottoman period is located 3 km northeast of Dikilitaş village. Some architectural elements such as column pieces and marble blocks were observed on the area surface. The location is 130 m away from the construction axis. All construction activities around the cemetery have to be carried out under archaeological monitoring.
87	Küllük	Ankara	1205+580-1205+750	No Change	1	No material change to the site or feature		x			The cemetery is located 2 km northeast of Çanakçı Village and 600 m south of the road between Türkkarsak and Tatlıkuyu Villages. The location is 1 km northeast of the Akgedik Hill and 600 m south of Küllük hill. The location and environs are used for agriculture. Rows of tombstones in rectangular form were observed in the area. In addition, tips of few tombstones were discovered. The cemetery most probably belongs to late Ottoman and early Republic period. The location is 46 m away from the construction axis. It is recommended to carry out construction activities under archaeological monitoring.
88	Altınini	Eskişehir	1230+750-1231+120	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Protection Board. It is located 111m away from the construction axis. As expert opinion it is recommended to conduct all construction activities around the archaeological area under archaeological supervision.
89	Örenbağları	Eskişehir	1239+300-1239+700	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Protection Board. It is located 124 m away from the construction axis. As expert opinion it is recommended to conduct all construction activities around the archaeological area under archaeological supervision.
90	Kurupınar	Eskişehir	1250+900-1251+150	No Change	1	No material change to the site or feature		x			This slope settlement is located on the state highway from Eskişehir to Sivrihisar on the both slopes around the Boğaziçi creek which is close to the point where the pipeline crosses. In a newly opened water trench, some architectural elements and potsherds most probably belonging to bronze age were observed. On the fields, some columns and other architectural elements such as an architrave were revealed as the result of agricultural activities. The settlement was most probably used in the Bronze age and the Roman period. The location is 233 m away from the construction axis. The area is in the process of registration by the Eskişehir Protection Board. As expert opinion, it is recommended to carry out all construction activities in the region under archaeological monitoring.
91	Seydi Çayı	Eskişehir	1323+440-1323+550	No Change	1	No material change to the site or feature		x			The area carry potential archaeological risk. Potsherds and roof tiles belonging to Roman and Early Byzantine periods were located on the fields east of Dogancayir village between Seydi creek and Hamidiye - Doğançayır road. The location is 181 m away from the construction axis. The intensity of the findings is low. Therefore it shall be sufficient to conduct construction activities under archaeological monitoring.
92	Zafer Tepesi	Eskişehir	1329+450-1329+550	No Change	1	No material change to the site or feature		x			This slope settlement is located 2 km south of Zafer Hill and by the site of irrigation canals. Mortar, roof tiles and potsherds were observed on the surface. Among the discovered pieces, the glazed potsherds may belong to Byzantine or Ottoman period. The area is 47 m away from the construciton axis. Therefore it shall be necessary to conduct all construction activities under archaeological monitoring.
93	Koca Murat	Eskişehir	1329+750-1329+800	No Change	1	No material change to the site or feature		x			The slope type settlement is located 300 m. north of Kocamurat hill. A treasure hunter excavation pit was found on the settlement. The settlement is about 5 m high. The terracotta tablets and few potsherds indicate that it belongs to the Roman period. The lcoation is 125 m away from the construction axis. Eskisehir Protection Board has initiated a registeration process. As expert opinion, it is recommended to carry out construction activities in the area under archaeological monitoring.
94	Koca Murat Tepesi 2	Eskişehir	1329+820-1329+900	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Protection Board. It is located 112 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.

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95	Koca Murat Tepesi 1	Eskişehir	1329+950-1330+040	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Protection Board. It is located 143 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
96	Güllü Höyük	Eskişehir	1330+180-1331+000	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Protection Board. It is located 97 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
97	Büyükdere	Eskişehir	1332+700-1333+350	No Change	1	No material change to the site or feature		x			The huyuk with a height of 6 m is located on the left hand side of the road from Aksaklı to Büyükdere. Potsherds probably belonging to bronze and iron ages and roof tiles probably belonging to an architectural structure have been observed on the surface. The huyuk was destroyed due to intense agricultural activities and spread over the area. The area is 112 m away from the construction axis. Eskisehir Protection Board initiated a registration process for the area. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
98	Üçkuyu Sırtı	Eskişehir	1332+850-1333+360	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskisehir Protection Board. It is located 207 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
99	Toraman Sırtı	Eskişehir	2+500-3+000	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The area is a "Slope Settlement" located on the Eskisehir Offtake route. It is located upper part of the region known as Toraman Ridge. Potsherds and rubbles probably belonging to an architectural structure were observed on the surface. Potsherds belong to middle ages. Eskisehir Protection Board has initiated a registration process (ref document: 42244183-GNL/21-23, 03.01.2014). As expert opinion, route change is recommended for the part remaining in the construction corridor and following the route change conduct all construction activities in the region under archaeological monitoring.
100	Kale Yerleşimi ve Tümülüsü	Eskişehir	16+600-16+800	No Change	1	No material change to the site or feature		x			The area is a Huyuk settlement located on the Eskisehir Offtake route. It is located 1.3 km northwest of Yuruk Karacaoren village and 400 m. southeast of Akpınar Ridge. Two illegal excavations were observed on the road from Yuruk Karacoren to Eskisehir Industry Zone. Some traces of architectural foundation were observed on the huyuk located over a natural hill. Based on the potsherds observed on the surface it is estimated that the location was inhabited during Bronze and Iron Ages. The area is registered by the Eskisehir Protection Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
101	Bakırcı Höyüğü	Eskişehir	23+000-23+500	No Change	1	No material change to the site or feature		x			The area is a Huyuk settlement located on the Eskisehir Offtake route. It is located among the agricultural fields about 850 m north of Sevinc Village. No agricultural activities were conducted on the area and it is well preserved. Huyuk is spread over a relatively large area. Based on the potsherds observed on the surface it is estimated that the area was inhabited in Bronze and Iron Ages. The area has been registered as a first degree archaeological site by the Eskisehir Protection Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
102	Şaplı Höyük Mevki	Eskişehir	25+500	No Change	1	No material change to the site or feature		x			The area is a "Flat Settlement" located on the Eskisehir Offtake route. It is located 2 km norht of Sevinc Village among the agricultural fields located in the region known as Sablah hoyugu Mevkii. The cone of huyuk is visible on 1/25.000 scale maps but was destroyed probably by agricultural activities. The block and rubble stones revealed during the destruction were used to mark corners of the fields. Cultural layers may still exist under the gorund. The potsherds observed dates back to Iron Age, Hellenistic and Roman Periods. The area is registered by the Eskisehir Protection Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
103	Dudu Höyük	Eskişehir	29+000-29+500	No Change	1	No material change to the site or feature		x			The area is a Huyuk settlement located on the Eskisehir Offtake route. It is located 2400 m south of Cumhuriyet village and 2600 northeast of Hasanbey district. The highest point of the huyuk is about 7 m. the huyuk spreads over an area which is 360 m at the south while the widest poing over the east west direction is 130 m. Pieces of ceramic reliefs dating back to Hitite period were observed on the surface. Some glazed potsherds carrying characteristics of middle bronze ages were also observed. Pieces of roof tiles are also among the findings. The area is registered by the Eskisehir Protection Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
104	Emir Çiftliği ve Çevresi	Eskişehir	1362+600-1366+800	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The areas was registered by Eskisehir Protection Board with decision no 1821 dated 13.09.2013. The board does not allow any construction activities in the region as stated by letter no 42244183-720-2504. As expert opinion, route change is recommended for the section located within the construction corridor and after the route change conducting all construction activities under archaeological supervision. In case route change is not possible due to technical reasons. Application should be made to the Board with a justification letter.

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105	Emirinçiftliği Mezar Anıtı	Eskişehir	1363+500-1364+050	No Change	1	No material change to the site or feature	x	x			There are many rock tombs and a rectangular shaped cult area in the region. It is located 2.3 km northeast of Gokcekisik Village and 0.9 km norhteast of Teke Tepe. The tombs were carved over the rock formation located on the south of the area. The tombs resemble Phrygian structures and each has size of approximately 6 x 4 x 2.3 m with an entrance of 3.5 m x 2 m. Small niches were observed on the walls. The cult area has rectangular shaped with a visible entrance. Eskisehir Protection Board initiated the registration process. The route has to be moved at least 100 m away from the construction corridor as stated by the Board decision no 1777 date 11.09.2013.
106	Gökçekısık	Eskişehir		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)	x	x			Area is flat settlement.Some potsherds fragments were observed on the surface in Pipe Stock Yard which located about Eskişehir-Merkez- Gökçekısık village. There are Phyrigian settlement in Northwest of the Gökçekısık village and arrounds and registered as 1st. Degree archaeological area. The potsherd fragments which observed in Pipe Stock Yard may belongs to Phyrigian settlement at Gökçekısık as a different archaeological settlement. Eskisehir Protection Board has initiated the registration process. As stated on letter 42244183-720-2504, the location of the camp site have to be changed.
107	Emirçiftliği Yörük Mezarlığı 1	Eskişehir	1365+280-1365+370	No Change	1	No material change to the site or feature		x			The are is declared as first degree protection zone by Eskisehir Protection Board. It is located 116 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
108	Kümbetakpınar	Eskişehir	1392+880-1393+300	No Change	1	No material change to the site or feature		x			The slope settlement is located at the north of Kümbetakpınar Village and south of Çambayır Hill about 700-800 m east of Kocakalemli area. Stones belonging to an architectural structure, potsherds and roof tiles dating to Ottoman period were observed on the surface. It is located 106 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
109	Haşhaşlık Tepe	Eskişehir	1400+450-1400+850	No Change	1	No material change to the site or feature		x			The formation resembling a huyuk is at 3 km northeast of Dereyalak Village and 3.5 km northwest of Aşağı Kuzfındık Village on the southern slopes of Haşhaşlık hill at immediate north of Karcık creek. Intense potsherds roughly belonging to middle ages have been observed on the surface. At the west of the location a pathway and a simple bridge is located. No architectural remains were observed on the slopes but scattered stones indicate the presence of an architectural structure on the hill. The area is currently used for agriculture. Potsherds are more intense on the slopes as compared to the top of the hill. The are is very convenient for a settlement with the surrounding forests, proximity to water spring and suitability for agriculture. The area is located 138 m away from the construction axis. Eskisehir Protection Board initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
110	Karcık Höyük	Eskişehir	1401+750-1402+120	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Protection Board. It is located 147 m away from the construciton axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
111	Yeni Üreğil	Bilecik	1415+180-1415+230	No Change	1	No material change to the site or feature		x			This a tomb structure in the form of a tumulus. It is located about 1.5 south east of Yeni Üreğil Village and 1 km northwest of Hasan hill over a terraced plain. The tomb structure may belong to any period between Phrygian and Roman. No artefacts that could help to dating is observed. It is located 102 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
112	Yeşilçukurca	Bilecik	1419+280-1419+360	No Change	1	No material change to the site or feature				x	The modern cemetery about 400 m west of Yeşilçukurca village is currently used by the villagers. No archaeological mitigation measures are necessary during the construction activities.
113	Düzağaç	Bilecik	1422+650-1423+100	No Change	1	No material change to the site or feature		x			The slope settlement and Necropolis is located 1 km south of Düzağaç village. The area covers both banks of the Küçükçayır creek. Stone debris and roof tile pieces were observed on the surface. It is located 141 m away from the construction axis. Eskisehir Protection Board initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
114	Selimdede Tepesi	Kütahya	1432+600-1434+300	No Change	1	No material change to the site or feature		x			The archaeological area and the shrine is located 1.5 km south of Çukurca Village, 2 km northeast of Muratlı village. The area resembling a natural hill is at the south of Akçaalan reef. Iğder creek passes over the southern slopes. A shrine for a dervish named Selim Ata (1320-1400) who lived in Murat I period is located over the hill. In addition to the main structure with an unknown date, there is a chapel structure (masjid). A fountain, a concrete building for public gatherings and toilets are also present. The area was terraced before the shrine was built. On the same hill, close to the shrine, there is a fountain structure. Four columns and some architectural elements belonging to Roman or Byzantine period were used in the construction of the fountain.

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											The hill has archaeological importance with the scattered architectural remains made of baked clay and potsherds. All construction activities around the site should be carried out under archaeological monitoring.
115	Muratlı	Kütahya	1435+700-1436+350	No Change	1	No material change to the site or feature		x			The slope settlement is on the west and south slopes of the hill located at the north of Muratlı Village. Potsherds and roof tile pieces belonging to middle ages were observed over the surface. It is located 128 m away from the construction axis. Kutahya Protection Board has initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
116	Ahmet Sırtı	Kütahya	1436+400-1436+500	No Change	1	No material change to the site or feature		x			The tumulus type tomb is located at immediate east of Çukurca junction of the Muratlı-Ilıcaksu road about 800 m southeast of Ilıcaksu village. The tumulus is about 4 m high and most probably belongs to Iron age. There are agricultural fields over the tumulus.The area is located 98 m away from the construction axis. Kutahya Protection Board has initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
117	Arapdede	Kütahya	1456+850-1456-950	No Change	1	No material change to the site or feature		x			The shrine is located on the Killik hill which is 2.8 km north of Saruhanlar village. The shrine is in a structure with stone walls and roof tiles which is built like other houses in the village. A sarcophagus made of concrete which is about 5 m long in the form of a grave is located in the shrine. An irregular stone wall surrounds the shrine and forms a porch. The building is not currently in use. The area is located 130 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
118	Çayırağzı Sırtı	Kütahya	1461+700-1462+100	No Change	1	No material change to the site or feature		x			The area is a hill top settlement. Cayagazi ridge has a shape of wide spread hill and located at 800 m east of Soğucak village and 300 m south of Orhaneli creek, on the north of the road to Böçen village. Intensive roof tiles were observed on the hill top. It is estimated that the area is a middle age settlement composed of a few houses. The ridge is currently used for agriculture and the surface discoveries were located on a big rock formation. The area is located 209 m away from the construction axis. Kutahya Protection Board has initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
119	Soğucak	Kütahya	1461+880-1462+050	No Change	1	No material change to the site or feature		x			The modern cemetery is located 600 m east of Soğucak Village and 200 m west of Çayırağzı ridge. The cemetery is surrounded by a stone wall. A small section on the south is located within the construction corridor. The area is located 63 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
120	Nalbant	Bursa	1479+200 - 1479+650	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The site is a "Flat Settlement" located 800 m north of Nalbant village in Harmancık district and 700 m south of Danişment village in Hoban district. This archaeological site is divided in two by the asphalt road passing through. On the surface field pieces of rough pottery examples dated to Roman period are discovered which are more dense on the eastside of the road. On 100 m southeast of the area and within 500 m corridor of the pipeline route, there are Demir Kaynak Türbesi and Modern Cemetery. In the cemetery, spolien used of marble stone blocks of architectural elements are determined. A route change is accepted for the area that the boundaries are defined and the distance between the site and the construction area is 23m. During all construction activities around the area, archaeological survey is recommended as an expert opinion.
121	Üycekdede	Bursa	1488+750-1488+900	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection site by Bursa Protection Board. The area is located 106 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
122	Dereköy	Bursa	1503+400-1503+500	No Change	1	No material change to the site or feature		x			The modern cemetery belongs to Dereköy. The area is located 36 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
123	Dallıca Köyü	Bursa	1573+550-1573+800	No Change	1	No material change to the site or feature		x			This modern cemetery is located 1 km northeast of Dallıca Village and 600 m west of Yarlıyatak Hill. It is located within the 500 m pipeline corridor 41 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.. It is recommended to carry out all construction activities under archaeological monitoring.
124	Arnavut Sırtı	Bursa	1585+750-1585+900	No Change	1	No material change to the site or feature		x			The location was declared as the first and second degree protection zone by Bursa Protection Board. The area is located 96 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
125	Ekinlitepe Mevkii	Balıkesir	1597+800-1598+050	No Change	1	No material change to the site or feature		x			The slope settlements is located 2.5 km west of Göbel and 2 km south of Muradiye. The area is currently used for agriculture. Intense potsherds belonging to Byzantine period and clay roof tiles were observed on the surface. The area is declared as first degree protection site by Bursa Protection Board with decision 2534 dated 11.11.2013. The area is located 33 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
126	Kalebayırı	Balıkesir	1617+950-1618+150	No Change	1	No material change to the site or feature		x			The location was declared as the first and second degree protection site by Bursa Protection Board. The area is located 167 m away from the construction axis. As expert opinion, it is recommended to conduct all

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											construction activities in the region under archaeological supervision.
127	Kalebayırı Arkeolojik Alanı	Balıkesir	1618+600-1619+000	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x	x		The location was declared as the first and second degree protection zone by Bursa Protection Board. Route change is necessary for the location where the boundaries are defined. Following the route change, construction activities in the region have to be carried out under archaeological monitoring.
128	Hamamlı	Balıkesir	1619+200-1619+900	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x	x		The location was declared as the first and third degree protection zone by Bursa Protection Board. Route change is necessary for the location where the boundaries are defined. Following the route change, construction activities in the region have to be carried out under archaeological monitoring.
129	Şevketiye	Balıkesir	1622+400-1624+750	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The site is a "Hill Settlement" located on hilltops include Çadır Tepe on 1.4 km northeast of Şevketiye village, and just on west of the finding area Boyalık Tepe located 2.2 km south of Akçaova village. The site draws attention with its proximity to natural resources. On the field surface, lots of potsherds and pieces of roofing tiles are discovered. According to findings the site can be dated to Late Roman Period. Bursa Protection Board of Cultural Assets registered the site as 2th degree archaeological site by 14.02.2014 dated and 2960 numbered decision. According the same decision of the board, the field work must carried out by supervision of the related museum.
130	Bekirağa Tepesi	Balıkesir	1626+350-1626+700	No Change	1	No material change to the site or feature		x			The slope settlement is located 1.6 km east of Bayramiç village and 2.4 km southwest of Akçaova village. Potsherds and pieces of roof tiles made of baked clay were observed on the surface. Discovered pieces indicate that the area may belong to late Roman - Early Byzantine period. The area is located 208 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
131	Kapaklıçeşme	Balıkesir	1628+700-1630+050	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The site is a "Hill Settlement" located 1.5 km north of Bayramiç village, around the Kapalıçeşme Mevkii on 800 m west of Kocakoru Tepesi. On the field surface, a large quantity of Middle Age pottery and terr cotta roofing tiles are discovered. In the surrounding of the site, agricultural activities are still in progress. According to 14.02.2014 dated and 2959 numbered decision of Bursa Protection of Cultural Assets, the site is registered as 3rd degree site; however this registered area is not located within the 500 m corridor of the pipeline route. When the expert opinion and digital data are considered, for the part of the area within the construction corridor, archaeological test pits are necessary. According to excavation results and decision of the related board, all construction activities should be archaeologically supervised if necessary.
132	Çeşmebayırı Sırtı	Balıkesir	1631+100-1631+700	Negligible	2	Very minor changes to archaeological materials, or setting		x			The area is most probably a slope settlement and located on 4 km southwest of Asmalıdere village, 1 km southeast of Yeltepe and 1.5 km south of Bağlarbaşı Hill. Roof tile pieces and potsherds belonging to Roman period were observed on the surface. Since the area is used for agriculture, it is also possible that the material was brought to the location as a result of agricultural activities. All construction activities should be carried out under archaeological monitoring. According to decision 2534 dated 11.11.2013 of the Bursa Protection board, excavations should be carried out and all activities should be conducted under the supervision of local museum directorate.
133	Zillak Tepe	Balıkesir	1635+800-1636+000	No Change	1	No material change to the site or feature		x			The slope settlement is located, 5 km. west of Manyas Lake, 750 m southeast of Ilıcak village and 500m. southwest of Sivri Dere. A concrete cistern was built on the top of the area. Potsherds, stone architectural elements and pieces of roof tiles made of baked clay were observed on the surface. Discovered pieces indicate that the area may belong to Middle Ages - Byzantine period. Some architectural elements made of andezid stone were observed over the slopes where the waer storage is located. The area is 51 m away from the constuction axis. Bursa Protection Board initiated the registration process for the site with decision 2534 dated 11.11.2013. As expert opinion, route change is recommended for the section located on the construction corridor. Following the route change, construction activities in the region should be conducted under archaeological supervision.
134	Üzümlü	Balıkesir	1636+300-1638+100	No Change	1	No material change to the site or feature		x			The area is most probably a slope settlement and it is located on both banks of the Beyridlik creek flowing about 1 km southeast of Üzümlü Village. Potsherds belonging to late Roman or Early Byzantine period and roof tiles made of baked clay were observed on the area. Due to agricultural activities, the pieces are scattered over a wide area. the location is 76 m away from the construction main axis. As expert opinion, route change is recommended for the section located on the construction corridor. Following the route change, construction activities in the region should be conducted under archaeological supervision.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
135	Paşaçiftliği	Balıkesir	1642+600-1643+100	Negligible	2	Very minor changes to archaeological materials, or setting		x			Located about 1 km south of Paşaçiftliği village. The area is located 1 km east of Dedeali Hill and 1 km north of Şarakman Hill. Bağlık creek flows along the south of the area. The area is very convenient for settlement in terms of water resources and agricultural fields. The area is most probably a flat settlement. Intense potsherds and roof tile pieces made of clay were observed on the surface. The findings most probably belong to late Roman or early Byzantine period. The area is 17 m away from the construction axis. Based on the decision 2534 dated 11.11.2013 of the Bursa Protection Board, all construction activities have to be carried out under archaeological monitoring.
136	Deveci Düzü	Balıkesir	1644+850-1645+100	No Change	1	No material change to the site or feature		x			This Slope Settlement is located on the area called Devecidüzü Region which is 1.2 km west of Paşaçiftliği Village. Potsherds, pieces of roof tiles made of baked clay and rubble stones belonging to architectural elements were identified over a wide area. The area is currently used for agriculture. The findings most probably belong to late Byzantine or Ottoman period. The location is 89 m away from the construction axis. It is recommended that all construction activities should be carried out under archaeological monitoring.
137	Sağnıç Sırtı	Balıkesir		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)		x			The site located approximately 1.8 km west of Paşaçiftliği village is used as agricultural land. The potsherds with medium density are mostly pieces of rough plastered and stone mixed Roman pottery examples (there is a small quantity of mouth-handle and body pieces). These rough plastered examples correspond with roofing tiles forms and they could have been used for covering some graves. Due to these facts, the area can be determined as Necropole. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
138	Armutlu Tepe	Balıkesir	1649+150-1650+500	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area is most probably a slope settlement and located 1.2 km north of Körpeağaç Village. The are covers both sides of the road from Körpeağaç to Havutça and also includes Armutlu Hill. Intense potsherds and roof tile and brick pieces made of clay were observed on the surface. Although the size of the settlement is observed to be small, the potsherds were spread over a wide area. The marble column base located at the bottom of a wall in Havutça village which is located 2.5 km south of the area is an indication of archaeological potential of the region. This base belonging to Roman or Byzantine period may date back the same period with the Armutlu Hill settlement. The area is currently used for agriculture. This might be the reason why the artefacts are scattered over a wide area. The location is on the construction corridor of the project. As stated by decision 2534 dated 11.11.2013 of the Bursa Protection Board, arcaheological monitoring is recommended for all construction activities in the area.
139	Cankurtaran	Balıkesir	1653+180-1653+300	No Change	1	No material change to the site or feature		x			The area is most probably a flat settlement and located 850 m northeast of Ulukır Village. Intense tablet pieces made of baked clay were observed over the surface. The area most probably dates back to Roman period. The area is 24 m away from the construction axis. As stated by decision 2534 dated 11.11.2013 of the Bursa Protection Board, arcaheological monitoring is recommended for all construction activities in the area.
140	Ahlatlıbaba Tepesi	Balıkesir	1657+000-1657+280	Negligible	2	Very minor changes to archaeological materials, or setting		x			The area is most probably a slope settlement and located 3 km northwest of Ulukır Village. Power lines cross the area. Potsherds and roof tile pieces made of clay belonging to late Byzantine and Ottoman period were observed on the surface. The area is 14 m away from the construction axis. As stated by decision 2534 dated 11.11.2013 of the Bursa Protection Board, arcaheological monitoring is recommended for all construction activities in the area.
141	Akyol Deresi	Balıkesir	1660+190-1660+500	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area is most probably a slope settlement and spreads over both banks of Akyol creek passing about 2.5 km east of Çifteçeşmeler Village. Relatively intense potsherds and roof tile pieces made of clay were observed on the surface. The findings most probably belong to late Roman or early Byzantine period. The area resembles a small village having few houses. The area is convenient for settlement due to proximity to water resources and agricultural fields. As stated by decision 2534 dated 11.11.2013 of the Bursa Protection Board, arcaheological monitoring is recommended for all construction activities in the area.
142	Kavaktepe	Balıkesir	1660+870-1660+950	No Change	1	No material change to the site or feature		x			The area has slope settlement features. It is located about 11 km northeast of Çifteçeşmeler Village and 800 m south of Kavaktepe. Akyol creek passes 600 m. east. Intense potsherds and roof tile pieces were observed on the surface. The artefacts become more intense on the northwest of the area. The small village settlement most probably belongs to late Roman or early Byzantine period. Bursa Protection Board initiated the registration process for the site with decision 2534 dated 11.11.2013. As expert opinion, route change is recommended for the section located on the construction corridor. Following the route change, construction activities in the region should be conducted under archaeological supervision.
143	Çifteçeşmeler	Balıkesir	1662+080-1662+410	No Change	1	No material change to the site or feature		x			The area is declared as third degree protection site by decision 1508 of the Bursa Protection Board dated 21.12.2012. The area is 85 m away from the construction axis. As expert opinion, it is recommended that all activities in the area should be conducted under archaeological supervision.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
144	Çatalahmet Tepe	Balıkesir	1662+300-1664+200	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area carries high potential risk. It is located 2 km northeast of Kınalar Village and 1.6 km northwest of Çifteçeşmeler village. The area can be defined as an extension of the Cifteçeşmeler Protection Zone over the TANAP pipeline axis. Findings on the surface are spread over a 1.8 km x 900 m area. Because of intense agricultural activities, the artefacts are scattered over a wide area. Potsherds, roof tile and pieces belonging to late Roman, Middle Age and Byzantine periods were observed on the surface. The area is within the 500 m impact corridor of the TANAP route and partially located on the construction corridor. As stated by decision 2534 dated 11.11.2013 of the Bursa Protection Board, arcaheological monitoring is recommended for all construction activities in the area.
145	Tavşantepe	Çanakkale	1674+600-1674+800	Negligible	2	Very minor changes to archaeological materials, or setting		x			The area has slope settlement features. It is located 800 m northwest of Gerlengeç village, 500 m east of Tavşantepe and over the northern slopes of Akpınar creek. Intense potsherds and roof tile and brick pieces belonging to Byzantine - Ottoman period made of clay were observed on the surface. The area is within the 500m impact corridor and 14 m away from the construction axis. It is recommended to carry out all construction activities in the identified region under archaeological monitoring.
146	Salkımtepe	Çanakkale	1690+100-1690+200	No Change	1	No material change to the site or feature		x			The location was registered by Çanakkale Protection Board. It is 170 m away from the construction axis. Construction activities in the archaeological region should be carried out under archaeological monitoring.
147	Aktoprak	Çanakkale	1694+100-1695+100	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	X	x			The site is a Necropole registered as 1st degree archaeological site by 21.11.2003 dated and 2525 numbered decision of Çanakkale Protection Board of Cultural Assets. With 26.09.2013 dated and 1158 numbered decision of the same board, the route change request of the board is defined. After this alteration, the distance between the site and the construction axe of Tanap pipeline route is 28m. During all activities around the site, archaeological survey is recommended as an expert opinion.
148	Palamut Dalyan-Osmancık Göçüğü	Çanakkale	1705+400-1710+300	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area is identified as High Potential Risk area from Archaeological point of view. "Pigging Station Marmara East Camp" is also located in the potential risk area.Potsherds, roof tile pieces and similar architectural materials belonging to late Roman-Byzantine period were observed on the surface. The area is located close to the Parion Ancient city. Therefore it is necessary to conduct all construction activities under archaeological monitoring.
149	Kemer Mevkii	Çanakkale	1706+800-1706+980	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x			The site is a "Flat Settlement" registered as 3rd degree archaeological site by 30.10.2013 dated and 1201 numbered decision of Çanakkale Protection Board of Cultural Assets. The site was within the boundaries of East Marmara Region Pigging Station, after the change of the location of the station the site remained out of the area. However the site is still located within the boundaries of 500 m impact corridor of the pipeline route, and the distance between the site and the construction area is 34 m. The site can be dated to Roman Period and during all contruction activities, archaeological survey is recommended as an expert opinion.
150	Arkeolojik Alan	Çanakkale	1706+950-1707+150	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Çanakkale Protection Board. It is located 205 m away from the construction axis. It is recommended to conduct all construction activities in the region under archaeological monitoring.
151	Kavakköy	Çanakkale	1734+450-1734+650	No Change	1	No material change to the site or feature		x			The area is located about 2 km east of Kavakkoy Village of Gelibolu. It is a Flat Settlement area with roof tiles and potsherds belonging to Roman Period. The area is within the 500 m impact area with a distance of 96 m to construction axis. It is declared as third degree archaeological protection area by Canakkale Protection Board with decision 1158 dated 26.09.2013. The decision states that the construction activities should be conducted under the supervision of relevant institutions and archaeologists.
152	Kalealtı	Çanakkale	1748+700-1749+000	No Change	1	No material change to the site or feature		x			The location is 300 m west of Kalealti Village and 400 m north of Derincalik Mevkii. Some potsherds and architectural elements made of baked soil (roof tile and brick pieces) were observed on the surface. Remains of a fortress is at the immediate west of the location. The area is 28 m away from the construction axis and registered as first and third degree protection site by Canakkale Protection Board. As expert opinion it is recommended to conduct all construction activities in the area under the supervision of archaeologits.
153	Mahmutköy	Edirne	1760+550-1761+750	No Change	1	No material change to the site or feature		x			The area carries potential archaeological risk. Scattered potsherds, roof tile and brick pieces belonging to middle ages were observed on the surface on the hilltop located southwest of Mahmutköy. The area is very convenient for a settlement. All construction activities should be carried out under archaeological monitoring.
154	Cevizlik	Edirne	1762+000-1762+200	No Change	1	No material change to the site or feature		x			This Huyuk type settlement is located 1.4 km west of Mahmutköy and bears archaeological findings belonging to Prehistoric and Classical periods. Potsherds and roof tiles made of baked clay dating back to prehistoric period were observed 600 m southeast of Cevizlik Region over the area on the right hand side of the road to Mahmutköy. The area is inside the 500 m impact corridor and 49 m away from the construction axis. It is recommended to conduct all construction activities under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	Receptor	Ranking	Explanations	Receptor	Ranking	Explanations	Route Change/ Area Change	Archaeological Monitoring	Salvage Excavation& Test Pits	No Action	DESCRIPTIONS
155	İzzetiye Köprüsü	Edirne	1770+500-1770+650	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Edirne Protection Board. It is 212 m way from the construction main axis. During the construction works, activities creating vibration should be avoided and all construction activities in the region have to be carried out under archaeological monitoring.
156	Tayyare Sırtı	Edirne	1774+750-1774+850	No Change	1	No material change to the site or feature		x			The area is most probably a flat and slope settlement. It is located 1.7 km northeast of Sığilli Village, 2.3 km southwest of Keşan on the road from Sığilli to Keşan. Potsherds belonging to Byzantine - Ottoman period were observed on the surface. A water spring is located about 200 m south of the area. The location is 69 m away from the main construction axis. All construction activities around the site should be carried out under archaeological monitoring.
157	Kumlu Çeşme	Edirne	1787+050-1787+700	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			The area is most probably a slope settlement. It is located about 1.5 km northwest of Korucu Village. Dried creeks are located on the north of the area. Acıçeşme creek passes about 1.5 north. The potsherds encountered on the surface are rough and law fired Roman Ceramics. All construction activities around the site have to be carried out under archaeological monitoring.
158	Sivritepe	Edirne	1787+980-1788+000	No Change	1	No material change to the site or feature		x			The area is a "Tumulus". It is located 1 km southwest of Korucu Köy. It might belong to Iron Age (Achaemenid) period. It is registered as first degreee protection zone by Edirne Protection Board with decision no 1390 dated 18.12.2013. The area is 125 m away from the construction axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
159	Hıdırköy	Edirne	1790+700-1791+050	No Change	1	No material change to the site or feature		x			The area is most probably a slope settlement. It is located about 800 m southwest of Hıdırköy. The area is currently used for agriculture and divided into two by a tractor pathway. Intense potsherds, pieces of roof tiles and bricks made of clay were observed on the surface. Patterns on the glazed ceramics indicate a time line of Byzantine-Ottoman period. The area is 129 m away from the construction axis. It is recommended to carry out all construction activities under archaeological monitoring.
160	Turpçular	Edirne	1795+100-1795+300	No Change	1	No material change to the site or feature		x			The area which is surrounded by a wall is a modern cemetery located on immediate west of Turpçular Village and located 359 m away from the construction axis. It is recommended to carry out all construction activities under archaeological monitoring.
161	Bağlı Sırtı	Edirne		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)		x			The site is approximately located near 2700 m south of Sarıcaali village in İpsala district . Irrigation channels are installed in the western plain, which is formed by the alluvium deposit of the Meriç River. Some pottery examples are discovered on the northern side of the FMS-GR station. These pieces are examples of rough plastered and stone mixed Roman pottery. Although not yet certain, they can be classified as roofing tiles. Besides these dominated examples, some pithos rims and handles and cooking pots are observed. The site can be stated as a "slope settlement" due to the topographic and archaeological features of the area. During every construction activities in this field where Tanap FMS-GR station shall be constructed, archaeological supervision is recommended as an expert opinion.

Table 6 Archeological Findings

5.3. Monitoring and Reporting

The Contractors' archaeologist(s) shall visually monitor all ground disturbance activities during the **top soil stripping, pipe stringing, grade and trenching activities** for evidence of cultural heritage items.

Top soil stripping and other activities such as trench and stringging must not be performed during heavy rain conditions in archaeological areas including the ones, which are defined as minor/potential archaeogical areas in pre-construction surveys.

The soil must not be stripped and used as a berm, and for padding activities at the registered or potential archaeological sites.

Chance Finds shall be recorded on the "Chance Finds Report" form as defined in Annex A of "TANAP Chance Find Requirements (TNP-PCD-ENV-GEN-006)". All Chance Finds Report forms shall be kept in hard copy at the appropriate construction camp and shall also be scanned and saved electronically after completion of each section of the form.

The Chance Finds recorded in the "Chance Finds Register" of the "TANAP Chance Find Requirements" document, which shall be kept up to date by the EPCM Site archaeologist. It shall be reviewed weekly with the construction Contractor during weekly Site E/S meetings. A Chance Find shall not be evaluated "closed" until the EPCM archaeologist has instructed the CC archaeologist that construction work can resume.

The "Chance Finds Register" developed by EPCM Site E/S team shall be submitted to EPCM Ankara Office in weekly basis. , A summary of the status of Chance Finds shall be reported from EPCM to TANAP monthly.

5.4. Scope of Work of Archaeology Consultant

The Scope of Work mainly covers:

-The test pit and salvage excavations under supervision of related Museum Directorates with all desktop studies, field work, reporting (including GIS data and maps), and consultation activities with all related authorities; and

- Supply of all relevant materials and services for the documentation, registration, protection and salvation of the findings in the archaeological sites, which have been identified during the survey studies and Chance Find issues during the construction phases.

In order to do these activities, an Archaeological Consultant was recruited and a Contract was signed with REGIO Raporlama Etüd Geliştirme İzleme Organizasyon Danışmanlık Eğitim A.Ş. on the date of 14.09.2014.

Excavation of the eleven (11) Sites, under the scope of Archaeology Contractor is completed or route changes realized. In addition to these Sites many Chance Finds still detected during top soil stripping or trenching activities of ongoing construction activities with an addendum to the Contract (date of 29th December 2015), excavation of these Sites is also undertaken by REGIO.

Scope of Work of Archaeology Consultant provided at Annex D.

5.5. Key Performance Indicators

The Contractors agreed to report the Cultural Heritage key performance indicators and measures given in table 7 on a monthly basis, which approved by T

CULTURAL HERITAGE			
# of known archaeological/cultural heritage sites damaged during construction activities	KPI	Monthly	0
# of times work stopped by Contractors to report chance finds.	Measure	Monthly	N/A
% of non compliances raised by EPCM which are closed within agreed timeframe	KPI	Monthly	100%

P might include new KPIs if deemed necessary.

Table 7 Cultural Heritage KPIs for Construction Contractors

6. ANNEXES

Annex A. TANAP Chance Find Requirements

Annex B. Chance Finds Procedure of EPCM and CHMP of CCs

Annex C. Protocol with Tanap and General Directorate of Cultural Heritage and Museums

Annex D. Scope of Work of Archaeology Consultant

TANAP

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP CHANCE FIND REQUIREMENTS

Rev	Status	Date	Status Description	Issued by	Checked by	IMS Review by	Approved by
P3-A	DIC	06.06.2016	Discipline Internal Check	COSE/ARID/ KILA	POYS		
P3-B	IDC	13.06.2016	Interdisciplinary Check	COSE/ARID/ KILA	POYS		
P3-0	IAA	15.06.2016	Issued As Approved	COSE/ARID /KILA	POYS/RUSP /AYAM	ISIB	DUZS
P3-1	Re-IAA	19.07.2016	Re-Issued As Approved	COSE/ARID /KILA	POYS/RUSP /AYAM	ISIB	DUZS

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P3-A	DIC	06.06.2016	Discipline Internal Check
P3-B	IDC	13.06.2016	Interdisciplinary Check
P3-0	IAA	15.06.2016	Issued As Approved
P3-1	Re-IAA	19.07.2016	Re-Issued As Approved

HOLDS

No.	Section	Description	Input From	Planned Date

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1. CHANCE FIND PROCEDURE

1.1. Purpose and Scope

The aim of this document is to describe the requirements of chance find process for the discovered cultural resources during construction activities at Sites. This Requirement includes, step by step explanation of Chance Find implementation, Chance Finds Register Form and contact information for relevant authority.

This document will not be issued for IDC.

1.2. Abbreviations, Acronyms

The following abbreviations/acronyms may appear within the text of this document and have meaning as described below for the purpose of this document.

Abbreviations / Acronyms / Terms	Meaning
CC	Construction Contractor
CF	Chance Find Procedure
CHMP	Cultural Heritage Management Plan
EPC	Engineering, Procurement and Construction
EPCM	Engineering Procurement Construction Management
E/S	Environmental and Social
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management System
HSSE	Health, safety, social, environment
IFC	International Finance Corporation
NCR	Non-Conformance Report
PSs	Performance Standards
TANAP	TANAP Trans Anatolian Natural Gas Transmission Company / TANAP Doğalgaz İletim AŞ

Table 1 Acronyms and Abbreviations

1.3. Definitions

The following definitions appear within the text of this document and shall have meaning as described below for the purpose of this document.

Definitions	Meaning
ESIA Report	The Turkish ESIA Documentation which were approved as

Definitions	Meaning
	of 24.07.2014 by Ministry of Environment and Urbanization and the English version of the ESIA Report which was approved by TANAP after public disclosure process.
Archaeology (ical) Consultants	Archaeology experts which provide professional guidance to TANAP on management of archaeological and cultural heritage findings and the related permits
Board of Directors	The Board of Directors of TANAP
Chance Find	Potential cultural heritage objects, features or sites that are identified outside of a formal site reconnaissance, normally as a result of construction monitoring.
Client	TANAP DOĞALGAZ İLETİM A.Ş.
Commitments Register	The register which outlines the requirements committed in ESIA and its monitoring planning throughout the project life.
Contractor(s)	The Contractors who provide service material or goods to TANAP as per Contract including but not limited to EPCM, EPC and CCs.
Contracts	The Contracts established by and between TANAP and Contractors to provide service and/or materials to TANAP
Employee(s)	The Employees under payroll of TANAP who are contracted with a labor contract pursuant to relevant Turkish Labor legislation
EPCM Contractor	Namely the Worley Parsons Turkey Limited
General Manager	The General Manager of TANAP
HSSE Group Manager	The HSSE Group Manager of TANAP
Museum Directorate	A Directorate of the Ministry of Culture and Tourism Ministry responsible for giving advice and direction on archaeological finds. Will follow directions and decisions from Regional Board Directorate of Protection of Cultural Heritage
Performance Standards of International Finance Corporation	IFC 2012 Performance Standards (PSs) are the environmental and social standards issued by World Bank International Financial Institution. There are eight PSs which the projects should meet throughout the life of an investment financed by IFC or other relevant financial institutions
Project	Design, Engineering, Procurement, Construction,

Definitions	Meaning
	Commissioning actions & activities to realize the TANAP gas transmission facilities
Regional Board Directorate Of Protection Of Cultural Heritage	A Directorate of the Ministry of Culture and Tourism Ministry responsible for giving advice and direction on archaeological finds
Site	The Sites where TANAP Project's soil investigation, Site survey, material storage, construction and commissioning activities take place.
Site Activities	TANAP Site Activities comprises at minimum; Project's Site survey, soil investigation, material storage, construction and commissioning processes
State (Authorities)	All central and local authorities or bodies and any and all instrumentalities, branches and subdivisions of any of the foregoing, and any entity that is directly or indirectly controlled by the State or one or more of its State Authorities;
State	The State bodies, offices, organizations, departments, ministries of Turkish government
TANAP Policies	The TANAP Policies approved either by Board of Directors or General Manager
Work	Shall mean all and any of the WORKs and / or services and / or materials required to be provided by the EPCM under the Contract with Client.
Shall and must	Indicates mandatory requirements.
Should	Indicates that a provision is not mandatory, but recommended as good practice.

Table 2 Definitions

1.4. References

In this document, references have been made to the following documents:

Reference No	Reference Title
TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	Cultural Heritage Management Plan (Appendix 5.8. of ESIA Report)
TNP-REP-ENV-GEN-001	Terrestrial Archaeology Baseline Report (Chapter

Reference No	Reference Title
TNP-REP-ENV-GEN-002	13, Annex 2.4)
TNP-REP-ENV-GEN-001	ESIA Report (Turkish)
TNP-REP-ENV-GEN-002	ESIA Report (English)
TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	ESIA Chapter 8.3
TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	ESIA Chapter 8.6
TNP-PLN-PRM-GEN-001	Project Execution Plan
TNP-POL-SOC-GEN-001	TANAP Social Policy
TNP-POL-PRM-GEN-001	TANAP IMS Policy
TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	ESIA Report Chapter 13 - App 2.4 Terrestrial Archaeology Baseline Report Constraint Maps of Archaeology
Alignment Sheets	Alignment sheets which are prepared by engineering group shows the route of the pipelines with construction details (depth of cover, wall thickness distributions, coating requirements, crossing locations and mitigation measurements.) Alignment shhet also incoprerate environmenal and sosical requrements mitigation measures which are requried by ESIA
European Bank for Reconstruction and Development, 2010	EBRD Environmental and Social Performance Requirements
Council of Europe ETS No 143, 1992	European Convention on the Protection of the Archaeological Heritage (Revised) (The Valletta Convention)
Official Gazette; Date: 10.12.1987 and No: 19660	Law no. 2863 - Law on the Conservation of Cultural and Natural Property

Table 3 Referenced documents

1.5. Roles and Responsibilities

Specific roles and responsibilities in thisdocument are given below:

Entity	General Role & Responsibility
TANAP	Ensure that this Requirement is implemented proper
EPCM	Manage and monitor implementation of this Requirement for the Contractors, all other commitments in ESIA and ESMS components within the scope of EPCM activities. Inform TANAP and closest Museum Directorate in case of archaeological chance find.
Contractor (s)	Implement this Requirement document
Third party monitoring	Third party monitoring for ensuring the compliance of the Contractors with defined requirements is under TANAP's responsibility. TANAP has developed a comprehensive Environmental and Social Management Organization to effectively implement, manage, and monitor the project's commitments. Table 11.1.3-1 of chapter 11 of the ESIA Report demonstrates the overall HSSE Organization of TANAP Project.

2. OVERVIEW OF CHANCE FIND REQUIREMENT

All Contractors shall fulfill the requirements defined in this document by adapting them to their own activities. Each Contractor shall develop their own CHMP and related procedures aligned with TANAP Policies which explain the way to implement the requirements of this document and shall submit to EPCM/TANAP approval latest thirty days by acknowledgement of this document.

2.1. Monitoring and Reporting

The Contractor archaeologist(s) shall visually monitor all ground disturbance activities during the top soil stripping, pipe stringing and grade and trenching activities for evidence of cultural heritage items.

In case of any Chance Finds the steps defined in Section 2.2 shall be implemented.

"Chance Finds Report" forms presented in Appendix A shall be prepared. All Chance Finds Report forms shall be kept in hard copy at the appropriate construction camp and shall also be scanned and saved electronically after completion of each section of the form.

Chance Finds shall be recorded in the "Chance Finds Register" given in Appendix B, which shall be kept up to date by the EPCM archaeologist. A Chance Find shall not be considered "closed" until the EPCM archaeologist has instructed the CC Archaeologist that construction work can resume.

The "Chance Finds Register" shall be reported from the EPCM Site E/S team to EPCM Ankara Office, weekly. A summary of the status of Chance Finds shall be reported from EPCM to TANAP monthly.

2.2. Chance Finds Step by Step Action Process

The following table outlines the step by step process to be followed upon a chance finds discovery.

STEP 1 - After the discovery of a chance find:

- All work must cease at the location where discovery is made
- A temporary buffer zone around the Chance Find shall be put in place
- If not on site, construction crew shall contact CC archaeologist. ***An archaeologist from CC should be on Site during all ground disturbance activities***
- Contractor Archaeologist immediately contacts:
  1. CC construction manager
  2. EPCM archaeologist
- EPCM archaeologist contacts spread manager, TANAP archaeologist and museum archaeologist immediately
- CC archaeologist properly secures chance find site: flagging, no-entry signs
- Contractor prevents/limit vehicle traffic within the immediate vicinity of chance find
- Protection of site: chance find should not be moved, removed or further disturbed

STEP 2 - Recording

- Contractor archaeologist fills out Part A of Chance Find form, and sends a copy to EPCM archaeologist within 24 hours
- Contractor archaeologist retains a copy of Chance Find form for his/her record

STEP 3 - Contact with local authority

- After the TANAP approval, EPCM archaeologist notifies closest museum directorate archaeologist (see Appendix C) of the chance find after receiving notification from CC archaeologist.

STEP 4 - Authority's decision

- Museum directorate archaeologist notifies EPCM archaeologist on how to proceed.

STEP 4 A - No significance to site	STEP 4 B - Significance to site
• Per museum directorate archaeologist, site is considered to be of no significance • EPCM archaeologist informs contractor archaeologist • Contractor and EPCM archaeologists inform their managers • Contractor archaeologist records decision in Part B of Chance Find form and sends a copy to EPCM archaeologist within 24 hours • Contractor archaeologist retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the Chance Find Process • ***Construction activities may resume***	• Per museum directorate archaeologist, site is considered to be of significance • Museum directorate archaeologist decides on further actions and informs EPCM archaeologist • EPCM archaeologist informs contractor archaeologist • Contractor and EPCM archaeologists inform their managers • Contractor archaeologist records decision in Part B of Chance Find form • Proceed to Step 5

STEP 5 - Site investigation

- Project personnel to follow museum directorate archaeologist's instructions

• After some field investigation, Museum directorate archaeologist declares **the site to be of no significance** • EPCM archaeologist informs contractor archaeologist • Contractor and EPCM archaeologists inform their managers • Contractor archaeologist records decision in Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hours • Contractor archaeologist retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the Chance Find Process • ***Construction activities may resume***	• After some investigation, Museum directorate archaeologist declares **the site to be of minor significance** • A salvage excavation is to be completed • Museum directorate archaeologist provides instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist • EPCM archaeologist informs contractor archaeologist • Contractor and EPCM archaeologists inform their managers • Under the guidance of EPCM archaeologist (following instructions from authorities) contractor provides a team of qualified archaeologist to conduct the salvage excavation. • Once the excavation is completed, contractor archaeologist provides a report to EPCM archaeologist	• After some investigation, Museum directorate archaeologist declares **the site to be of major significance** • An excavation is to be completed or can be stopped by Client. • Route change is evaluated by Client, if route change is not aplicable the following steps shall be implemented. • Site is to be treated according to Turkish archaeological regulations "Law on the Conservation of Cultural and Natural Property (2863) 21.07.1983 • Museum directorate archaeologist provides instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist • EPCM archaeologist informs contractor archaeologist • Contractor and EPCM

	• EPCM archaeologist provides report to museum directorate • Regional Board Directorate of Protection of Cultural Heritage officially confirms completion of recovery and informs EPCM archaeologist. • EPCM archaeologist informs contractor archaeologist that no further actions are required. • Contractor and EPCM archaeologists inform their managers • Contractor archaeologist records decision in Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hours • Contractor archaeologist retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the Chance Find Process • ***Construction activities may resume***	archaeologists inform their managers • Under the guidance of EPCM archaeologist (following instructions from authorities) contractor provides a team of qualified archaeologist to conduct the salvage excavation • Once the excavation is completed, contractor archaeologist provides a report to EPCM archaeologist • EPCM archaeologist provides a report to museum directorate • Regional Board Directorate of Protection of Cultural Heritage officially confirms completion of recovery and informs EPCM archaeologist. • Site shall be officially recorded and protected according to Turkish regulations • EPCM archaeologist informs contractor archaeologist that no further actions are required, or that a route change is required (via Management of Change) • Contractor and EPCM archaeologists inform their managers • Contractor archaeologist records decision on Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hours • Contractor archaeologist retains a copy of Chance Find form for his/her record • No further actions

		required • This step closes out the Chance Find Process • ***Construction activities may resume or route change is implemented (via Management of Change)***

3. APPENDICES

Appendix A Chance Find Report Form

CHANCE FIND REPORT FORM

RASLANTISAL BULUNTU RAPOR FORMU

To be filled out in English and Turkish
Ingilizce ve Türkçe doldurunuz

PART A **BÖLÜM A**			
Spread: *Saha bölümü*	KP:	Date: *Tarih*	ID:
Name of person reporting chance find: *Rastlantısal buluntuyu rapor eden kişinin ismi*			

Weather	Precipitation	Wind	ROW Conditions
☐ Clear	☐ None	☐ None	☐ Dry
☐ Cloudy	☐ Rain	☐ Light breeze	☐ Wet
☐ Partly cloudy	☐ Heavy rain	☐ Windy	☐ Saturated
☐ Sunny	☐ Snow	☐ Heavy wind	☐ Frozen

In which phase the finding was identified? *Hangi aşamada tespit edildi?*	☐ Pre-Cons. Survey	☐ Top Soil Stripping	☐ Stringing	☐ Trenching	☐ Other
Other, Please indicate; *Diğer, Lütfen Belirtiniz ;*					

Name of contractor archaeologist contacted: *İletişime geçilen yüklenici arkeoğun ismi*		
Was work stopped in the immediate vicinity of chance find? *Rastlantısal buluntunun tam çevresinde iş durduruldu mu?*	☐ Yes *Evet*	☐ No *Hayır*
Was work stopped or continued after the chance find? *Rastlantısal buluntudan sonra iş durduruldu veya devam etti mi?*	☐ Yes *Evet*	☐ No *Hayır*
Was a buffer zone created to protect chance find? *Rastlantısal buluntuyu korumak için tampon bölge oluşturuldu mu?*	☐ Yes *Evet*	☐ No *Hayır*
NOTIFICATION ***BİLDİRİM***		
Contractor construction manager contacted *Yüklenici inşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*
EPCM archaeologist contacted *EPCM arkeoloğu ile iletime geçildi*	☐ Yes *Evet*	☐ No *Hayır*

CHANCE FIND DETAILS
RASLANTISAL BULUNTU AYRINTILARI

GPS coordinates *GPS koordinatları*	Photo record ☐ Yes ☐ No (HD quality - no cell phone photos) *Fotoğraf kaydı Evet Hayır* *(HD kalitesinde - cep telefonu fotoğrafı değil)* If not, explain why: *Yok ise nedenini açıklayınız* Other records ☐ Yes ☐ No Specify (drawings, HD quality videos, etc.): *Diğer kayıtlar Evet Hayır* *Belirtin (çizimler, HD kalite videolar, vb.)*

Description of chance find:
Rastlantısal buluntunun tanımı

Description of site and vegetation: (e.g. surface sediment type, ground surface visibility, distance to closest watercourse, etc.)
Sahanın ve bitki örtüsünün tanımı: (örn. Yüzey sediman türü, yüzey zemin görünürlüğü, en yakın suyoluna olan mesafe, vb.)

PART B
BÖLÜM B

NOTIFICATION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST
_____ *MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNA BİLDİRİ*

EPCM archaeologist contacted museum directorate archaeologist ☐ Yes ☐ No
EPCM arkeoloğu müze müdürlüğü arkeoloğu ile irtibata geçti. Evet Hayır

Date of notification:
Bildirim tarihi

Name of museum directorate archaeologist :
Müze müdürlüğü arkeoloğunun ismi

Contact number of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun iletişim numarası

DECISION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST
_____ *MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNUN KARARI*

Date of initial investigation:
İlk araştırma tarihi

☐ Site of no significance - Construction to proceed with no further investigation - End of CFP *Önemsiz saha - İnşaat daha fazla araştırma yapılmadan devam edilebilir - rastlantısal buluntu prosedürün sonu.* Date of notice to resume work : *İşe başlama tarihi bildirisi*	☐ Site of significance - Further investigation required *Önemli saha - Ek araştırma gerekmektedir* Fill out Part C *Bölüm C'yi doldurun.*

Name of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun ismi

Contact information:
İletişim numarası

EPCM construction manager contacted *EPCM inşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*
Contractor archaeologist contacted *Yüklenici arkeoloğu ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*

PART C
BÖLÜM C

FURTHER FIELD INVESTIGATION
EK SAHA ARAŞTIRMASI

☐ Site of no significance *Önemsiz saha*	☐ Site of minor significance *Az önemli saha*	☐ Site of major significance *Çok önemli saha*

Describe additional work to be conducted:
Yapılması gereken ek işlerin tanımları

Date started: *Başlangıç tarihi*	Date completed: *Bitiriş tarihi*

Date of notice to resume work : *İşe başlama tarihi bildirisi*		
Name of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun ismi:* Contact information: *İletişim numarası*		
Construction manager contacted *İnşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*
EPCM archaeologist contacted *EPCM inşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*

Appendix B Chance Finds Register

CHANCE FIND REGISTER

DATE OF FIND	KP	SUMMARY OF CHANCE FIND	NAME OF AUTHORITY NOTIFIED	ACTION TAKEN	CHANCE FIND FORM COMPLETED	STATUS OPEN OR CLOSED	REMARKS

Appendix C Contact Information for Relevant Authority

Contact information of Preservation Boards and Museum Directorates in each province on the pipeline route is given in below table:

PROTECTION BOARDS	AREA OF RESPONSIBILITY	ADDRESS
Kars Regional Drectorate of Cultural Entities Preservation Board	Ardahan, Kars	Cumhuriyet Mah. İnönü Cad. İl Genel Meclis Binası No: 20 KARS
Erzurum Regional Drectorate of Cultural Entities Preservation Board	Erzurum, Bayburt, Bingöl,Tunceli, Erzincan	Yeni Hükümet Konağı Kat: 5 ERZURUM
Trabzon Regional Drectorate of Cultural Entities Preservation Board	Trabzon , Artvin,Gümüşhane, Giresun,Rize	Cumhuriyet Mahallesi Nemlioğlu Cemal Sokak No:25 TRABZON
Kayseri Regional Drectorate of Cultural Entities Preservation Board	Kayseri, Yozgat	Tacettin Veli Mahallesi Lalezade Cad. No:6 Kiçikapı - Melikgazi / KAYSERİ
Sivas Regional Drectorate of Cultural Entities Preservation Board	Sivas, Tokat, Malatya, Yozgat	Atatürk Kültür Merkezi Kat:4 SİVAS
Nevşehir Regional Drectorate of Cultural Entities Preservation Board	Nevşehir, Kırşehir, Niğde	Emek Mah. Nar Yolu No: 28 NEVŞEHİR
Ankara 1 Regional Drectorate of Cultural Entities Preservation Board	Ankara (Çankaya, Yenimahalle, Etimesgut, Keçiören, Mamak, Gölbaşı, Kazan, Sincan, Nallıhan, Beypazarı, Ayaş, Polatlı, Çamlıdere, Kızılcahamam), Bolu, Çankırı, Kastamonu	Konya Sokak No:46 Kat 1 Ulus / ANKARA

PROTECTION BOARDS	AREA OF RESPONSIBILITY	ADDRESS
Ankara 2 Regional Drectorate of Cultural Entities Preservation Board	Ankara, Çankırı, Kırıkkale, Kastamonu, Çorum, Bolu	II. Meclis Binası Yeni Binalar Ulus/ ANKARA
Eskişehir Regional Drectorate of Cultural Entities Preservation Board	Eskişehir, Afyon, Bilecik	Arifiye Mahallesi Okullar Sokak No: 2 - ESKİŞEHİR
Bursa Regional Drectorate of Cultural Entities Preservation Board	Bursa, [1]Balıkesir	Osmangazi Caddesi Orhangazi Çıkmazı No: 22 Tophane/BURSA
Kütahya Regional Drectorate of Cultural Entities Preservation Board	Kütahya, Uşak	Cumhuriyet Mahallesi, Esnaf Caddesi, Esnaf ve Sanatkarları Birliği Binası (Metem Tesisleri),Kat: 4 / KÜTAHYA
Balıkesir Regional Drectorate of Cultural Entities Preservation Board	Balıkesir	Dumlupınar Mah. Anafartalar Cad. No:58 (Kuva-yi Milliye Müzesi Bahçesi) 10100 KARESİ / BALIKESİR
Çanakkale Regional Drectorate of Cultural Entities Preservation Board	Çanakkale	Cevatpaşa Mah. İnönü Cad. No:2 Çanakkale
Edirne Cultural Heritage Preservation Board	Edirne, Kırklareli, Tekirdağ	Maarif Caddesi No: 18 İlhan Koman Evi - EDİRNE

PROVINCE OF THE MUSEUM	ADDRESS AND CONTACT INDIRMATION
KARS	**Address:** İstasyon Mah. Cumhuriyet Cad. KARS **Telephone:** : (0474) 212 14 30 - 212 38 17 Faks: (0474) 212 14 30 **E-mail:** karsmuzesi@kultur.gov.tr
ERZURUM	**Address:** Yenişehir Caddesi No: 11 ERZURUM **Telephone:** (0442) 233 04 14 Faks : (0442) 233 04 15
SİVAS	**Address:** Yüceyurt mah. Rahmi Günay cad. Arkeoloji Müzesi SİVAS **Telephone:** (0346) 221 04 46 **Fax:** (0346) 224 40 67 **E-mail:** sivasmuzesi@kultur.gov.tr

[1] Relevant Autority will be changed for Balıkesir Province due to the opening of Balıkesir Regional Directorate of Cultural Entities Protection Board in 1 or 2 years.

PROTECTION BOARDS	AREA OF RESPONSIBILITY	ADDRESS
YOZGAT	**Address:** İstanbulluoğlu Mahallesi Müze Caddesi No:19 66100 YOZGAT **Telephone:** 0 354 212 27 73 / 212 14 94 **Fax:** 0 354 212 27 73 **E-mail:** yozgatmuzesi@kultur.gov.tr	
KIRŞEHİR	**Address:** Kültür Merkezi İçi KIRŞEHİR **Telephone:** (0386) 213 33 91	
ANKARA	**Address:** Gözcü Sokak No:2 06240 Ulus / ANKARA **Telephone:** +90 (312) 324 31 60 - 61 - 65 **Fax:** +90 (312) 311 28 39 **E-mail:** anmedmuz@ttnet.net.tr **E-mail:** anmedmuz@gmail.com	
ESKİŞEHİR	**Address:** Atatürk Bulvarı No:64 26020 ESKİŞEHİR **Telephone:** 0 (222) 230 13 71 - 220 90 16 **Fax:** 0 (222) 230 17 49 **E-mail:** muze@eskisehirmuze.gov.tr	
BURSA	**Address:** Kültürpark içi-Çekirge/BURSA **Telephone:** (0224) 234 49 18 **Fax:** (0224) 234 49 19 **E-mail:** bursamuzesi@kultur.gov.tr	
BALIKESİR /BANDIRMA	**Address:** Paşabayır Mahallesi Ziyaret Bahçesi Mevkii Bandırma BALIKESİR **Telephone:** (0266) 714 82 71	
KÜTAHYA	**Address:** Cumhuriyet Caddesi, Ulu Camii yanı KÜTAHYA **Telephone:** (0274) 223 69 90 **Fax:** (0274) 224 26 38 **E-mail:** muzemi@ttnet.net.tr	
ÇANAKKALE	**Address:** İzmir Caddesi ÇANAKKALE **Telephone:** (0286) 217 65 65 **Fax :** (0286) 217 11 05	
TEKİRDAĞ	**Address:** Kültür Sarayı Camiatik Mah. Roterdam Cad. Malkara TEKİRDAĞ **Telephone :** (0282) 427 00 53	
EDİRNE	**Address:** Meydan Mahallesi Kadirpaşa Mektep Sokak No:7 EDİRNE **Telephone:** +90(284) 225 11 20 - 225 16 25 **Fax:** (0284) 225 57 48 **E-Posta:** edirnemuzesi@kulturturizm.gov.tr **Web Site:** http://www.edirnemuzesi.gov.tr	

CULTURAL HERITAGE MANAGEMENT PLAN
ANNEX B CHANCE FINDS PROCEDURE OF EPCM AND CHMP OF CCS

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P3-A	DIC	06.06.2016	Discipline Internal Check
P3-B	IDC	13.06.2016	Interdisciplinary Check
P3-0	IAA	19.07.2016	Issued As Approved

HOLDS

No.	Section	Description	Input From	Planned Date

WorleyParsons resources & energy

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

TANAP

Chance Finds Procedure

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP Approval
P3-B	IDC	26-2-15	Issued for Inter Discipline Check	BRAC	BRAC	MORM	
P3-C	IFR	9-3-15	Issued for Review	BRAC	MORM	FLED	
P3-D	IFR	24-3-15	Issued for Review	BRAC	MORM	COTM	
P4-0	IAAC	13-4-15	Issued as Approved for Construction	BRAC	MORM	COTM	

WorleyParsons Proje Yönetimi ve Mühendislik Limited Sirketi, Kızılırmak Mah. Ufuk Üniversitesi Caddesi, Farilya Business Center No: 8/18 Kat: -1, Çukurambar - Ankara, Turkey.

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REVISION DESCRIPTION SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P3-B	IDC	26-2-15	First issue.
P3-C	IFR	9-3-15	For Review
P3-D	IFR	24-3-15	Re-issued taking into consideration Client comments.
P4-0	IAAC	13-4-15	Issued as Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

Table of Contents

Appendices

1. INTRODUCTION

EPCM is responsible for management of Construction Contractors (CCs) in relation to their obligations to protect archaeological and heritage sites/resources within their work areas. Studies undertaken during the ESIA have identified known archaeological sites in the vicinity of construction sites, which have either been avoided or salvage excavations have been undertaken. There is a possibility, however, that unknown archaeological resources – Chance Finds -- will be unearthed during construction activities.

1.1 Purpose

The purpose of this document is to outline the procedure and respective responsibilities in relation to the management of Chance Finds during construction work.

The procedure applies to all TANAP construction works, including but not limited to on-shore pipeline, compressor stations and other above ground installations. A separate procedure for addressing underwater Chance Finds will be developed in relation to the off-shore pipeline construction.

1.2 Definitions

Client	TANAP DOĞALGAZ İLETİM A.Ş.
CHANCE FIND	Potential cultural heritage objects, features or sites that are identified outside of a formal site reconnaissance, normally as a result of construction monitoring.
MUSEUM DIRECTORATE	A Directorate of the Ministry of Culture and Tourism Ministry responsible for giving advice and direction on archaeological finds. Will follow directions and decisions from Regional Board Directorate of Protection of Cultural Heritage
REGIONAL BOARD DIRECTORATE OF PROTECTION OF CULTURAL HERITAGE	A Directorate of the Ministry of Culture and Tourism Ministry responsible for giving advice and direction on archaeological finds
PROJECT	Trans Anatolian Natural Gas Pipeline Project.
EPCM	WorleyParsons Proje Yönetimi ve Mühendislik Limited Sirketi
WORK	Shall mean all and any of the WORKs and / or services and / or materials required to be provided by the EPCM under the Contract with Client.
SHALL AND MUST	Indicates mandatory requirements.
SHOULD	Indicates that a provision is not mandatory, but recommended as

good practice.

1.3 Abbreviations

Abbreviation	Definition
CC	Construction Contractor
CHMP	Cultural Heritage Management Plan
E/S	Environmental and Social
ESMS	Environmental and Social Management System
ESIA	Environmental and Social Impact Assessment
NCR	Non-Conformance Report

1.4 References

Document Number	Title
WRP-PLN-ENV-GEN-002	EPCM Environmental and Social Management System
WRP-PCD-ENV-GEN-002	Non-Conformance and Corrective Action Procedure for Environmental and Social Issues
TNP-POL-PRM-GEN-001	IMS Policy
TNP-REP-ENV-GEN-001	ESIA Report Ch 13 – App 2.4 Terrestrial Archaeology Baseline Report Constraint Maps of Archaeology

2. ROLES AND RESPONSIBILITIES

Following are respective roles and responsibilities related to Environmental and Social Management, which includes Chance Finds.

Project Role	Responsibility with Regard to E/S Management	Location
In-country Environment and Social Manager	Coordination, supervision, providing overall leadership for E/S management, organisation and planning. Reporting to TANAP on the performance of CC in relation to E/S management. Preparation or revision of E/S documentation, plans and procedures as required. Participation in the identification of significant impacts for the project, and assisting to develop relevant preventive and corrective actions. Coordination of environmental and social information flow. Ensuring that E/S mitigation measures are addressed during the detailed engineering phase and implemented and controlled during the construction and commissioning phase. Developing and implementation an environmental and social audit program and sharing lessons learned between CCs.	Ankara
E/S Compliance Manager	Ensuring consistency of compliance across multiple contractors. Reviewing and analysing reporting coming from the site teams. Preparing reports for TANAP. Participate in site audits. Support site E/S teams to ensure compliance is achieved consistently across CC activities. Assist in implementing or reviewing additional environmental or social studies/assessment that may be conducted as the project progresses.	Ankara
EPCM Construction Managers	Ensure E/S issues are being adequately addressed at site by CCs. Support E/S site leads have adequate resources on site to implement E/S monitoring and inspection activities.	Site based

E/S Site Managers	Manages site based environmental inspectors, community liaison officers and cultural heritage officers. Maintain effective communication with the construction management team. Ensure CC compliance with EISA mitigation measures, through on-site daily inspection, advice and assistance to site construction management and personnel on all environmental, social and heritage matters. Day-to-day monitoring of construction activities as they related to E/S performance. Raise NCR or Corrective Actions as required, and track closure. Participate in audits relating to E/S matters. Review and discuss any extra work space requests (E/S assessments) from CCs to ensure compliance with E/S mitigations. Implement environmental and social training for EPCM site based staff. Support CC E/S site based training. Participate in and provide input to emergency response drills. Daily reporting of E/S issues in construction activities to Construction Management. Weekly reporting of E/S issues in construction activities to Ankara functional team. Immediate reporting of incidents to both Construction Management and Ankara functional team. Participate in weekly site meetings.	Site based
Cultural Heritage Officer (CHOs)	Day-to-day monitoring of CC activities in relation to cultural heritage commitments and management. Documentation of contractor activities – both positive and negative. Direct interaction with representative of the Museum Directorate Archaeologist, or Regional Protection Board archaeologist/expert, if necessary, in line with this procedure Proactive interaction with CC staff to address issues immediately. Reporting daily to E/S site leads to identify any issues of non-compliance and/or anticipate issues than may become non complaint or incidents.	Site based

	Maintain Cultural Heritage Register. Review of CC Cultural Heritage induction and training documentation	
Construction Contractor	Provides an archaeologist(s) for each spread during ground disturbance activities. Provides Cultural Heritage training to all construction crews. Responsible for reporting all chance finds to EPCM archaeologist. Ensures that Chance Finds procedure is adequately enforced during ground disturbance activities. Responsible to archaeological excavations under the guidance of EPCM archaeologist. Ensures the implementation of the commitments found in the ESIA commitment register Prepares Cultural Heritage Management Plan and Chance Finds Procedure for EPCM and TANAP approval	Site based

3. CHANCE FINDS STEP BY STEP ACTION PROCESS

The following table outlines the step by step process to be followed upon a chance finds discovery.

STEP 1 – After the discovery of a chance find:

- All work must cease at the location where discovery is made
- A temporary buffer zone around the chance find will be put in place
- If not on site, construction crew will contact CC archaeologist. ***An archaeologist from CC should be on site during all ground disturbance activities***
- Contractor archaeologist immediately contacts:
  1. CC construction manager
  2. EPCM archaeologist
- EPCM archaeologist contacts spread boss and museum archaeologist immediately
- CC archaeologist properly secures chance find site: flagging, no-entry signs
- Contractor prevents/limit vehicle traffic within the immediate vicinity of chance find
- Protection of site: chance find should not be moved, removed or further disturbed

STEP 2 - Recording

- Contractor archaeologist fills out Part A of Chance Find form, and sends a copy to EPCM archaeologist within 24 hours
- Contractor archaeologist retains a copy of Chance Find form for his/her record

STEP 3 – Contact with local authority

- EPCM archaeologist notifies closest museum directorate archaeologist of the chance find **immediately** after receiving notification from CC archaeologist

STEP 4 – Authority's decision

- Museum directorate archaeologist notifies EPCM archaeologist on how to proceed.

STEP 4 A – No significance to site

- Per museum directorate archaeologist, site is considered to be of no significance
- EPCM archaeologist informs contractor archaeologist
- Contractor and EPCM archaeologists inform their managers
- Contractor archaeologist records decision in Part B of Chance Find form and sends a copy to EPCM archaeologist within 24 hour
- Contractor archaeologist retains a copy of Chance Find form for his/her record
- No further actions required

STEP 4 B – Significance to site

- Per museum directorate archaeologist, site is considered to be of significance
- Museum directorate archaeologist decides on further actions and informs EPCM archaeologist
- EPCM archaeologist informs contractor archaeologist
- Contractor and EPCM archaeologists inform their managers
- Contractor archaeologist records decision in Part B of Chance Find form

<table>
<tr><td colspan="2">This step closes out the chance find procedure
Construction activities may resume</td><td>Proceed to Step 5</td></tr>
<tr><td colspan="3">STEP 5 – Site investigation
Project personnel to follow museum directorate archaeologist’s instructions</td></tr>
<tr><td>After some field investigation, Museum directorate archaeologist declares <u>the site to be of no significance</u>
EPCM archaeologist informs contractor archaeologist
Contractor and EPCM archaeologists inform their managers
Contractor archaeologist records decision in Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour
Contractor archaeologist retains a copy of Chance Find form for his/her record
No further actions required
This step closes out the chance find procedure
Construction activities may resume</td><td>After some investigation, Museum directorate archaeologist declares <u>the site to be of minor significance</u>
A salvage excavation is to be completed
Museum directorate archaeologist provides instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist
EPCM archaeologist informs contractor archaeologist
Contractor and EPCM archaeologists inform their managers
Under the guidance of EPCM archaeologist (following instructions from authorities) contractor provides a team of qualified archaeologist to conduct the salvage excavation.
Once the excavation is completed, contractor archaeologist provides a report to EPCM archaeologist
EPCM archaeologist provides report to museum directorate
Regional Board Directorate of Protection of Cultural Heritage officially confirms completion of recovery and informs EPCM archaeologist.
EPCM archaeologist informs contractor archaeologist that no further actions are required.
Contractor and EPCM</td><td>After some investigation, Museum directorate archaeologist declares <u>the site to be of major significance</u>
An excavation is to be completed
Site is to be treated according to Turkish archaeological regulations “Law on the Conservation of Cultural and Natural Property (2863) 21.07.1983
Museum directorate archaeologist provides instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist
EPCM archaeologist informs contractor archaeologist
Contractor and EPCM archaeologists inform their managers
Under the guidance of EPCM archaeologist (following instructions from authorities) contractor provides a team of qualified archaeologist to conduct the salvage excavation
Once the excavation is completed, contractor archaeologist provides a report to EPCM archaeologist
EPCM archaeologist provides a report to museum directorate
Regional Board Directorate of Protection of Cultural Heritage</td></tr>
</table>

	archaeologists inform their managers • Contractor archaeologist records decision in Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour • Contractor archaeologist retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the chance find procedure • ***Construction activities may resume***	officially confirms completion of recovery and informs EPCM archaeologist. • Site will be officially recorded and protected according to Turkish regulations • EPCM archaeologist informs contractor archaeologist that no further actions are required, or that a route change is required (via Management of Change) • Contractor and EPCM archaeologists inform their managers • Contractor archaeologist records decision on Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour • Contractor archaeologist retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the chance find procedure • ***Construction activities may resume or route change is implemented (via Management of Change)***

4. MONITORING AND REPORTING

The contractor archaeologist(s) will visually monitor all ground disturbance activities during the clear and grade and trenching activities for evidence of cultural heritage items.

Chance Finds will be recorded on the Chance Finds Report form (see Appendix 1). All Chance Finds Report forms will be kept in hard copy at the appropriate construction camp and will also be scanned and saved electronically after completion of each section of the form.

Chance Finds will be recorded in the Chance Finds Register (see Appendix 2) which will be kept up to date by the EPCM site archaeologist. It will be reviewed weekly with the CC during weekly site E/S meetings. A Chance Find will not be considered “closed” until the EPCM archaeologist has instructed the CC archaeologist that construction work can resume.

The Chance Finds Register will be reported from the EPCM Site E/S team to the Ankara Functional team weekly. A summary of the status of Chance finds will be reported from EPCM to TANAP monthly.

Appendix 1 - Chance Finds Report Form

CHANCE FIND REPORT FORM
RASLANTISAL BULUNTU RAPOR FORMU

To be filled out in English
Ingilizce doldurunuz

PART A **BÖLÜM A**			
Spread: *Saha bölümü*	KP:	Date: *Tarih*	ID:
Name of person reporting chance find: *Rastlantısal buluntuyu rapor eden kişinin ismi*			
Name of contractor archaeologist contacted: *İletişime geçilen yüklenici arkeoloğun ismi*			
Was work stopped in the immediate vicinity of chance find? *Rastlantısal buluntunun tam çevresinde iş durduruldu mu?*	☐ Yes *Evet*	☐ No *Hayır*	
Was a buffer zone created to protect chance find? *Rastlantısal buluntuyu korumak için tampon bölge oluşturuldu mu?*	☐ Yes *Evet*	☐ No *Hayır*	
NOTIFICATION ***BİLDİRİM***			
Contractor construction manager contacted *Yüklenici inşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*	
EPCM archaeologist contacted *EPCM arkeoloğu ile iletime geçildi*	☐ Yes *Evet*	☐ No *Hayır*	
CHANCE FIND DETAILS ***RASLANTISAL BULUNTU AYRINTILARI***			
GPS coordinates *GPS koordinatları*	Photo record ☐ Yes ☐ No (HD quality – no cell phone photos) *Fotoğraf kaydı Evet Hayır* *(HD kalitesinde – cep telefonu fotoğrafı değil)* If not, explain why: *Yok ise nedenini açıklayınız* Other records ☐ Yes ☐ No Specify (drawings, HD quality videos, etc.): *Diğer kayıtlar Evet Hayır* *Belirtin (çizimler, HD kalite videolar, vb.)*		
Description of chance find: *Rastlantısal buluntunun tanımı*			

Description of site and vegetation: (e.g. surface sediment type, ground surface visibility, distance to closest watercourse, etc.) *Sahanın ve bitki örtüsünün tanımı: (örn. Yüzey sediman türü, yüzey zemin görünürlüğü, en yakın suyoluna olan mesafe, vb.)*
PART B ***BÖLÜM B***
NOTIFICATION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST ***_____ MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNA BİLDİRİ***
EPCM archaeologist contacted museum directorate archaeologist ☐ Yes ☐ No *EPCM arkeoloğu müze müdürlüğü arkeoloğu ile irtibata geçti.* *Evet* *Hayır* Date of notification: *Bildirim tarihi* Name of museum directorate archaeologist : *Müze müdürlüğü arkeoloğunun ismi* Contact number of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun iletişim numarası*
DECISION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST ***_____ MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNUN KARARI***
Date of initial investigation: *İlk araştırma tarihi*

☐ Site of no significance - Construction to proceed with no further investigation – End of chance find procedure *Önemsiz saha – İnşaat daha fazla araştırma yapılmadan devam edilebilir – rastlantısal buluntu prosedürün sonu.* Date of notice to resume work : *İşe başlama tarihi bildirisi*	☐ Site of significance - Further investigation required *Önemli saha – Ek araştırma gerekmektedir* Fill out Part C *Bölüm C'yi doldurun.*

Name of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun ismi* Contact information: *İletişim numarası*			
EPCM construction manager contacted *EPCM inşaat müdürü ile irtibata geçildi*		☐ Yes *Evet*	☐ No *Hayır*
Contractor archaeologist contacted *Yüklenici arkeoloğu ile irtibata geçildi*		☐ Yes *Evet*	☐ No *Hayır*
PART C ***BÖLÜM C***			
FURTHER FIELD INVESTIGATION *EK SAHA ARAŞTIRMASI*			
☐ Site of no significance *Önemsiz saha*	☐ Site of minor significance *Az önemli saha*	☐ Site of major significance *Çok önemli saha*	
Describe additional work to be conducted: *Yapılması gereken ek işlerin tanımları*			
Date started: *Başlangıç tarihi*	Date completed: *Bitiriş tarihi*		
Date of notice to resume work : *İşe başlama tarihi bildirisi*			
Name of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun ismi:* Contact information: *İletişim numarası*			
Construction manager contacted *İnşaat müdürü ile irtibata geçildi*		☐ Yes *Evet*	☐ No *Hayır*
EPCM archaeologist contacted *EPCM inşaat müdürü ile irtibata geçildi*		☐ Yes *Evet*	☐ No *Hayır*

Appendix 2 - Chance Finds Register

CHANCE FIND REGISTER

DATE OF FIND	KP	SUMMARY OF CHANCE FIND	NAME OF AUTHORITY NOTIFIED	ACTION TAKEN	CHANCE FIND FORM COMPLETED	STATUS OPEN OR CLOSED	REMARKS

Appendix 3 - Contact Information

LOT-1	Ardahan, Kars and Erzurum	
PROTECTION BOARDS	**AREA OF RESPONSIBILITY**	**ADDRESS**
Kars Regional Drectorate of Cultural Entities Preservation Board	Ardahan, Kars	Cumhuriyet Mah. İnönü Cad. İl Genel Meclis Binası No: 20 KARS 4742124072
Erzurum Regional Drectorate of Cultural Entities Preservation Board	Erzurum, Bayburt, Bingöl,Tunceli, Erzincan	Yeni Hükümet Konağı Kat: 5 ERZURUM 4422332651 4422331589

PROVINCE OF THE MUSEUM	**ADDRESS AND CONTACT INFORMATION**
KARS	**Address**: İstasyon Mah. Cumhuriyet Cad. KARS **Telephone:** : (0474) 212 14 30 - 212 38 17 Faks: (0474) 212 14 30 **E-mail:** karsmuzesi@kultur.gov.tr
ERZURUM	**Address**: Yenişehir Caddesi No: 11 ERZURUM **Telephone:** (0442) 233 04 14 Faks : (0442) 233 04 15

LOT-2	Erzurum, Bayburt, Gümüşhane, Erzincan, Sivas and Giresun	
PROTECTION BOARDS	**AREA OF RESPONSIBILITY**	**ADDRESS**
Erzurum Regional Drectorate of Cultural Entities Preservation Board	Erzurum, Bayburt, Bingöl,Tunceli, Erzincan	Yeni Hükümet Konağı Kat: 5 ERZURUM 4422332651 4422331589
Trabzon Regional Drectorate of Cultural Entities Preservation Board	Trabzon , Artvin,Gümüşhane, Giresun,Rize	Cumhuriyet Mahallesi Nemlioğlu Cemal Sokak No:25 TRABZON 4623223689 4623262988
Sivas Regional Drectorate of Cultural Entities Preservation Board	Sivas, Tokat, Malatya, Yozgat	Atatürk Kültür Merkezi Kat:4 SİVAS 3462218857

PROVINCE OF THE MUSEUM	**ADDRESS AND CONTACT INFORMATION**
ERZURUM	**Address**: Yenişehir Caddesi No: 11 ERZURUM **Telephone:** (0442) 233 04 14 Faks : (0442) 233 04 15
SİVAS	**Address**: Yüceyurt mah. Rahmi Günay cad. Arkeoloji Müzesi SİVAS **Telephone:** (0346) 221 04 46 **Fax:** (0346) 224 40 67 **E-mail:** sivasmuzesi@kultur.gov.tr
GİRESUN	**Address**: Sokak cad. No:57 Merkez/Giresun **Telephone:** (0454) 212 13 22

LOT-3	Sivas, Yozgat, Kırşehir, Kırıkkale, Ankara and Eskişehir	
PROTECTION BOARDS	**AREA OF RESPONSIBILITY**	**ADDRESS**
Kayseri Regional Drectorate of Cultural Entities Preservation Board	Kayseri, Yozgat	Tacettin Veli Mahallesi Lalezade Cad. No:6 Kiçikapı – Melikgazi / KAYSERİ
		3522311625
		3522227871
Sivas Regional Drectorate of Cultural Entities Preservation Board	Sivas, Tokat, Malatya, Yozgat	Atatürk Kültür Merkezi Kat:4 SİVAS
		3462218857
Nevşehir Regional Drectorate of Cultural Entities Preservation Board	Nevşehir, Kırşehir, Niğde	Emek Mah. Nar Yolu No: 28 NEVŞEHİR
		3842127034
Ankara 1 Regional Drectorate of Cultural Entities Preservation Board	Ankara (Çankaya, Yenimahalle, Etimesgut, Keçiören, Mamak, Gölbaşı, Kazan, Sincan, Nallıhan, Beypazarı, Ayaş, Polatlı, Çamlıdere, Kızılcahamam), Bolu, Çankırı, Kastamonu	Konya Sokak No:46 Kat 1 Ulus / ANKARA
		3123104296
Ankara 2 Regional Drectorate of Cultural Entities Preservation Board	Ankara, Çankırı, Kırıkkale, Kastamonu, Çorum,	Konya Sokak No:46 Kat 1 Ulus / ANKARA
	Bolu	3123246257
Eskişehir Regional Drectorate of Cultural Entities Preservation Board	Eskişehir, Afyon,	Arifiye Mahallesi Okullar Sokak
	Bilecik	No: 2 – ESKİŞEHİR tel: 0222 2306332

PROVINCE OF THE MUSEUM	**ADDRESS AND CONTACT INFORMATION**
SİVAS	**Address**: Yüceyurt mah. Rahmi Günay cad. Arkeoloji Müzesi SİVAS
	Telephone: (0346) 221 04 46 **Fax:** (0346) 224 40 67
	E-mail: sivasmuzesi@kultur.gov.tr
YOZGAT	**Address**: İstanbulluoğlu Mahallesi Müze Caddesi No:19 66100 YOZGAT
	Telephone: 0 354 212 27 73 / 212 14 94 **Fax:** 0 354 212 27 73
	E-mail: yozgatmuzesi@kultur.gov.tr
KIRŞEHİR	**Address**: Kültür Merkezi İçi KIRŞEHİR
	Telephone: (0386) 213 33 91
ANKARA	**Address**: Gözcü Sokak No:2 06240 Ulus / ANKARA
	Telephone: +90 (312) 324 31 60 – 61 – 65 **Fax:** +90 (312) 311 28 39
	E-mail: anmedmuz@ttnet.net.tr **E-mail:** anmedmuz@gmail.com
ESKİŞEHİR	**Address**: Atatürk Bulvarı No:64 26020 ESKİŞEHİR
	Telephone: 0 (222) 230 13 71 - 220 90 16 **Fax:** 0 (222) 230 17 49
	E-mail: muze@eskisehirmuze.gov.tr

TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc. No.	FRN-PLN-ENV-PL1-016	**Rev**	**Status**
		P4-1	Re-IAA
Document Title	Cultural Heritage Management Plan		
Tag Nos			
Contractor	**FERNAS İNŞAAT A.Ş.**		
Contractor Document No.		**Contract or Rev**	

Tick Box	Descriptions	Signature & Date
□	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
□	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
□	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
□	**C4 –** Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
□	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

FERNAS®	**TANAP** TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT (LOT-1)	TANAP WorleyParsons resources & energy

Cultural Heritage Management Plan

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	APPROVED
P4-A	DIC	24.04.2015	Discipline Internal Check	OZAD	GULA	OZKE	
P4-B	IDC	25.04.2015	Inter-Discipline Check	OZAD	GULA	OZKE	
P4-C	IFR	05.06.2015	Issued for Review	OZAD	GULA	OZKE	
P4-0	IAA	13.06.2015	Issued as Approved for Construction	OZAD	GULA	OZKE	
P4-1	Re-IAA	27.01.2016	Re-Issued as Approved for Construction	(P. OZAD	OZKE	ANSR	

DOCUMENT REVISION HISTORY SHEET

Rev.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	24.04.2015	Discipline Internal Check
P4-B	IDC	25.04.2015	Inter-Discipline Check
P4-C	IFR	05.06.2015	Issued for Review
P4-0	IAA	13.06.2015	Issued as Approved for Construction
P4-1	Re-IAA	27.01.2016	Re-Issued as Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date
1				

TABLE OF CONTENTS

1. PURPOSE AND SCOPE

Cultural Heritage Management Plan (CHMP) is prepared in order to preserve the cultural heritage and archaeological resources covering the LOT-1 construction of pipeline project corridor and minimize the possible impacts and to prepare and present how chance finds will be managed Reference Documents

- Council of Europe ETS No 143, "European Convention on the Protection of the Archaeological Heritage (Revised) (The Valletta Convention)", 1992.
- General Directorate of Preservation of Cultural and Historical Heritage, "Law on Protection of Cultural and Natural Assets (1) Law No. 2863", 1983.
- UNESCO, "Convention Concerning the Protection of the World Cultural and Natural Heritage", November 1972.
- The Project ESIA Report, Chapter 13, Annex 2.4, 22-Terrestrial Archaeology Baseline Report
- The Project ESIA Report, Chapter 13, Annex 1, 1.3 Archaeology Constraint Maps Environmental and Social Management Plan (FRN-PLN-ENV-PL1-001),
- EPCM's Chance Finds Procedure (WRP–PCD-ENV-GEN-003),
- Regulation on Determination and Registration of Immovable Cultural and Natural Heritage (Official Gazette; Date: 10.12.1987 and No: 19660)

1.1 Abbreviations

CLIENT	**:** TANAP Doğalgaz İletim A.Ş.
Project	**:** Trans Anatolian Natural Gas Pipeline Project (TANAP)
EPCM	**:** Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi
CONTRACTOR	**:** FERNAS Insaat A.S.
CHMP	: Cultural Heritage Management Plan
UNESCO	:United Nations Educational, Scientific and Cultural Organization

1.2 Definitions

Chance Find **:** Potential cultural heritage objects, features or sites that are identified outside of a formal site survey, normally as a result of construction monitoring.

Museum Directorate: A Directorate of the Ministry of Culture and Tourism responsible for giving advice and direction on archaeological finds. Will follow directions and decisions from Regional Board Directorate of Protection of Cultural Heritage.

Cultural Assets : All over-ground, underground movable and fixed assets related with science, culture, religion and fine arts, belonging to prehistoric and historic eras.

Natural Assets : The over-ground, underground or assets that belong to geological areas, prehistoric and historic areas that shall be protected because of their rarity or specifications and assigned values.

Regional Board Directorate of Protection of Cultural Heritage: Responsible authority for relevant province and only decision maker on any intervention, which would be made on the site after the chance find.

General Directorate of Cultural Heritage and Museums: A Directorate of the Ministry of Culture and Tourism Ministry responsible for protecting the cultural and natural heritage of archaeological research and the excavations, protection, and ensuring preventive measures against destruction and kidnapping

2. ROLES AND RESPONSIBILITIES

FERNAS is responsible to comply with the above mentioned procedure with all its members and subcontractor during the whole construction period. All employees involved in construction works will be trained for the implementation of the procedure.
Salvage excavations (and Chance Find issues) are under the responsibility of FERNAS.
FERNAS is responsible for archaeological test pit and , if necessary, salvages excavations, management and implementation of non-destructive research methods such as remote sensing and geophysics etc.

2.1 Project Manager

- The Project Manager has overall responsibility on the Cultural Heritage Management issues of the LOT-1 construction works.

2.2 Construction Manager

- Will be responsible to ensure that all activities performed by all staff and sub-contractors are in compliance with the FERNAS CHMP
- Will ensure all necessary staff and material are available to implement FERNAS CHMP.

2.3 Environmental Manager

- Will be responsible to ensure that all activities performed by all staff and sub-contractors are in compliance with the FERNAS CHMP
- Will be responsible to monitor CHMP,
- Will keep the chance find records,
- Will update the chance find register on a monthly basis and provide it to EPCM
- Will audit and inspect the sub-contractors to ensure compliance with CHMP,
- Will evaluate the compliance with laws, regulations and Project requirements,
- Will provide all necessary reporting to the Project Manager and EPCM,
- Will monitor the implementation of FERNAS procedures on site..

2.4 Archaeologist

- Instruction activities may continue or will be stopped.
- Will record archaeological features discovered during ground disturbance activities.
- Will provide advice in the form of a 'preliminary assessment' to the construction manager on the significance and implications of new archaeological discoveries on the pipeline route.
- Will provide awareness trainings on archaeological and cultural heritage to the personnel.
- Will ensure Chance Finds Procedure is followed (FRN-PCD-ENV-PL1-004),
- Will evaluate the compliance with laws, regulations and Project requirements,
- Will be responsible for archaeological works, salvage excavation and such archaeological issues

3. LEGISLATION FRAMEWORK

The legislation framework related to the management of cultural heritage is summarized in this section.

Law on Protection of Cultural and Natural Assets (Official Gazette; Date: 21.07.1983 and Law No: 2863):

The CHMP for archaeological and cultural heritage mitigation strategies along the pipeline corridor will be designed to meet the requirements stipulated in the Law.

The purview of the Law is "to set the definitions regarding the movable and fixed cultural and natural assets that will be protected, to define the procedures and activities to be performed and to establish the formation and responsibilities of the organization that will enforce the required principles and implementation of action decisions on this subject".

Archaeological sites classified under three categories in the Law;

1st Degree Archaeological Sites : Areas requiring highest level of protection. They should be preserved with the exception of scientific excavations. The area should be free of any type of buildings and construction. All kinds of construction, excavation, and modification activities are prohibited. However, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.

2nd Degree Archaeological Sites : Areas requiring high level of protection. They should be preserved based on the conditions of protection and utilization set by the Regional Preservation Boards. Additional construction is prohibited. The same as for the 1st Degree archaeological sites, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.

3rd Degree Archaeological Sites : Areas requiring lowest level of protection. Construction is permitted based on the decisions of Regional Preservation Boards. Before applying for a construction permit, trench excavations should be conducted and the outcomes of these excavations should be reviewed by the relevant museum and if present the head of the scientific excavation team. All excavations are under the supervision of museum expert.

Article 4 of the Law : Obligation to Inform

In case of chance find of movable or immovable cultural assets the nearest museum directorate or mukhtar in the villages, local authorities in other places should be informed. If these cultural assets are encountered within military posts and forbidden areas major commands should be duly informed. Mukhtar should inform the nearest local authority within

a day, the local authority and other authorities should report the incident to the Ministry of Culture and Tourism and the related museum directorate via formal letter. The Ministry of Culture and Tourism General Directorate of Cultural Heritage and Museums and related Regional Board Directorate of Protection of Cultural Heritage are responsible for the registration of the cultural heritage.

Article 7 of the Law : Legal Necessities before the Impact Mitigation Measures

The article stated that the related Regional Board Directorate of Protection of Cultural Heritage are responsible for the registration of the cultural and natural heritage. Therefore, for the registration of the immovable cultural assets. It is required to apply officially and directly to the related Regional Board Directorate of Protection of Cultural Heritage.

Regulation on Determination and Registration of Immovable Cultural and Natural Heritage (Official Gazette; Date: 10.12.1987 and No: 19660)

The aim of this regulation is introduced principles on permits about researches and excavations will be conducted under the law of protection of cultural and natural entities, the preservation necessities of the findings, studies on these findings, the assignments, duties and authorizations, rights and expenses of the related persons.

European Convention on the Protection of the Archaeological Heritage (Valetta, 16/01-1992):

This convention is known as the Valetta Convention. It sets guidelines for the funding of excavation and research work and publication of research findings.

Convention Concerning the Protection of the World Cultural and Natural Heritage (1972):

The signatories of the convention have agreed “to ensure that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage" on their territories.

4. METHOD

4.1 Chance Find(s)

During construction phase all ground disturbance activities (topsoil stripping, all excavations,

trenching etc.) will be monitored by FERNAS archaeologist(s). Upon coming across an archaeological find, the archaeologist will stop the work and immediately contact FERNAS Construction Manager and the EPCM archaeologist. The site will be put under protection by flagging, no entry signs etc. Construction machinery will be removed from the area of the archaeological find and the area will be cordoned off by warning tapes.

FERNAS will ensure the implementation of all the commitments stated in the ESIA. Also, FERNAS will be responsible for the compliance of FERNAS's and all sub-contractor's site works with respect to the project specific plans, all relevant project standards, statutory requirements, permits and licences, and security issues.

Prior to the removal of artefacts from the ROW, the FERNAS archaeologist(s) will follow the chance find procedure and will follow the recommendation of the museum directorate via the EPCM archaeologist.

All ground activities will be monitored in case of encountering archaeological findings. In order to be able increase the awareness and informing the site personnel regarding with the related procedure to be followed, for coming across an archaeological find, FERNAS will conduct "Cultural Heritage Management Plan" trainings in monthly bases and toolbox talks will be done in weekly bases. Related attendance sheets shall be shared with EPCM in monthly bases.
FERNAS is responsible for the implementation of the chance find procedure as follow:

FERNAS Chance Find Procedure

Purpose and Scope

Any type of ground disturbance activities has the potential to lead to an archaeological chance find.

Procedure

Any physical remains of past human activity, including plant and animal remains, structural remains and soil features are defined as archaeological entities.

In the event of discovery of an archaeological entity the following procedure will be implemented:

STEP 1 – After the discovery of a chance find:

- All work must cease at the location where discovery is made
- A temporary buffer zone around the chance find will be put in place
- If not on site, construction crew will contact FERNAS archaeologist(s). FERNAS archaeologist(s) will be on site during all ground disturbance activities
- FERNAS archaeologist(s) immediately contacts with EPCM archaeologist and Fernas Construction manager
- EPCM archaeologist contacts his/her spread boss and museum archaeologist immediately
- FERNAS archaeologist(s) properly secures chance find site: flagging, no-entry signs
- FERNAS prevents/limit vehicle traffic within the immediate vicinity of chance find
- Protection of site: chance find should not be moved, removed or further disturbed

STEP 2 – Recording

- FERNAS archaeologist(s) fills out Part A of Chance Find form (Appendix 1), and sends a copy to EPCM archaeologist within 24 hour
- FERNAS archaeologist(s) retains a copy of Chance Find form for his/her record

STEP 3 – Contact with local authority

- EPCM archaeologist notifies closest museum directorate archaeologist of the chance find immediately after receiving notification from FERNAS archaeologist(s)

STEP 4 – Authority's decision

- Museum directorate archaeologist notifies EPCM archaeologist on how to proceed

STEP 4 A – No significance to site	**STEP 4 B – Significance to site**
Per museum directorate archaeologist,	Per museum directorate archaeologist, site is considered to be of significance

site is considered to be of no significance	
EPCM archaeologist informs FERNAS archaeologist	Museum directorate archaeologist decides on further actions and informs EPCM archaeologist
FERNAS and EPCM archaeologists inform their managers	EPCM archaeologist informs FERNAS archaeologist
FERNAS archaeologist records decision in Part B of Chance Find form and sends a copy to EPCM archaeologist within 24 hour	FERNAS and EPCM archaeologists inform their managers
FERNAS archaeologist retains a copy of Chance Find form for his/her record	FERNAS archaeologist records decision in Part B of Chance Find form
No further actions required	Proceed to Step 5
This step closes out the chance find procedure	
Construction activities may resume	

STEP 5 – Site investigation

- Project personnel to follow museum directorate archaeologist's instructions

- After some field investigation, Museum directorate archaeologist declares the site to be of no significance - EPCM archaeologist informs FERNAS archaeologist - FERNAS and EPCM archaeologists inform their managers - FERNAS archaeologist records decision in Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour - FERNAS archaeologist retains a copy of Chance Find form for his/her record - No further actions required - This step closes out the chance find procedure - Construction activities may resume	- After some investigation, Museum directorate archaeologist declares the site to be of minor significance - A salvage excavation is to be completed - Museum directorate archaeologist provides instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist - EPCM archaeologist informs FERNAS archaeologist - FERNAS and EPCM archaeologists inform their managers - Under the guidance of EPCM archaeologist (following instructions from authorities) FERNAS provides a team of qualified archaeologist to conduct the salvage excavation. - Once the excavation is completed, FERNAS archaeologist provides a report to EPCM archaeologist - EPCM archaeologist provides report to museum directorate - Regional Board Directorate of	- After some investigation, Museum directorate archaeologist declares the site to be of major significance - An excavation is to be completed - Site is to be treated according to Turkish archaeological regulations "Law on the Conservation of Cultural and Natural Property (2863) 21.07.1983 - Museum directorate archaeologist provides instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist - EPCM archaeologist informs FERNAS archaeologist - FERNAS and EPCM archaeologists inform their managers - Under the guidance of EPCM archaeologist (following instructions - from authorities) FERNAS provides a team of qualified archaeologist to conduct the salvage excavation - Once the excavation is completed, FERNAS archaeologist provides a report to EPCM archaeologist - EPCM archaeologist provides a

	Protection of Cultural Heritage officially confirms completion of recovery and informs EPCM archaeologist. - EPCM archaeologist informs FERNAS archaeologist that no further actions are required. - FERNAS and EPCM archaeologists inform their managers - FERNAS archaeologist records decision in Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour - FERNAS archaeologist retains a copy of Chance Find form for is/her record - No further actions required - This step closes out the chance find procedure - Construction activities may resume	report to museum directorate - Regional Board Directorate of Protection of Cultural Heritage officially confirms completion of recovery and informs EPCM archaeologist. - Site will be officially recorded and protected according to Turkish regulations - EPCM archaeologist informs FERNAS archaeologist that no further actions are required, or that a route change is required (via Management of Change) - FERNAS and EPCM archaeologists inform their managers - FERNAS archaeologist records decision on Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour - FERNAS archaeologist retains a copy of Chance Find form for his/her record - No further actions required - This step closes out the chance find procedure - Construction activities may resume or route change is implemented (via Management of Change)

No blasting will be conducted within 200m of any known archaeological sites.

Pre-Identified Archaeological Sites

The archaeological and cultural heritage findings in Lot 1 are listed in the below table (Ref.: ESIA Report, Chapter 7, Section 3.3.8);

Table 4.1. Archaeological and Cultural Heritage Findings in Lot 1

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
1	AyMinor Gölü	Ardahan	5+780-6+000	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. It is located within the 500m corridor at a distance of about 79 m. to the main axis. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
2	Tuya	Ardahan	13+950-14+000	No Change	1	No material change to the site or feature		x			The area conceals a "Fortress / Watch Tower". It is located 1 km southwest of Yurtbekler Village, 2 km north of Cambeli Village, 250-300 m north of Posof Creek over a rocky area. It is most probably built in Middle Ages. Part of the walls of a rectangular structure which resembles a small Fortress or Watch Tower is still standing. Registration process has been carried out by Kars Regional Board for Preservation of Cultural Assets.It is located within the 500m corridor at a distance of about 136 m. to the main axis. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
3	Alabalık Deresi	Ardahan	50+850-50+950	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. It is located within 500 m. pipeline corridor at a distance of 42 m to the main axis. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.
4	Kirmav Şapel	Ardahan	58+470-58+540	No Change	1	No material change to the site or feature		x			The area conceals a building which is most probably a Chapel. It is located 2 km south of Hanak, on the western bank of Cotsuyu Creek, on the north of Kirmav Fortress and about 1.5 km northwest of Cayagzi Village. The building was totally torn down but some rubble stones are observed on the surface. Considering the type of structure and surface findings it can be concluded that it belongs to Middle Ages. The area is located within the 500 m construction corridor at a distance of 69.6 m to the main axis. Registration process has been carried out by Kars Regional Board for Preservation of Cultural Assets. As expert opinion it is recommended that construction activities in the vicinity of the archaeological region should be carried out under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
5	Kirmav Düz Yerleşim	Ardahan	58+500-58+700	No Change	1	No material change to the site or feature		x		x	The area is a "Flat Settlement". It is located 2.5 km south of Hanak, 1 km northwest of CayagMinori Village, 500 m north of Kirmav Fortress. It is most probably a settlement related to Kirmav Fortress. In addition to potsherds, stone foundation belonging to an architectural structure were observed. The patterned pieces belonging to surface ceramics dates the location to Middle Ages. Registration process has been carried out by Kars Regional Board for Preservation of Cultural Assets. The site is within the 500 m impact corridor of the pipeline and 185.24 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
6	Kartalpınar	Ardahan	71+400-71+580	No Change	1	No material change to the site or feature		x			The Huyuk is 1 km southwest of Kartalpinar village, 750 m north of Ortagecit Village on the northern slopes of Kura River. Intense potsherds were observed over the Huyuk surface. Some painted and patterned ceramics provide information about date of the area. Based on this information, the settlement is estimated to be used between Late Chalcolithic period to Early Bronze age. Registration process has been carried out by Kars Regional Board for Preservation of Cultural Assets. The site is within the 500 m impact corridor of the pipeline and 27 m. away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
7	Ziyaret	Kars	139+500-139+590	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board (Ref. Document No:83416310/36.00.444791). It is located within the 500 m impact corridor. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
8	İnceçayır	Kars	143+580-143+600	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 235 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
9	Yassıca Yamaç Yerleşimi	Kars	145+600-145+710	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is a slope settlement. The area is located within 500 m pipeline corridor 38 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
10	Yassıca TepeüstüYerleşimi	Kars	145+720-145+850	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is a slope settlement. The area is located within 500 m pipeline corridor 183 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
11	Koşapınar	Kars	149+750-150+250	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 39 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
12	Kaledüzü	Kars	155+400-156+080	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 52 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
13	Güllü	Kars	157+300-157+620	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 38 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
14	Çatak	Kars	166+290-166+440	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 142 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
15	Memorial & Military Trenches	Kars	170+100-182+700	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide:		x			Trenches, battlefields and war graves can be frequently seen on the 500 m corridor of the Tanap pipeline route. The trenches consist of square or rectangular shaped ground pits 2-2.5 m in depth and 10-20 m2 in size. The trenches have a single entrance and their inner walls and entrances are reinforced with stones. Tunnels connecting the trenches can also be seen. In the corners of some of these trenches, there are sections that might have been used as guard posts. A monumental tomb dedicated to war heroes is located on the vicinity of the Tanap pipeline route. Many scattered trenches and similar structures were observed on the corridor within the specified boundaries. On the other hand, no traces of such structures were observed on the Sahdeniz pipeline crossing and its surroundings. Therefore, it is recommended to cross the area as close as possible to the Sahdeniz line and conduct the construction Works under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
						10-30% surviving deposits damaged or destroyed)					
16	Kurt Deresi	Kars	172+400-173+350	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 40 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
17	YMinorı lının	Kars	193+200-193+450	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Kars Preservation Board. The area is located within 500 m pipeline corridor 64 m away from the main axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
18	Deveağılı	Erzurum	219+180-219+380	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x	x		It is a "Kurgan" type pile-up tomb. It is located 800 m east of Gokce District, 750 m west of Deveagili Reef. It is about 1 m high and most probably belongs to Iron Age. According to Erzurum Preservation Board decision dated 27.09.2013 with no.930, the site is registered as 1st. degree protection site. The board decision dated 19.12.2013 with no. 1002 states that archaeological excavaions are needed for the final decision.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
19	Tabya Tepe	Erzurum		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)	x	x			The site is located on 3.5 km northwest of Köprüköy district and 1.5 km southwest of 23 Temmuz Lake in Tabyalar Mevkii. The area is planning to be used as Fly Camp/Pipe Stock Yard and consists of a bastion constructed during 1877-1878 Ottoman – Russian War. On the surface of the bastion constructed as rectangle plan soil masonry, pieces of cartridge were discovered with Ottoman writings on it. According to 28.02.2014 dated and 1084 numbered decision of Erzurum Preservation Board of Cultural Assets, the site is stated Historical Site and the Fly Camp/Pipe Stock Yard should be planned outside of the site.
20	Demirdöven Kilisesi	Erzurum	271+300-271+680	Negligible	2	Very minor changes to archaeological materials, or setting	x	x	x		The area covers an old church and a settlement area. It starts on the edge of the road connecting Pasinler-Demirdoven to the main road. The area is located about 750 m. southwest of the Demirdoven village centre. The church is on the hill located on the left handside of the road to the village and it is partially intact. It is contructed with block stones and rubbles. The area is registered with the Erzurum Presservation Board decision dated 27.09.2013 and numbered 926. With decision 19.12.2013 and numbered 1002, the board further decided that archaeological excavations are needed for final decision.
21	Askeri Beton Korugan 5	Erzurum	289+650-289+700	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 300 m southwest of Cogender Village, 500 m east of Yigittasi Village, 600 m north of highway from Erzurum to Pasinler. They were built during World War II against a possible Soviet invasion. The area is located 72 m away from the main construciton axis. It is recommended to carry out all construction activities in the region under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
22	Askeri Beton Korugan 4	Erzurum	289+920-289+950	Negligible	2	Very minor changes to archaeological materials, or setting		x			The Military Concrete Trenches are located 300 m southwest of Cogender Village, 500 m east of Yigittasi Village, 600 m north of highway from Erzurum to Pasinler. They were built during World War II against a possible Soviet invasion. The area is located 15 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
23	Askeri Beton Korugan 3	Erzurum	290+040-290+070	Negligible	2	Very minor changes to archaeological materials, or setting		x			The Military Concrete Trenches are located 300 m southwest of Cogender Village, 500 m east of Yigittasi Village, 600 m north of highway from Erzurum to Pasinler.They were built during World War II against a possible Soviet invasion. The area is located 15 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities physically avoding the trench under archaeological monitoring.
24	Askeri Beton Korugan 8	Erzurum	293+600-293+630	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1.5 km northwest of Ovaköy, 1 km southwest of Golcigez Village and 500 m west of Susuzlar Hill. They were built during World War II against a possible Soviet invasion. The area is located 110 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
25	Askeri Beton Korugan 9	Erzurum	293+650-293+680	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1,300 m north of Ovaköy, 1,500 m southwest of Golcigez Village. They were built during World War II against a possible Soviet invasion.The area is located 243 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
26	Askeri Beton Korugan 10	Erzurum	294+280-294+300	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1,600 m southwest of Saksı Village. They were built during World War II against a possible Soviet invasion. The area is located 89 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
27	Askeri Beton Korugan 11	Erzurum	294+300 - 294+320	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1,500 m southwest of Saksı Village. They were built during World War II against a possible Soviet invasion. The area is located 68 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
28	Askeri Beton Korugan 2	Erzurum	294+400-294+420	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1.5 km northwest of Ovaköy, 1 km southwest of Golcigez Village and 500 m west of Susuzlar Hill. They were built during World War II against a possible Soviet invasion. The area is located 312 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
29	Askeri Beton Korugan 1	Erzurum	294+510-294+530	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 1.5 km northwest of Ovaköy, 1 km southwest of Golcigez Village and 500 m west of Susuzlar Hill. They were built during World War II against a possible Soviet invasion. The area is located 427 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
30	Askeri Beton Korugan 6	Erzurum	294+580-294+600	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 2 km south of Saksı Village, 500 m north of Erzurum highway. They were built during World War II against a possible Soviet invasion.The area is located 394 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
31	Askeri Beton Korugan 7	Erzurum	294+700-294+720	No Change	1	No material change to the site or feature		x			The Military Concrete Trenches are located 2 km south of Saksı Village, 500 m north of Erzurum highway. They were built during World War II against a possible Soviet invasion. The area is located 429 m away from the main construction axis. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring.
32	Dolangez	Erzurum	298+850-300+400	Negligible	2	Very minor changes to archaeological materials, or setting	x	x	x		The estate was registered as immovable cultural asset by the Higher Council of Historical Assets and Monuments on 15.05.1976 with decision A-65. Erzurum Board for Preservation of Cultural Assets declared the location as protected area on 25.11.2011 with decision 71. The 48 m construction corridor passes through the protected area. On 19.12.2013 with decision no 1002, Erzurum Preservation Board decided to conduct archaeological excavations before taking final decision. The board also requires detailed environment protection plan.
33	Dolangez Yolu	Erzurum	299+700-300+220	Negligible	2	Very minor changes to archaeological materials, or setting		x			It is an old military road leading to Dolangez Bastions and was built by Sultan AbdulMinoriz in the 1820s. The stone paved road is 2 km long and 5 m wide. It starts on the Tilki Delikleri region near Tetikom and reaches to Dolangez Bastions. It is recommended that, for the section inside the construction corridor, the road pavement plan and other features should be documented before the construction and it should be restored based on the documents following the construction.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
34	Değirmentepesi Kalesi	Erzurum	306+100-306+280	No Change	1	No material change to the site or feature		x			The area is a Citadel type of settlement. It is located east of the road from Çayırtepe to Koseahmet, over the Degirmentasi Hill, 1 km east of Tasmasor archaeological area, on the immediate east of Taslik Region settlement. The fortress was build over the terraces made on the hill. Some stone walls are still visible. Illegal excavation pits were observed in the area. Based on the surface findings, it could be concluded that the fortress belongs to middle ages. The area is 243 m away from the construction main axis. and registered as first degree protection site by Erzurum Preservation Board decision numbered 27.09.2013, no: 930. As expert opinion it is recommended to conduct all construction activities uner archaeological supervision.
35	Tasmasor II	Erzurum	306+480-307+080	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)	x	x	x		The area is a "Flat Settlement" belonging to Middle Ages. It is located 2 km northeast of Cayirtepe Village and 1 km north of Tasmasor archaeological area. Potsherds belonging to Middle Ages were observed on the surface. Traces of structure walls built on a rectangular plan were also observed. Furthermore, illegal excavation pits dug by treasure hunters were noticed. The area is registered as first degree protection site by Erzurum Preservation Board decision numbered 27.09.2013, no: 930. On 19.12.2013 with decision no 1002, the board further decided to conducts archaeological excavations before taking a final decision.

Besides, FERNAS will obey the instructions given by the Board of Conservation, given below;

Table 4.2 Archaeological Sites indicated by the Decisions of Board of Conservation

Related Board	Related Province	Decisions of Regional Board Directorate of Protection of Cultural Heritage	Route J, Approx. KP		Board of Text Summary
Kars RBPPCH	Ardahan+Kars	Experts Opinion: One must note that it is vital at this area to pass as close as possible to the other pipeline)	171+500 - 183+200	There is no any decision for the military trench)	An extra care must be taken in during all the excavations done at the areas including military trenches and archaeological observation must be done all the time
Erzurum RBPPCH	Erzincan+Erzurum+ Bayburt	19.12.2013 date and 1002 No; Archaeological sites of Tasmasor II, Deveağılı Kurganı, Demirdöven Church and Dolangez bastion.. In decision; The excavations can be done in the supervision of museums directorate	220+200- 220+350 272+500- 272+650 300+00 - 300+800 307+400- 308+100	Pls. refer to TANAP-MNR-LET-TNP-0040_Erzurum Kültür Varlıkları.pdf and http://opentextcs/otcs/livelink.exe/properties/215375	TANAP had prepared an excavation management plan regarding the locality of Dolangez Bastion and presented it to the Erzurum RPB. Archaeological pre-construction excavations will be undertaken during the spring of 2015
		There is no any decision or registered for the road of the Dolangez bastion	300+800	Road of the Dolangez bastion is not registered	Road of the Dolangez bastion is unregistered. Whitin in the Terristrial Archaeology Baseline Report, the road is proposed to be restored

4.2 Intangible Cultural Resources

FERNAS will identify if Project activities can interfere with traditional celebrations or festivities via CLOs verbal contact with local Authorities (such as mukhtars, sub-governors) on a regular basis, especially before the start of construction activities. Alternative solutions will be agreed with local authorities to minimize the interference or restriction of access to elements of traditional culture.

5. MONITORING AND REPORTING

The FERNAS's archaeologist (s) will visually monitor all ground disturbance activities during the clearance, grading, trenching activities and all ground disturbance activities such as topsoil stripping and excavations, for the evidence of cultural heritage items.

Chance Find register, given in Appendix 2, will be kept to record all chance finds in a format approved by EPCM. FERNAS will submit Monthly reports including Chance Find registers to EPCM.

6. TRAINING

ALL personnel will receive an overview of project cultural heritage management requirements. Details are given below;

Course Title	**Cultural Heritage Management**
Duration	TBD
Key Objective(s)	To make attendees aware of the scale of culture and heritage evident across the TANAP pipeline route as well the requirements of the Cultural and Heritage Management Plan
Issues to be covered	-Consequences of destroying archaeology -Requirements of the Cultural and Heritage Management Plan -Procedures to be followed in the event of chance finds
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All staff

Besides, in order to be able increase the awareness and informing the site personnel regarding with the related procedure to be followed, for coming across an archaeological find, FERNAS will conduct “Cultural Heritage Management Plan” trainings in monthly bases and toolbox talks will be done in weekly bases. Related attendance sheets shall be shared with EPCM in monthly bases.

APPENDIX-1: Chance Find Report Form

CHANCE FIND REPORT FORM
RASLANTISAL BULUNTU RAPOR FORMU

To be filled out in English
Ingilizce doldurunuz

PART A **BÖLÜM A**			
Spread: *Saha bölümü*	KP:	Date: *Tarih*	ID:
Name of person reporting chance find: *Rastlantısal buluntuyu rapor eden kişinin ismi*			
Name of contractor archaeologist contacted: *İletişime geçilen yüklenici arkeoloğun ismi*			
Was work stopped in the immediate vicinity of chance find? *Rastlantısal buluntunun tam çevresinde iş durduruldu mu?*	☐ Yes *Evet*	☐ No *Hayır*	
Was a buffer zone created to protect chance find? *Rastlantısal buluntuyu korumak için tampon bölge oluşturuldu mu?*	☐ Yes *Evet*	☐ No *Hayır*	
NOTIFICATION ***BİLDİRİM***			
Contractor construction manager contacted *Yüklenici inşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*	
EPCM archaeologist contacted *EPCM arkeoloğu ile iletime geçildi*	☐ Yes *Evet*	☐ No *Hayır*	
CHANCE FIND DETAILS ***RASLANTISAL BULUNTU AYRINTILARI***			
GPS coordinates *GPS koordinatları*	Photo record ☐ Yes ☐ No (HD quality – no cell phone photos) *Fotoğraf kaydı Evet Hayır* *(HD kalitesinde – cep telefonu fotoğrafı değil)* If not, explain why: *Yok ise nedenini açıklayınız* Other records ☐ Yes ☐ No Specify (drawings, HD quality videos, etc.): *Diğer kayıtlar Evet Hayır* *Belirtin (çizimler, HD kalite videolar, vb.)*		
Description of site and vegetation: (e.g. surface sediment type, ground surface visibility, distance to closest watercourse, etc.) *Sahanın ve bitki örtüsünün tanımı: (örn. Yüzey sediman türü, yüzey zemin görünürlüğü, en yakın suyoluna olan mesafe, vb.)*			

PART B
BÖLÜM B

NOTIFICATION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST
_____ MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNA BİLDİRİ

EPCM archaeologist contacted museum directorate archaeologist ☐ Yes ☐ No
EPCM arkeoloğu müze müdürlüğü arkeoloğu ile irtibata geçti. *Evet* *Hayır*

Date of notification:
Bildirim tarihi

Name of museum directorate archaeologist :
Müze müdürlüğü arkeoloğunun ismi

Contact number of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun iletişim numarası

DECISION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST
_____ MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNUN KARARI

Date of initial investigation:
İlk araştırma tarihi

☐ Site of no significance - Construction to proceed with no further investigation – End of chance find procedure *Önemsiz saha – İnşaat daha fazla araştırma yapılmadan devam edilebilir – rastlantısal buluntu prosedürün sonu.* Date of notice to resume work : *İşe başlama tarihi bildirisi*	☐ Site of significance - Further investigation required *Önemli saha – Ek araştırma gerekmektedir* Fill out Part C *Bölüm C'yi doldurun.*

Name of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun ismi

Contact information:
İletişim numarası

EPCM construction manager contacted ☐ Yes ☐ No
EPCM inşaat müdürü ile irtibata geçildi *Evet* *Hayır*

Contractor archaeologist contacted ☐ Yes ☐ No
Yüklenici arkeoloğu ile irtibata geçildi *Evet* *Hayır*

PART C ***BÖLÜM C***		
FURTHER FIELD INVESTIGATION *EK SAHA ARAŞTIRMASI*		
☐ Site of no significance *Önemsiz saha*	☐ Site of minor significance *Az önemli saha*	☐ Site of major significance *Çok önemli saha*
Describe additional work to be conducted: *Yapılması gereken ek işlerin tanımları*		
Date started: *Başlangıç tarihi*	Date completed: *Bitiriş tarihi*	
Date of notice to resume work : *İşe başlama tarihi bildirisi*		
Name of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun ismi:* Contact information: *İletişim numarası*		
Construction manager contacted *İnşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*
EPCM archaeologist contacted *EPCM inşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*

APPENDIX-2: Chance Finds Register

CHANCE FIND REGISTER - SPREAD 1/2

Reporting Period:

Total of chance find	
To date	**This reporting Period**

ID (*)	DATE OF CHANCE FIND	KP	CHANCE FIND SUMMARY	NAME OF AUTHORITY NOTIFIED	DATE PART A COMPLETED	DATE PART B COMPLETED	DATE PART C COMPLETED	STATUS OPEN OR CLOSED	REMARKS
SP1-1									
SP1-2									
SP1-3									
SP1-4									

(*) Keep same ID format

APPENDIX-3: Contact Information

LOT-1:

Protection Boards	Area of Responsibility	Address
Kars Regional Directorate of Cultural Entitles Preservation Board	Ardahan, Kars	Cumhuriyet Mah. Ġnönü Cad. il Genel Meclis Binası No: 20 Kars
Erzurum Regional Directorate of Cultural Entitles Preservation Board	Erzurum, Bayburt, Bingöl, Tunceli, Erzincan	Yeni Hükümet Konağı Kat: 5 Erzurum

Province of The Museum	Address and Contact Information
KARS	Address: Istasyon Mah. Cumhuriyet Cad. Kars Telephone: : (0474) 212 14 30 - 212 38 17 Fax: (0474) 212 14 30 E-posta: karsmuzesi@kultur.gov.tr
ERZURUM	Address: Yenişehir Caddesi No: 11 Erzurum Telephone: (0442) 233 04 14 Fax : (0442) 233 04 15

TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Doc.No.	SYA-PLN-ENV-GEN-006	REV	P4-C
Document Title :	Cultural Heritage Management Plan		
Tag Nos :			
Contractor :	SYA - Sicim-Yuksel-Akkord JV	REV	

		Signature	Date
	C1- Reviewed & accepted as final & certified. Work may proceed.		
	C2- Reviewed & accepted as marked. Revise & resubmit. Work may proceed.		
	C3- Reviewed & returned. Correct & resubmit. Work shall NOT proceed.		
	C4- Review not required. For information only. Work may proceed		

Remarks:

Prepared by: On behalf of: YÜKSEL SICIM-YUKSEL-AKKORD JV	TANAP - TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT – LOT 2	TANAP WorleyParsons resources & energy

CULTURAL HERITAGE MANAGEMENT PLAN

Rev.	Status	Date (dd/mm/aa)	Document status Description	Issued by	Checked by	Approved by	TANAP Approval
P4-E	Re-IFR	29/04/2015	Re-Issued for Review **(CANCELING SYA-PLN-SOC-GEN-006)**	ARAO	KURV	TENP	
P4-0	IAAC	04/05/2015	Issued as Approved for Construction	ARAO	KURV	TENP	

DOCUMENT REVISION HISTORY SHEET

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P4-0	IAAC	04/05/2015	Issued as Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

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APPENDICES

LIST OF ABBREVIATIONS

CHMP	***Cultural Heritage Management Plan***
ICOMOS	***International Council of Monuments and Sites***
IFA	***Institute of Field Archaeologists***
No	***Number***
SYA	**Sicim, Yüksel and Accord Consortium**
UNESCO	***United Nations Educational, Scientific and Cultural Organization***
TANAP	***Trans Anatolian Natural Gas Pipeline Project***

LIST OF DEFINITIONS

EPCM	***Worley Parsons Proje Yönetimi ve Mühendislik Limited Şirketi***

1. PURPOSE AND SCOPE

The intention of this Cultural Heritage Management Plan (CHMP) is to preserve the *archaeological and* cultural heritage within the scope of Lot 2 of TANAP Project and minimize the possible impacts. The impact mitigation considering the existing and potential archaeological sites at the project area within Lot 2 is possible by developing a management plan. Therefore, the construction activities within the scope of TANAP Project should be conducted under the scope of this management plan. In the document, a management plan is defined in general terms for the archaeological heritage along the Lot 2 Section of TANAP route remaining within the boundaries of Turkey.

2. LEGISLATION FRAMEWORK

In this section, the legislation framework that is related to the management of cultural heritage is summarized.

2.1. Law on Protection of Cultural And Natural Assets (Law No: 2863 (published in the Official Gazette dated July 21, 1983))

The management plan for archaeological heritage mitigation strategies along the pipeline corridor is to be designed to meet the requirements stipulated in the Law on Protection of Cultural and Natural Assets, Law No. 2863, (July 21, 1983).

The objective of the Law is to set the definitions regarding the movable and fixed cultural and natural assets that shall be protected; to define the procedures and activities to be performed and to establish the formation and responsibilities of the organization that will enforce the required principles and implementation of action decisions on this subject." (Official Gazette, 23/7/1983 number 18113).

In the law archaeological sites are classified under three categories. These are:

- 1st Degree Archaeological Sites,
- 2nd Degree Archaeological Sites,
- 3rd Degree Archaeological sites.

1st Degree Archaeological Sites: Areas requiring highest level of protection. They should be preserved with the exception of scientific excavations. The area should be free of any type of buildings and construction. All kinds of construction, excavation, and modification activities are prohibited. However, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.

2nd Degree Archaeological Sites: Areas requiring ***high*** level of protection. They should be preserved based on the conditions of protection and utilization set by the Regional Preservation Boards. Additional construction is prohibited. As for the 1st Degree Site Degree archaeological sites, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.

3rd Degree Archaeological Sites: Lowest level of protection area. Construction is permitted based on the decisions of Regional Preservation Boards. Before applying for a construction permit, test pit excavations should be conducted and the outcomes of these excavations should be reviewed by the relevant museum and, if present, the head of the scientific excavation team. ***All excavations are under the supervision of museum expert.*** Reviews should be submitted to Regional Preservation Boards. The Boards may ask for extension of the areal test pit coverage before taking any decision.

The archeological and cultural heritage findings in Lot 2 that were listed in the ESIA Report (Chapter 7.3.3) are listed in the tables given in Appendix-1.

2.1.1. Definitions (Article 3 of the Law numbered 2863)

Article 3 of the Protection of Cultural and Natural Entities Law provides the following definitions:

- ***Cultural Assets are all over-ground, underground or submarine movable and fixed assets related with science, culture, religion and fine arts, belonging to prehistoric and historic eras.***
- ***Natural Assets are the over-ground, underground or submarine assets that belong to geological eras, prehistoric and historic eras and that shall be protected because of their rarity or specifications and preciousness.***

2.1.2. Obligation to Inform (Article 4 of the Law numbered 2863)

In case of chance find of movable or immovable cultural assets, the nearest museum directorate or mukhtar in the villages, local authorities in other places should be informed. If these cultural assets are encountered within military posts and forbidden areas, major commands should be duly informed. Mukhtar should inform the nearest ***local*** authority within a day (24 hours), the ***local*** authority and other authorities should report the incident to the Ministry of Culture and Tourism and the related museum directorate via formal letter. The Ministry of Culture and Tourism, General Directorate of Cultural ***Heritage and Museums*** and related ***Regional Board Directorate of Protection of Cultural Heritage*** are responsible for the registration of the cultural heritage.

2.1.3. Legal Necessities before the Impact Mitigation Measures (Article 7 of the Law numbered 2863)

In Article 7, it is stated that the related ***Regional Board Directorate of Protection of Cultural Heritage*** are responsible for the registration of the cultural and natural heritage. Therefore, for the registration of the immovable cultural assets, it is required to apply officially and directly to the related ***Regional Board Directorate of Protection of Cultural Heritage***.

2.2. Regulation on Determination and Registration of Immovable Cultural and Natural Heritage (Official Gazette dated 10.12.1987 and numbered 19660)

The aim of this regulation is to introduce principles on permits about researches and excavations to be conducted under the law of protection of cultural and natural entities, the preservation necessities of the findings, studies on these findings, the assignments, duties and authorizations, rights and expenses of the related persons.

2.3. European Convention on The Protection of The Archaeological Heritage (Revised) (Valetta, 16/01-1992)

This convention is known as the Valetta Convention. It sets guidelines for the funding of excavation and research work and publication of research findings. It also deals with public access, in

particular to archaeological sites, and educational actions to be undertaken to develop public awareness of the value of the archaeological heritage.

2.4. Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972

Turkey is a signatory to this Convention (The World Heritage Convention), which was approved by The General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), meeting in Paris from 17 October to 21 November 1972.

The signatories to this Convention have agreed "to ensure that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage" on their territories.

3. ROLES AND RESPONSIBILITIES

SYA will be responsible for the preparation and implementation of the environmental and social impact assessment based management plans, which will be project specific. These plans shall be practical, detailed procedures for use in the field.

SYA will ensure the implementation of the commitments stated in the ESIA.

SYA will also be responsible for the performance of all sub-contractors with respect to the project specific plans and shall comply with all relevant project standards, statutory requirements, permit and licence conditions and secure all applicable permits and licences.

3.1. Management of Cultural Heritage

The basic definitions regarding the management of cultural heritage are given in the following bullets:

- Ministry of Culture and Tourism is the responsible authority.
- Museum Directorate is responsible to provide experts for the sites within 24 hours after being informed and to officially define the Chance Find (see Appendix-2). ***Museum directorate is responsible excavation of chance find areas. Museum Directorate will follow the directions and decisions from Regional Board Directorate of Protection of Cultural Heritage***.
- ***Regional Board Directorate of Protection of Cultural Heritage*** is the only decision maker on any intervention, which would be made on the site after the chance find.
- SYA is responsible for the management of archaeological issues during the progress of construction of the Lot 2 section of the Project and implementation of related management plan and chance find procedure.
- ***SYA will employ archaeologists at each spread responsible for the monitoring of ground disturbance activities along Lot 2 Section of TANAP route. They are also responsible with the monitoring of the implementation of the Cultural Heritage Management Plan (CHMP) and chance find procedure.***
- ***SYA will ensure that Chance Finds procedure is adequately enforced during ground disturbance activities. During the implementation of the Chance Finds procedure on site, SYA will directly report the issue to EPCM archaeologist and construction manager.***
- ***Salvage excavation (and other Chance find issues) are under the responsibility of SYA.***
- SYA is also responsible for giving necessary trainings to the field staff about the implementation of the chance find procedure.
- ***SYA will record all chance finds on the Chance Finds Report Form (see Appendix-2) and in the Chance Finds Register (see Appendix-3) as per the Chance Find Procedure in Appendix-2 (see Section 4.2).***

3.2. Management Structure and Responsibilities

SYA will be responsible for the management of the plan and procedure about archaeological issues of Lot 2. The Archaeological Team of SYA will train the employees about cultural heritage and chance find procedure (see Section 4.1). Also, the monitoring of the construction works will be the responsibility of SYA Archaeological Team (see Section 4.3).

The Project Manager will be in charge of the all construction work team.

The Environmental Manager will be in charge of the archaeological work team. The Environmental Manager will supervise the logistical aspects of the work of the Archaeological Inspectors.

The Environmental and Social Coordinators (one per spread) will be responsible for scheduling and overseeing activities of Archaeologists when directed to do so by the Environmental Manager.

The Archaeologists will work with the equipment operators and have authority to the stop work. Each will accompany a top soil stripping crew during ROW clearing. They will direct the operator to stop work or redirect stripping activities in case of a chance find. They will submit scheduled progress reports and special reports of chance finds to Environmental and Social Coordinators.

In addition to the Chance Find Procedure, the Erzurum, Trabzon or Sivas ***Regional Board Directorates*** will decide for the requirement of a salvage excavation. The contact information of these board directorates are given in Appendix-4. The excavation permissions will be obtained by the relevant museum directorate from the General Directorate of Cultural Heritage and Museums. ***Following the permission, SYA will provide a team of qualified archaeologist to conduct the salvage excavation within the framework of their contract under the guidance of EPCM archaeologist, who will follow the instructions of the related museum directorate).***These works may cover non-destructive research methods such as remote sensing and geophysics and test pit excavations. The negotiations and meetings with the related ***Regional Board Directorate of Protection of Cultural Heritage*** on technical topics during and after the salvage excavation will be held by ***EPCM archaeologist.***

During the construction activities, there will be no blasting within 200m of archaeological sites.

4. TRAINING, REPORTING AND MONITORING

4.1. Training

The Archaeological Monitoring Team of SYA will provide cultural heritage training to all project crew including the implementation of the chance find procedure as part of their Environmental Training. Archaeologists of SYA will receive Environmental Training as well as specialized training for the procedures they are to follow for monitoring topsoil stripping. These trainings will be repeated periodically. The Archaeological Monitoring Team and the field management will periodically ***meet*** once a month or when deemed necessary. ***The records of the training such as attendee list, the presentation made during the training, etc. will be kept by Archaeological Team of SYA.***

4.2. Reporting

SYA will record all chance finds on the Chance Finds Report Form (see Appendix-2) and in the Chance Finds Register (see Appendix-3) as per the Chance Find Procedure in Appendix-2. The register will be kept up to date by ***SYA*** site archaeologist. ***The chance finds report form will be kept in hard copy at the construction camp. A summary of the status of chance finds will be reported from SYA to EPCM on a monthly basis.***

4.3. Monitoring

The function of the archaeological monitoring process will be as follows:

- Provide advice to define the areas where the construction activities may continue or shall be stopped due to Archaeological findings.
- To record archaeological features observed on, and close to the existing pipeline.
- To record archaeological features discovered during pipeline construction activities.
- To provide advice in the form of a ‘preliminary assessment’ to the construction superintendent on the significance and implications of new archaeological discoveries on the pipeline route.

All ground disturbance activities will be monitored by SYA’s archaeologist during the construction of the pipeline and its Above Ground Facilities ***for evidence of cultural heritage items.*** In case of encountering archaeological findings, the Chance Find Procedure described in Appendix-2 will be initiated.

The schedule for monitoring of topsoil stripping will be developed in coordination with the construction schedule. It will be a daily monitoring of topsoil stripping at each of the two spreads with two archaeologists. The monitoring schedule will be dictated by the construction schedule as determined by the Construction Superintendent. There is no sampling programme associated with the Cultural Heritage Management Plan. Topsoil will be stripped down to the natural subsoil under suitably qualified archaeological supervision, so that archaeological features can be observed and archaeological mitigation strategies can be implemented.

5. ARCHAEOLOGICAL FINDINGS

The procedure given below that must be followed in case of encountering a chance find is based on national legislation and provisions in international standards. The significance of the archaeological finding may vary upon evaluation opinions of related museum experts.

SYA will liaise with local authorities to identify if project activities can interfere with traditional celebrations or festivities; alternative solutions will be agreed with local authorities. Furthermore, SYA will liaise with local authorities to identify if project activities restrict access to elements of traditional culture; alternative solutions will be agreed with local authorities.

5.1. Archaeological Findings of Minor Significance

This type of archaeological findings is comprised of a finding isolated from its environment or findings in notably small sizes which may be found by chance. ***In this case, chance find procedure (Appendix-2) will be followed.***

The finding will be reported to the ***construction manager*** **and** ***EPCM's*** **archaeologist** by the archaeological monitoring team. The construction activities will be ceased in the field where the finding is discovered and the finding will be reported to the relevant museum expert ***by EPCM archaeologist***. Following the completion of investigation of the notified relevant Museum Directorate, the necessary arrangements, ***such as the identification of the boundaries of the archaeological asset/site (finding), preservation by a protection band, notification of workers in order to prevent any physical intervention***.

The archeological and cultural heritage findings in Lot 2 that were listed in the ESIA Report (Chapter 7.3.3) are listed in the tables given in Appendix-1. The preservation methods and mitigation measures to be applied are also listed in these tables (see Chapter 8.3 of the ESIA Report). Moreover, the maps of the findings are also included in Appendix-5.

5.2. Archaeological Findings of Moderate Significance

This type of archaeological findings is small scale findings in groups or single findings with medium size architectural elements such as tombs. ***In this case, chance find procedure (Appendix-2) will be followed.*** In order to prevent a possible damage, necessary arrangements must be made to determine the boundaries of the archaeological remains to keep ***the construction equipment*** out of access.

The finding will be reported to the construction manager and EPCM's archaeologist by the archaeological monitoring team of SYA. The construction activities will be ceased in the field where the finding is discovered and the finding will be reported to the relevant museum expert by EPCM archaeologist. Following the completion of investigation of the notified relevant Museum Directorate, the necessary arrangements will be taken, such as the identification of the boundaries of the archaeological asset/site (finding), preservation by a protection band, notification of workers in order to prevent any physical intervention.

5.3. Archaeological Findings of Major Significance

This type of findings is comprised of findings with great importance such as a settlement area, a tumulus, a mound or a big necropolis (wide graveyard areas with archaeological characteristic) and the construction activities must be immediately stopped ***and chance find procedure (Appendix-2) will be followed.*** This type of chance find may cover the entire construction site in such a way that the entrance and exit of the construction equipment and vehicles cannot be managed without giving any damage to the archaeological remains.

The finding will be reported to the construction manager and EPCM's archaeologist by the archaeological monitoring team of SYA. The construction activities will be ceased in the field where the finding is discovered and the finding will be reported to the relevant museum expert by EPCM archaeologist. Following the completion of investigation of the notified relevant Museum Directorate, the necessary arrangements will be taken, such as the identification of the boundaries of the archaeological asset/site (finding), preservation by a protection band, notification of workers in order to prevent any physical intervention.

6. REFERENCES

- Council of Europe ETS No 143, “European Convention on the Protection of the Archaeological Heritage (Revised) (The Valletta Convention)”, 1992.
- General Directorate of Preservation of Cultural and Historical Heritage, “Law on Protection of Cultural and Natural Assets (1) Law No. 2863”, 1983.
- ICOMOS (International Council of Monuments and Sites) “Guidance on Impact Assessment for Cultural World Heritage”, January 2011.
- IFA (Institute of Field Archaeologists) Standard and Guidance for the Collection, “Documentation, Conservation and Research of Archaeological Materials”, 2001.
- IFA (Institute of Field Archaeologists) 1994, “Standard and Guidance for an Archaeological Desk Based Assessment” (revised 1999)
- IFA (Institute of Field Archaeologists) 1994, “Standard and Guidance for an Archaeological Watching Brief” (revised 1999)
- IFA (Institute of Field Archaeologists) 1994, “Standard and Guidance for an Archaeological Field Evaluation” (revised 1999)
- UNESCO, “Convention Concerning the Protection of the World Cultural and Natural Heritage”, November 1972.
- *TANAP, 2013, “Environmental and Social Impact Assessment Report of Trans Anatolian Natural Gas Pipeline Project”.*
- *Worley Parsons, 2015, “Chance Finds Procedure (WRP-PCD-ENV-GEN-003-P4-0)”.*

Appendix-1: Archaeological and Cultural Heritage Findings within Lot 2

Archaeological Site Locations				Ranking of Magnitude of Predicted Impacts on Archaeological Area			Mitigation Suggestions				Site Details
No.	**Site Name**	**Province**	**Estimated KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**Descriptions**
1	Ogutlu (Nalbant KoprusuYanı) Hoyuk	Gümüşhane	507+800-508+500	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Trabzon Preservation Board (23.03.2002 dated and 472 numbered board decision) . The area is 32 m away from the construction main axis. As expert opinion it is recommended to conduct all construction activities under archaeological supervision.
2	Delimahmut Deresi	Sivas	631+490-631+570	No Change	1	No material change to the site or feature		x			The area is located 64 m away from the construction main axis. With decision no 1167 dated 30.10.2013, the Preservation Board of Sivas declared the site as a first degree protection area. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
3	Mezraa Mahallesi	Sivas	634+830-634+880	No Change	1	No material change to the site or feature		x			The area is located 94 m away from the construction main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
4	Kucuk Sogusger	Sivas	697+550-697+600	No Change	1	No material change to the site or feature		x			The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
5	Diskapi (Kemis)	Sivas	***Outside the 500 m corridor***	Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed) Comprehensive changes to setting	x	x			The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1167 dated 30.10.2013. Therefore no physical intervention is allowed in the area.

Archaeological Site Locations				Ranking of Magnitude of Predicted Impacts on Archaeological Area			Mitigation Suggestions				Site Details
No.	**Site Name**	**Province**	**Estimated KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**Descriptions**
6	Kucuk Pilavtepe	Sivas	711+250-711+300	No Change	1	No material change to the site or feature		x			The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
7	Buyuk Pilavtepe	Sivas	711+400-711+750	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board (decision no 1167 dated 30.10.2013). The area is located within the 500 m impact corridor 71 m away from the main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
8	Atcukuru Tepesi	Sivas	720+200-720+390	No Change	1	No material change to the site or feature		x			The location is 177 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
9	Kultepe	Sivas	737+750-738+040	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board (decision no 1167 dated 30.10.2013). The location is 28 m away from the construction main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
10	Evinustu Sirti	Sivas	763+480-763+560	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board (decision no 1167 dated 30.10.2013). The location is 28 m away from the construction main axis. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.

Archaeological Site Locations				Ranking of Magnitude of Predicted Impacts on Archaeological Area			Mitigation Suggestions				Site Details
No.	**Site Name**	**Province**	**Estimated KP**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**Descriptions**
11	Koyozu	Sivas	768+920-769+490	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)		x			Based on the findings, all construction activities are recommended to be carried out under archaeological monitoring.Not registered as archaeological area by Protection Board
12	Comakli Tepe	Sivas	769+750-769+810	No Change	1	No material change to the site or feature		x			The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1263 dated 12.12.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
13	Yanikarmut Tepesi	Sivas	771+050-771+120	No Change	1	No material change to the site or feature		x			The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1167 dated 30.10.2013. As expert opinion it is recommended to conduct all construction activities under archaeological monitoring.
14	Argaz	Sivas	***Outside the 500 m corridor***	Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed) Comprehensive changes to setting	x	x			The area is declared as first degree protection zone by the decision of Sivas Preservation Board with decision no 1262 dated 12.12.2013. With the decision of the board further stated that no physical intervention will be permitted in the area. As expert opinion it is recommended to change the location of the camp area or in case it is not technically possible to do so, ask for permission for construction with a justification letter.

Appendix-2: Chance Find Procedure

1. PURPOSE

The Archaeological Chance Find Procedure is prepared to provide guidance to all parties and employees regarding the actions to be taken in case of discovery of an archeological entity.

2. SCOPE

It is likely to encounter archeological findings during the construction activities of the project. Any type of activity requiring stripping, drilling, excavation or any type of intervention on the landscape through earthworks has potential to lead to discovery or destroying of archeological entities.

3. PROCEDURE

Any physical remains of past human activity, including artifacts, plant and animal remains, structural remains and soil features are defined as archaeological entities. All actions to be carried out in case of discovery of an archaeological entity should comply with the Law on Cultural and Natural Assets Conservation Law Numbered 2863 (**Law Number**: 2863, **Date of Approval**: 21.7.1983, **Publication in the Official Gazette**: Date: 23/7/1983 No: 18113).

In the event of discovery of an archaeological entity, the following procedure shall be implemented:

- All construction and other relevant activities in the vicinity of the chance find will be ceased by the Archaeologist of SYA ***or anyone, who encounters a chance find.***
- ***SYA archaeologist will contact EPCM archaeologist and construction manager as soon as a chance find is encountered.***
- ***EPCM archaeologist contacts spread boss and museum directorate archaeologist immediately.***
- Archaeologist of SYA will properly secure chance find site via flagging, no-entry signs, etc. and prevent/limit the vehicle traffic within the immediate vicinity of chance find and also protect the site by not moving, removing or further disturbing the chance find.
- ***Boundaries of discovered archaeological site coordinates*** will be recorded and photograph of the location and the finding shall be taken ***and also video record should be made***.
- The site and its vicinity will be secured against damage or loss ***until a final decision is made about this site by Board.***
- Archaeologist of SYA will fill out Part A of Chance Find Form and send a copy to EPCM archaeologist within 24 hours keeping a copy for SYA as a record,
- If any human remains such as contemporary grave or graveyard are noticed, security forces will be informed. Unless the remains are determined to be recent, the local administration (village head: mukhtar, or district governor) has the full authority.
- Further steps to be followed and proper procedures to be implemented for the management of the finding(s) (changes in the layout, conservation, preservation, restoration or salvage) will be decided and reported in writing by the Museum Directorate.

- In case the site is considered to be of no significance by the Museum Directorate, EPCM archaeologist will inform the Archaeologist of SYA and they will inform their managers. Subsequent of filling out Part B of Chance Find Form by Archaeologist of SYA and sending a copy to EPCM archaeologist within 24 hours while retaining a copy of the Chance Find form as a record, the construction works will proceed since no further actions are required.
- In case the site is considered to be of significance by the Museum Directorate, EPCM archaeologist will be informed by the Museum Directorate about the decision on the further actions. EPCM archaeologist will inform the Archaeologist of SYA and together they will inform their managers. Subsequent of filling out Part B of Chance Find Form by Archaeologist of SYA and sending a copy to EPCM archaeologist within 24 hour while retaining a copy of the Chance Find form as a record, the instructions of the Museum Directorate will be followed. After some field investigation, Museum Directorate will declare their decision on the significance of the site and the actions to be followed as per their decision are summarized in Table 1.

Table 1: Actions to be followed

Site to be of no Significance	Site to be of Minor Significance	Site to be of Major Significance
✓ EPCM archaeologist will inform Archaeologist of SYA, ✓ SYA's and EPCM archaeologists will inform their managers, ✓ Archaeologist of SYA will record the decision in Part C of Chance Find Form and sends a copy to EPCM archaeologist within 24 hours, ✓ Archaeologist of SYA will retain a copy of Chance Find form as a record, ✓ No further actions will be required, ✓ This step closes out the chance find procedure, ✓ Construction activities may resume.	✓ A salvage excavation is to be completed ✓ Museum Directorate will provide instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist, ✓ EPCM archaeologist will inform the Archaeologist of SYA, ✓ SYA's and EPCM archaeologists will inform their managers, ✓ Under the guidance of EPCM archaeologist (following instructions from authorities), SYA will provide a team of qualified archaeologist to conduct the salvage excavation, ✓ Once the excavation is completed, Archaeologist of SYA will provide a report to EPCM archaeologist, ✓ EPCM archaeologist will provide a report to the Museum Directorate, ✓ Regional Board Directorate of Protection of Cultural Heritage will officially confirm the completion of recovery and inform EPCM archaeologist, ✓ EPCM archaeologist will inform the Archaeologist of SYA that no further actions are required, ✓ SYA's and EPCM archaeologists will inform their managers, ✓ Archaeologist of SYA will record the decision in Part C of Chance Find Form and will send a copy to EPCM archaeologist within 24 hours, ✓ Archaeologist of SYA will retain a copy of Chance Find form as a record, ✓ No further actions will be required, ✓ This step closes out the chance find procedure ✓ Construction activities may resume.	✓ An excavation is to be completed, ✓ Site will be treated according to "Law on the Conservation of Cultural and Natural Property (2863)", ✓ Museum Directorate will provide instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist, ✓ EPCM archaeologist will inform the Archaeologist of SYA, ✓ SYA's and EPCM archaeologists will inform their managers, ✓ Under the guidance of EPCM archaeologist (following instructions from authorities), SYA will provide a team of qualified archaeologist to conduct the salvage excavation, ✓ Once the excavation is completed, Archaeologist of SYA will provide a report to EPCM archaeologist, ✓ EPCM archaeologist will provide a report to the Museum Directorate, ✓ Regional Board Directorate of Protection of Cultural Heritage will officially confirm the completion of recovery and inform EPCM archaeologist, ✓ Site will be officially recorded and protected according to Turkish regulations, ✓ EPCM archaeologist will inform the Archaeologist of SYA that no further actions are required, or that a route change is required ***via Management of Change***, ✓ SYA's and EPCM archaeologists will inform their managers, ✓ Archaeologist of SYA will record the decision in Part C of Chance Find Form and will send a copy to EPCM archaeologist within 24 hours, ✓ Archaeologist of SYA will retain a copy of Chance Find form as a record, ✓ No further actions will be required, ✓ This step closes out the chance find procedure, ✓ Construction activities may resume or route change is implemented ***via Management of Change***.

CHANCE FIND REPORT FORM
RASLANTISAL BULUNTU RAPOR FORMU

To be filled out in English
Ingilizce doldurunuz

PART A **BÖLÜM A**			
Spread: *Saha bölümü*	KP:	Date: *Tarih*	ID:
Name of person reporting chance find: *Rastlantısal buluntuyu rapor eden kişinin ismi*			
Name of contractor archaeologist contacted: *İletişime geçilen yüklenici arkeoloğun ismi*			
Was work stopped in the immediate vicinity of chance find? ☐ Yes ☐ No *Rastlantısal buluntunun tam çevresinde iş durduruldu mu?* *Evet* *Hayır*			
Was a buffer zone created to protect chance find? ☐ Yes ☐ No *Rastlantısal buluntuyu korumak için tampon bölge oluşturuldu mu?* *Evet* *Hayır*			
NOTIFICATION ***BİLDİRİM***			
Contractor construction manager contacted ☐ Yes ☐ No *Yüklenici inşaat müdürü ile irtibata geçildi* *Evet* *Hayır*			
EPCM archaeologist contacted ☐ Yes ☐ No *EPCM arkeoloğu ile iletime geçildi* *Evet* *Hayır*			
CHANCE FIND DETAILS ***RASLANTISAL BULUNTU AYRINTILARI***			
GPS coordinates *GPS koordinatları*		Photo record ☐ Yes ☐ No (HD quality – no cell phone photos) *Fotoğraf kaydı* *Evet* *Hayır* *(HD kalitesinde – cep telefonu fotoğrafı değil)* If not, explain why: *Yok ise nedenini açıklayınız* Other records ☐ Yes ☐ No Specify (drawings, HD quality videos, etc.): *Diğer kayıtlar* *Evet* *Hayır* *Belirtin (çizimler, HD kalite videolar, vb.)*	

Description of chance find: *Rastlantısal buluntunun tanımı*
Description of site and vegetation: (e.g. surface sediment type, ground surface visibility, distance to closest watercourse, etc.) *Sahanın ve bitki örtüsünün tanımı: (örn. Yüzey sediman türü, yüzey zemin görünürlüğü, en yakın suyoluna olan mesafe, vb.)*
PART B ***BÖLÜM B***
NOTIFICATION OF _____MUSEUM DIRECTORATE ARCHAEOLOGIST ***_____MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNA BİLDİRİ***
EPCM archaeologist contacted museum directorate archaeologist ☐ Yes ☐ No *EPCM arkeoloğu müze müdürlüğü arkeoloğu ile irtibata geçti.* *Evet* *Hayır* Date of notification: *Bildirim tarihi* Name of museum directorate archaeologist : *Müze müdürlüğü arkeoloğunun ismi* Contact number of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun iletişim numarası*
DECISION OF _____MUSEUM DIRECTORATE ARCHAEOLOGIST ***_____MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNUN KARARI***
Date of initial investigation: *İlk araştırma tarihi*

☐ Site of no significance - Construction to proceed with no further investigation – End of chance find procedure *Önemsiz saha – İnşaat daha fazla araştırma yapılmadan devam edilebilir – rastlantısal buluntu prosedürün sonu.* Date of notice to resume work : *İşe başlama tarihi bildirisi*	☐ Site of significance - Further investigation required *Önemli saha – Ek araştırma gerekmektedir* Fill out Part C *Bölüm C'yi doldurun.*

Name of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun ismi* Contact information: *İletişim numarası*		
EPCM construction manager contacted *EPCM inşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*
Contractor archaeologist contacted *Yüklenici arkeoloğu ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*
PART C ***BÖLÜM C***		
FURTHER FIELD INVESTIGATION *EK SAHA ARAŞTIRMASI*		
☐ Site of no significance *Önemsiz saha*	☐ Site of minor significance *Az önemli saha*	☐ Site of major significance *Çok önemli saha*
Describe additional work to be conducted: *Yapılması gereken ek işlerin tanımları*		
Date started: *Başlangıç tarihi*	Date completed: *Bitiriş tarihi*	
Date of notice to resume work : *İşe başlama tarihi bildirisi*		
Name of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun ismi:* Contact information: *İletişim numarası*		
Construction manager contacted *İnşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*
EPCM archaeologist contacted *EPCM inşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*

Appendix-3: Chance Finds Register

	CHANCE FIND REGISTER - SPREAD 3
	Reporting Period:

Total of chance find	
To date	**This reporting Period**

ID (*)	DATE OF CHANCE FIND	KP	CHANCE FIND SUMMARY	NAME OF AUTHORITY NOTIFIED	DATE PART A COMPLETED	DATE PART B COMPLETED	DATE PART C COMPLETED	ACTION TAKEN	STATUS OPEN OR CLOSED	REMARKS
SP3-1										
SP3-2										
SP3-3										
SP3-4										

(*) Keep same ID format

	CHANCE FIND REGISTER - SPREAD 4
	Reporting Period:

Total of chance find	
To date	**This reporting Period**

ID (*)	DATE OF CHANCE FIND	KP	CHANCE FIND SUMMARY	NAME OF AUTHORITY NOTIFIED	DATE PART A COMPLETED	DATE PART B COMPLETED	DATE PART C COMPLETED	ACTION TAKEN	STATUS OPEN OR CLOSED	REMARKS
SP3-1										
SP3-2										
SP3-3										
SP3-4										

(*) Keep same ID format

Appendix-4: Contact Information of Related Museum Directorates and Regional Board Directorates

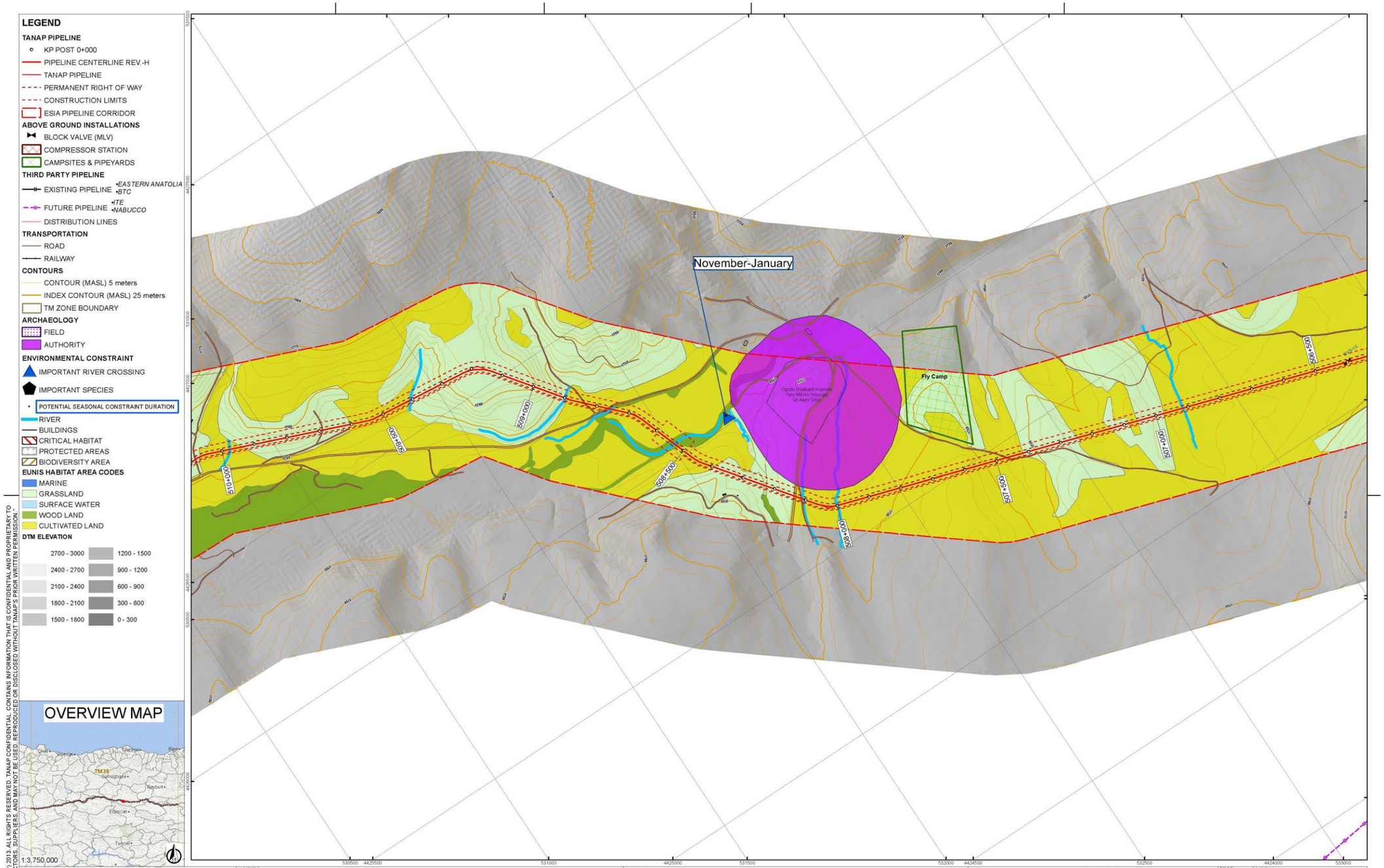
Table 1:Museum Contact Information

PROVINCE OF THE MUSEUM	ADDRESS AND CONTACT INFORMATION
ERZURUM	**Address**: Yenişehir Caddesi No: 11 ERZURUM **Telephone:** (0442) 233 04 14 Faks : (0442) 233 04 15
SİVAS	**Address**: Yüceyurt mah. Rahmi Günay cad. Arkeoloji Müzesi SİVAS **Telephone:** (0346) 221 04 46 **Fax:** (0346) 224 40 67 **E-mail:** sivasmuzesi@kultur.gov.tr
GİRESUN	**Address**: Sokak cad. No:57 Merkez/Giresun **Telephone:** (0454) 212 13 22

Table 2: Contact Information of Regional Board Directorates

PROTECTION BOARDS	AREA OF RESPONSIBILITY	ADDRESS
Erzurum Regional Drectorate of Cultural Entities Preservation Board	Erzurum, Bayburt, Bingöl,Tunceli, Erzincan	Yeni Hükümet Konağı Kat: 5 ERZURUM 4422332651 4422331589
Trabzon Regional Drectorate of Cultural Entities Preservation Board	Trabzon , Artvin,Gümüşhane, Giresun,Rize	Cumhuriyet Mahallesi Nemlioğlu Cemal Sokak No:25 TRABZON 4623223689 4623262988
Sivas Regional Drectorate of Cultural Entities Preservation Board	Sivas, Tokat, Malatya, Yozgat	Atatürk Kültür Merkezi Kat:4 SİVAS 3462218857

Appendix-5: Maps of Archaeological Sites



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FALSE NORTHING: 0.00
CENTRAL MERIDIAN: 39°0'0.00"E
SCALE FACTOR: 1.00
UNITS: Meter
HORIZONTAL SCALE: 1=5000
ORIGINAL SHEET SIZE: A1 (594mm x 841mm)

SCALE = 1:5000
Meters
0 50 100 200 300 400 500

NOTES

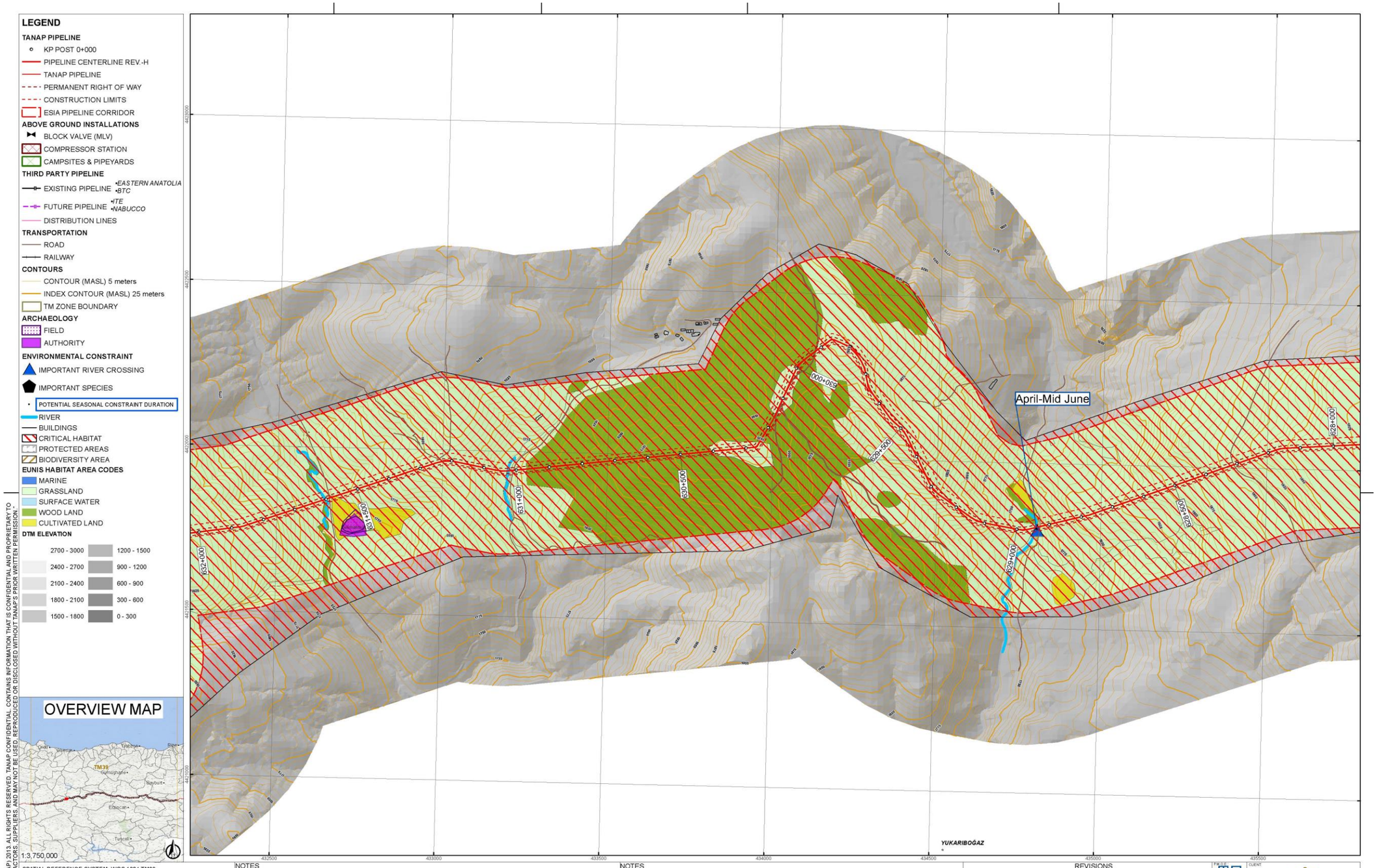
1. ENVIRONMENTAL PROTECTION PLAN DOCUMENT NO. 25853-100-V34-HY00-BA008 SHALL BE APPLIED FOR ENTIRE ROUTE OF THE PIPELINE.
2. FOR ALL PROTECTED AREAS, OFFICIAL ENVIRONMENTAL MANAGEMENT PLANS SHALL BE FOLLOWED.
3. FOR ALL CRITICAL HABITATS, IFC PERFORMANCE STANDARD NO.6 GUIDELINES MITIGATIONS SUCH AS TRUCK INSPECTION AND, WASHDOWN, SHALL BE FOLLOWED..
4. SPECIFIC MITIGATION MEASURES MAY APPLY AT THE AREAS WITH PRESENCE OF IMPORTANT SPECIES.
5. ABOVE GROUND INSTALLATION LOCATIONS DERIVED FROM REPORT NO. BCH-REP-PPL-PLG-012.
6. CONTOURS SHOWN DERIVED FROM BECHTEL CREATED TRIGULATION IRREGULAR NETWORK. SEE TIN CREATION REPORT NO. BCH-REP-GIS-GEN-001
7. ARCHAEOLOGY FIELD LAYER DERIVED FROM CINAR-REGIO FIELD SURVEY CINAR REPORTS: CIN-REP-ENV-GEN-010-23 AND -010-30.
8. ARCHAEOLOGY AUTHORITY LAYER DERIVED FROM CULTURAL HERITAGE CONSERVATION OR PROTECTION BOARD LETTERS.
9.AS-BUILT LINES WERE SURVEYED BY SEBAT AND DELIVERED TO ROUTE REV F 500 METER CORRIDOR.

NOTES

REVISIONS

REV.	DATE	DESCRIPTION	BY	CKD	APPR	CLIENT
P2-0	03/28/14	ISSUED AS APPROVED	WIGE	PEKE	EMER	
P2-C	03/07/14	ISSUED FOR REVIEW	ANTH	THUW	EMER	
P2-B	02/24/14	INTER-DISCIPLINARY CHECK	ANTH	WIGE	EMER	
P2-A	02/17/14	DISCIPLINE INTERNAL CHECK	ANTH	PEKE	WIGE	

FEW OF: ILF CONSULTING ENGINEERS
ENGINEERING CONTRACTOR: BECHTEL
CLIENT: TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
DRAWING TITLE: CONSTRAINT MAP 1:5k Environmental - TM39
KP 506+337 - KP 510+101
TANAP DRAWING NO: BCH-MAP-ENV-PLG-002-142
BECHTEL DRAWING NO: 25853-110-R20-H000-002142
REV: P2-0



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PROJECTION: 3 degree,Transverse Mercator
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FALSE NORTHING: 0.00
CENTRAL MERIDIAN: 39°0'0.00"E
SCALE FACTOR: 1.00
UNITS: Meter
HORIZONTAL SCALE: 1=5000
ORIGINAL SHEET SIZE: A1 (594mm x 841mm)

SCALE = 1:5000
Meters
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NOTES

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2. FOR ALL PROTECTED AREAS, OFFICIAL ENVIRONMENTAL MANAGEMENT PLANS SHALL BE FOLLOWED.
3. FOR ALL CRITICAL HABITATS, IFC PERFORMANCE STANDARD NO.6 GUIDELINES MITIGATIONS SUCH AS TRUCK INSPECTION AND, WASHDOWN, SHALL BE FOLLOWED..
4. SPECIFIC MITIGATION MEASURES MAY APPLY AT THE AREAS WITH PRESENCE OF IMPORTANT SPECIES.
5. ABOVE GROUND INSTALLATION LOCATIONS DERIVED FROM REPORT NO. BCH-REP-PPL-PLG-012.
6. CONTOURS SHOWN DERIVED FROM BECHTEL CREATED TRIGULATION IRREGULAR NETWORK. SEE TIN CREATION REPORT NO. BCH-REP-GIS-GEN-001
7. ARCHAEOLOGY FIELD LAYER DERIVED FROM CINAR-REGIO FIELD SURVEY CINAR REPORTS: CIN-REP-ENV-GEN-010-23 AND -010-30.
8. ARCHAEOLOGY AUTHORITY LAYER DERIVED FROM CULTURAL HERITAGE CONSERVATION OR PROTECTION BOARD LETTERS.
9.AS-BUILT LINES WERE SURVEYED BY SEBAT AND DELIVERED TO ROUTE REV F 500 METER CORRIDOR.

NOTES

REVISIONS

REV.	DATE	DESCRIPTION	BY	CKD	APPR	CLIENT
P2-0	03/26/14	ISSUED AS APPROVED	WGE	PEKE	EMER	
P2-C	03/07/14	ISSUED FOR REVIEW	ANTH	THUW	EMER	
P2-B	02/24/14	INTER-DISCIPLINARY CHECK	ANTH	WGE	EMER	
P2-A	02/17/14	DISCIPLINE INTERNAL CHECK	ANTH	PEKE	WGE	

TM DEV.
ENGINEERING CONTRACTOR
CLIENT
TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
DRAWING TITLE
CONSTRAINT MAP
1:5k Environmental - TM39
KP 627+918 - KP 632+027
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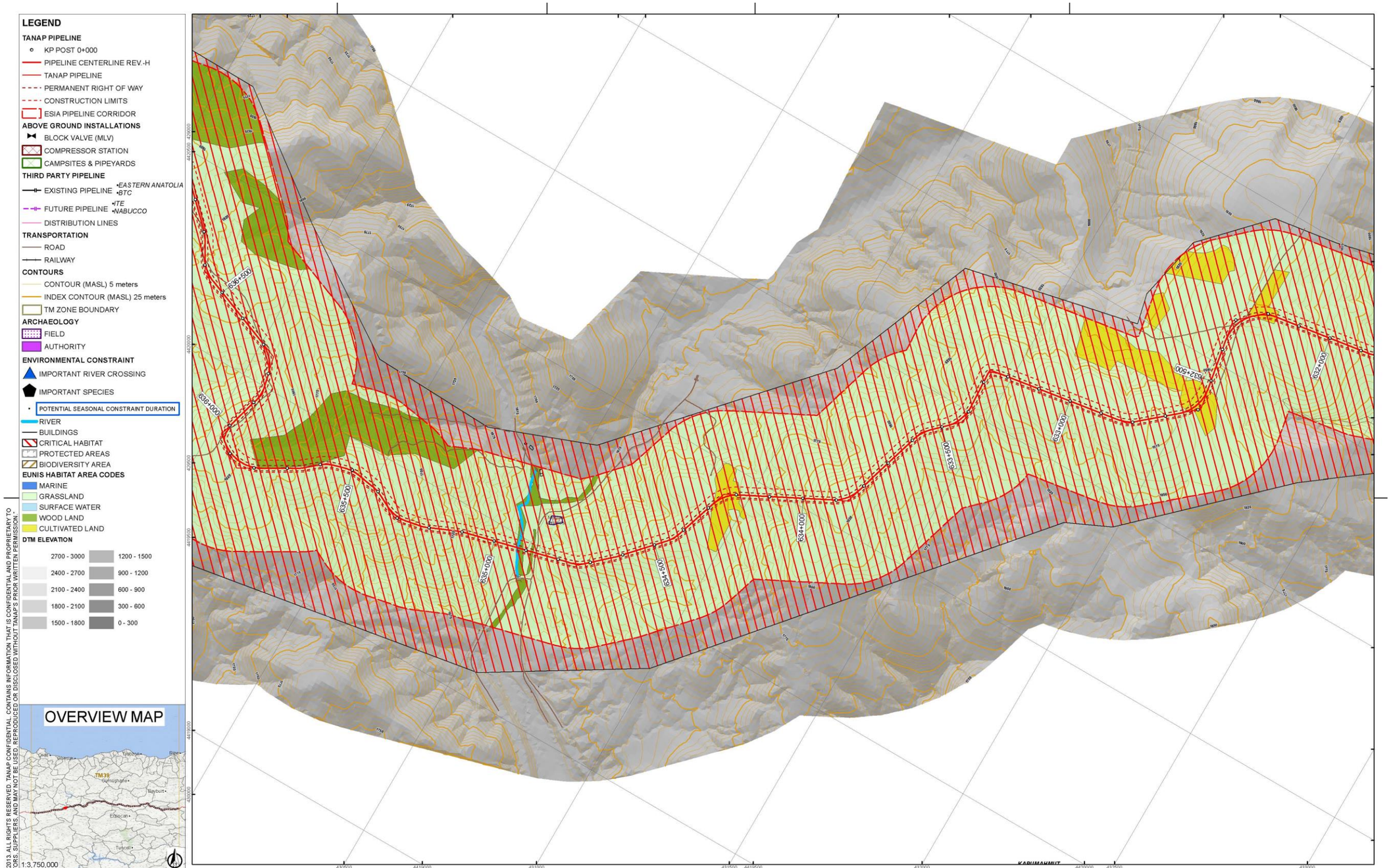
BECHTEL DRAWING NO: 25853-110-R20-H000-002175
REV: P2-0



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FALSE NORTHING: 0.00
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SCALE FACTOR: 1.00
UNITS: Meter
HORIZONTAL SCALE: 1=5000
ORIGINAL SHEET SIZE: A1 (594mm x 841mm)

SCALE = 1:5000
Meters
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NOTES

1. ENVIRONMENTAL PROTECTION PLAN DOCUMENT NO. 25853-100-V34-HY00-BA008 SHALL BE APPLIED FOR ENTIRE ROUTE OF THE PIPELINE.
2. FOR ALL PROTECTED AREAS, OFFICIAL ENVIRONMENTAL MANAGEMENT PLANS SHALL BE FOLLOWED.
3. FOR ALL CRITICAL HABITATS, IFC PERFORMANCE STANDARD NO.6 GUIDELINES MITIGATIONS SUCH AS TRUCK INSPECTION AND, WASHDOWN, SHALL BE FOLLOWED.
4. SPECIFIC MITIGATION MEASURES MAY APPLY AT THE AREAS WITH PRESENCE OF IMPORTANT SPECIES.
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6. CONTOURS SHOWN DERIVED FROM BECHTEL CREATED TRIGULATION IRREGULAR NETWORK. SEE TIN CREATION REPORT NO. BCH-REP-GIS-GEN-001
7. ARCHAEOLOGY FIELD LAYER DERIVED FROM CINAR-REGIO FIELD SURVEY CINAR REPORTS: CIN-REP-ENV-GEN-010-23 AND -010-30.
8. ARCHAEOLOGY AUTHORITY LAYER DERIVED FROM CULTURAL HERITAGE CONSERVATION OR PROTECTION BOARD LETTERS.
9.AS-BUILT LINES WERE SURVEYED BY SEBAT AND DELIVERED TO ROUTE REV F 500 METER CORRIDOR.

NOTES

REVISIONS

REV.	DATE	DESCRIPTION	BY	CKD	APPR	CLIENT
P2-0	03/28/14	ISSUED AS APPROVED	WGE	PEKE	EMER	
P2-C	03/07/14	ISSUED FOR REVIEW	ANTH	THUW	EMER	
P2-B	02/24/14	INTER-DISCIPLINARY CHECK	ANTH	WGE	EMER	
P2-A	02/17/14	DISCIPLINE INTERNAL CHECK	ANTH	PEKE	WGE	

FW.G.E.: ILF CONSULTING ENGINEERS
ENGINEERING CONTRACTOR: BECHTEL
CLIENT: TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
DRAWING TITLE: **CONSTRAINT MAP 1:5k Environmental - TM39**
KP 631+858 - KP 636+839
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BECHTEL DRAWING NO: 25853-110-R20-H000-002176
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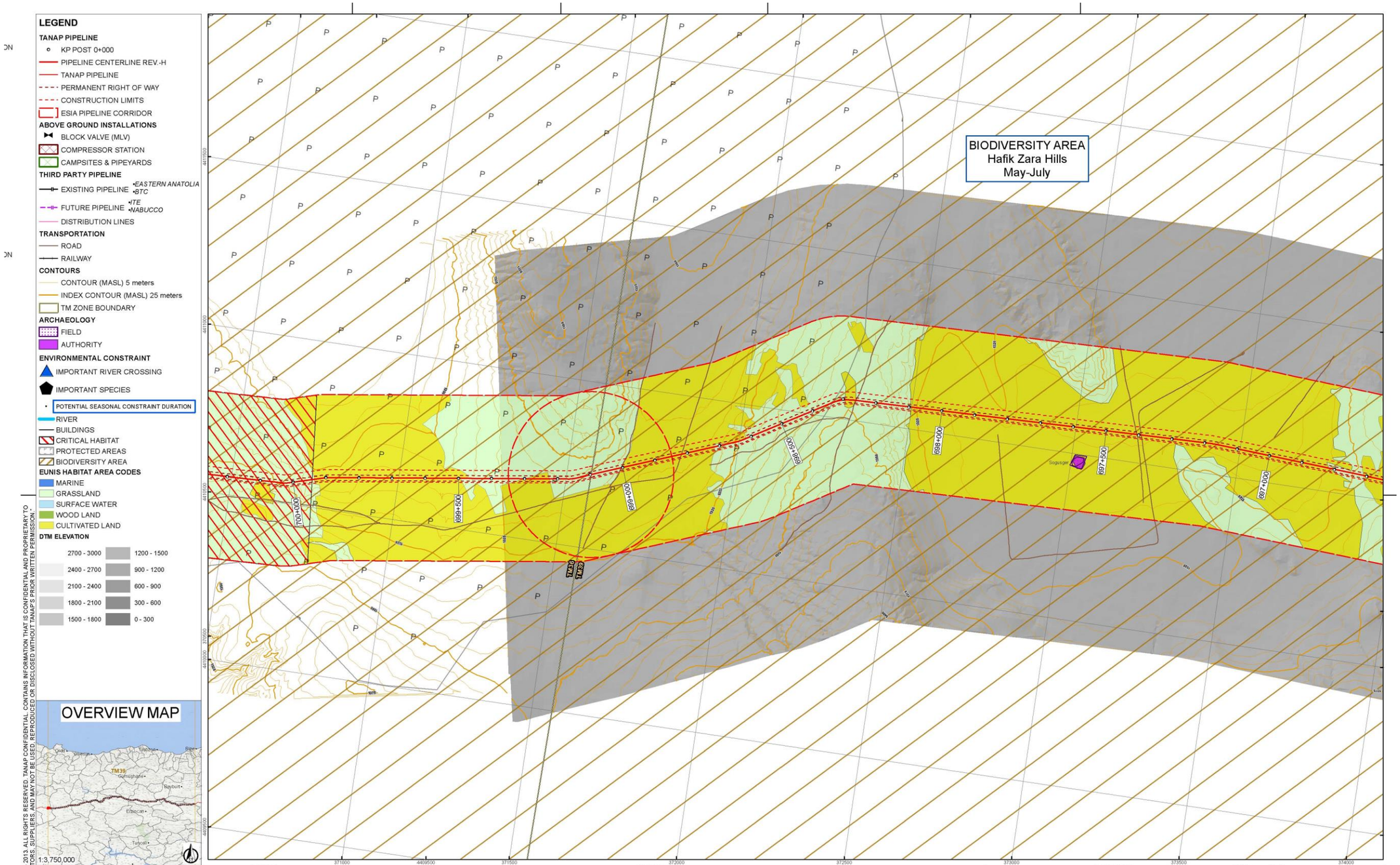
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TANAP PIPELINE
KP POST 0+000
PIPELINE CENTERLINE REV.-H
TANAP PIPELINE
PERMANENT RIGHT OF WAY
CONSTRUCTION LIMITS
ESIA PIPELINE CORRIDOR
ABOVE GROUND INSTALLATIONS
BLOCK VALVE (MLV)
COMPRESSOR STATION
CAMPSITES & PIPEYARDS
THIRD PARTY PIPELINE
EXISTING PIPELINE •EASTERN ANATOLIA •BTC
FUTURE PIPELINE •ITE •NABUCCO
DISTRIBUTION LINES
TRANSPORTATION
ROAD
RAILWAY
CONTOURS
CONTOUR (MASL) 5 meters
INDEX CONTOUR (MASL) 25 meters
TM ZONE BOUNDARY
ARCHAEOLOGY
FIELD
AUTHORITY
ENVIRONMENTAL CONSTRAINT
IMPORTANT RIVER CROSSING
IMPORTANT SPECIES
POTENTIAL SEASONAL CONSTRAINT DURATION
RIVER
BUILDINGS
CRITICAL HABITAT
PROTECTED AREAS
BIODIVERSITY AREA
EUNIS HABITAT AREA CODES
MARINE
GRASSLAND
SURFACE WATER
WOOD LAND
CULTIVATED LAND
DTM ELEVATION
2700 - 3000
2400 - 2700
2100 - 2400
1800 - 2100
1500 - 1800
1200 - 1500
900 - 1200
600 - 900
300 - 600
0 - 300
BIODIVERSITY AREA
Hafik Zara Hills
May-July
OVERVIEW MAP
TM39
1:3,750,000
SPATIAL REFERENCE SYSTEM: WGS 1984 TM39
DATUM: WGS 1984
PROJECTION: 3 degree,Transverse Mercator
FALSE EASTING: 500,000.00
FALSE NORTHING: 0.00
CENTRAL MERIDIAN: 39°0'0.00"E
SCALE FACTOR: 1.00
UNITS: Meter
HORIZONTAL SCALE: 1=5000
ORIGINAL SHEET SIZE: A1 (594mm x 841mm)
SCALE = 1:5000
Meters
0 50 100 200 300 400 500
NOTES
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NOTES
REVISIONS
P2-0 03/28/14 ISSUED AS APPROVED WIGE PEKE EMER
P2-C 03/07/14 ISSUED FOR REVIEW ANTH THUW EMER
P2-B 02/24/14 INTER-DISCIPLINARY CHECK ANTH WIGE EMER
P2-A 02/17/14 DISCIPLINE INTERNAL CHECK ANTH PEKE WIGE
REV. DATE DESCRIPTION BY CKD APPR CLIENT
TM OF
CONSULTING ENGINEERS
ENGINEERING CONTRACTOR
DRAWING TITLE:
CONSTRAINT MAP
1:5k Environmental - TM39
KP 696+649 - KP 699+097
TANAP DRAWING NO:
BCH-MAP-ENV-PLG-002-194
REV: P2-0
BECHTEL DRAWING NO:
25853-110-R20-H000-002194
CLIENT:
TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
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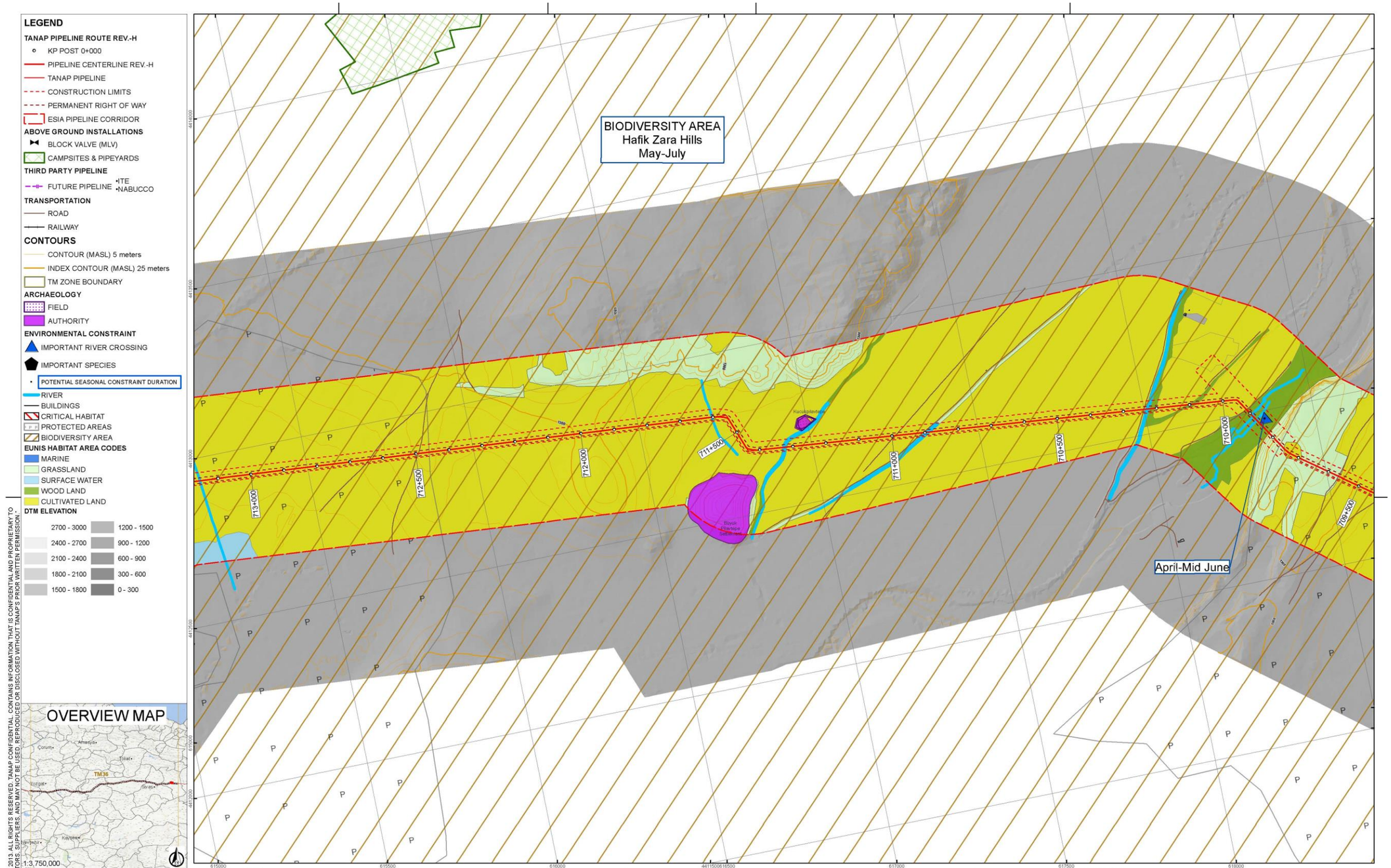

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HORIZONTAL SCALE: 1=5000
ORIGINAL SHEET SIZE: A1 (594mm x 841mm)

SCALE = 1:5000

Meters
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9.AS-BUILT LINES WERE SURVEYED BY SEBAT AND DELIVERED TO ROUTE REV F 500 METER CORRIDOR.

REVISIONS

REV.	DATE	DESCRIPTION	BY	CKD	APPR	CLIENT
P2-0	03/26/14	ISSUED AS APPROVED	WIGE	PEKE	EMER	
P2-C	03/07/14	ISSUED FOR REVIEW	ANTH	THUW	EMER	
P2-B	02/24/14	INTER-DISCIPLINARY CHECK	ANTH	WIGE	EMER	
P2-A	02/17/14	DISCIPLINE INTERNAL CHECK	ANTH	PEKE	WIGE	

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ENGINEERING CONTRACTOR: BECHTEL
CLIENT: TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
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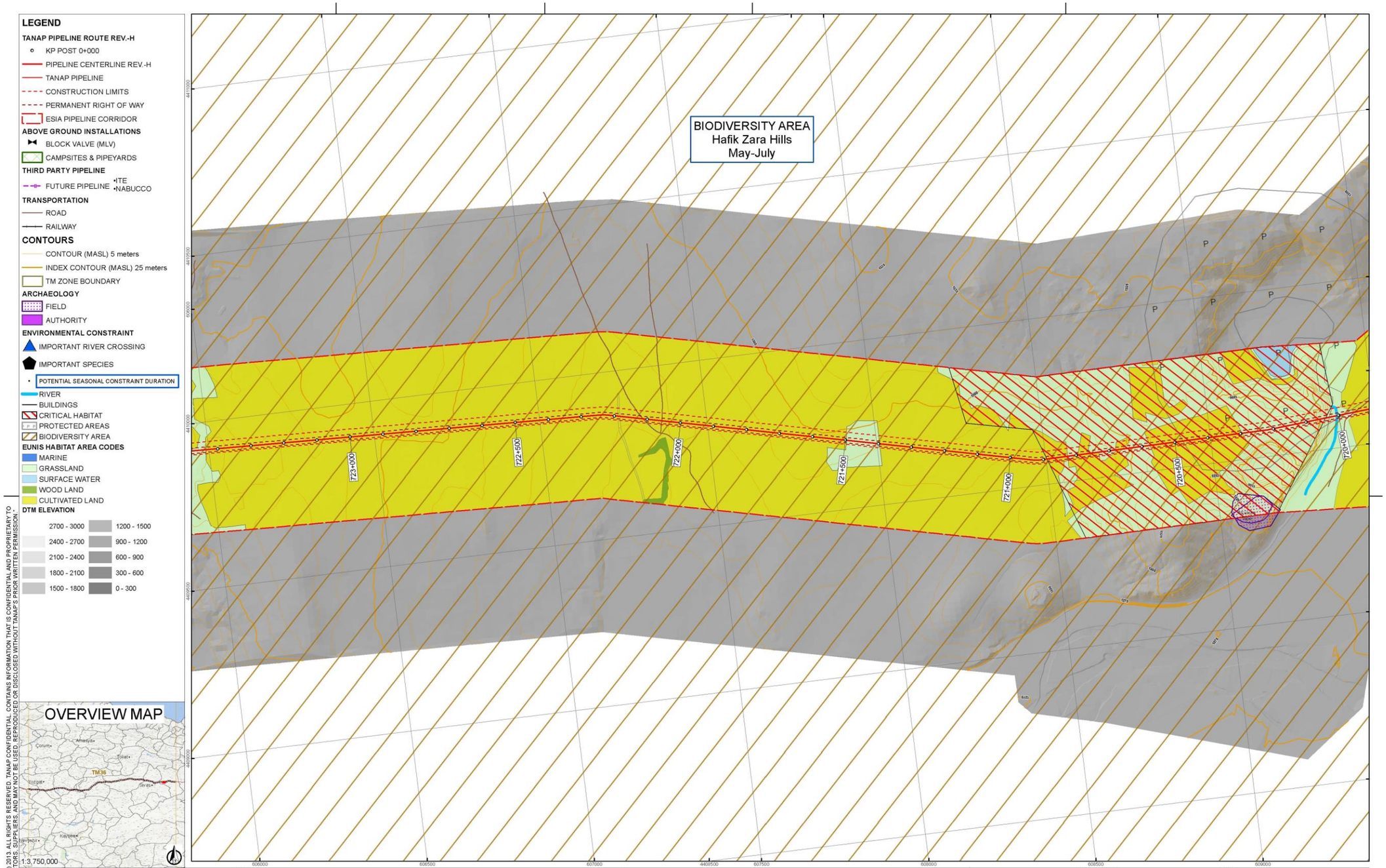

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PMC/E: ILF CONSULTING ENGINEERS
ENGINEERING CONTRACTOR: BECHTEL
CLIENT: TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

DRAWING TITLE:
CONSTRAINT MAP
1:5k Environmetal - TM36
KP 719+905 - KP 723+479

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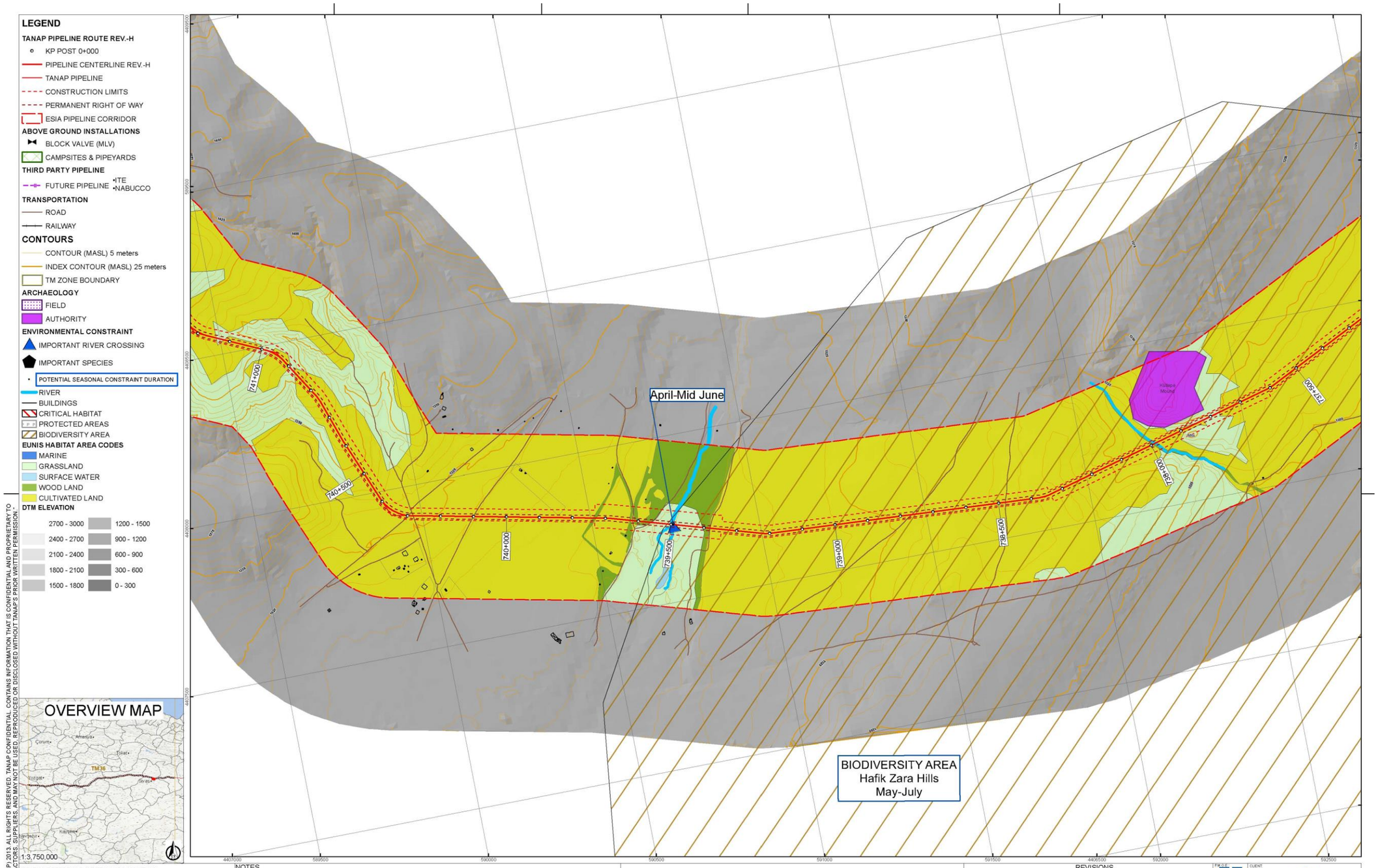

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SCALE = 1:5000

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CLIENT: TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

DRAWING TITLE:
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KP 737+252 - KP 741+231

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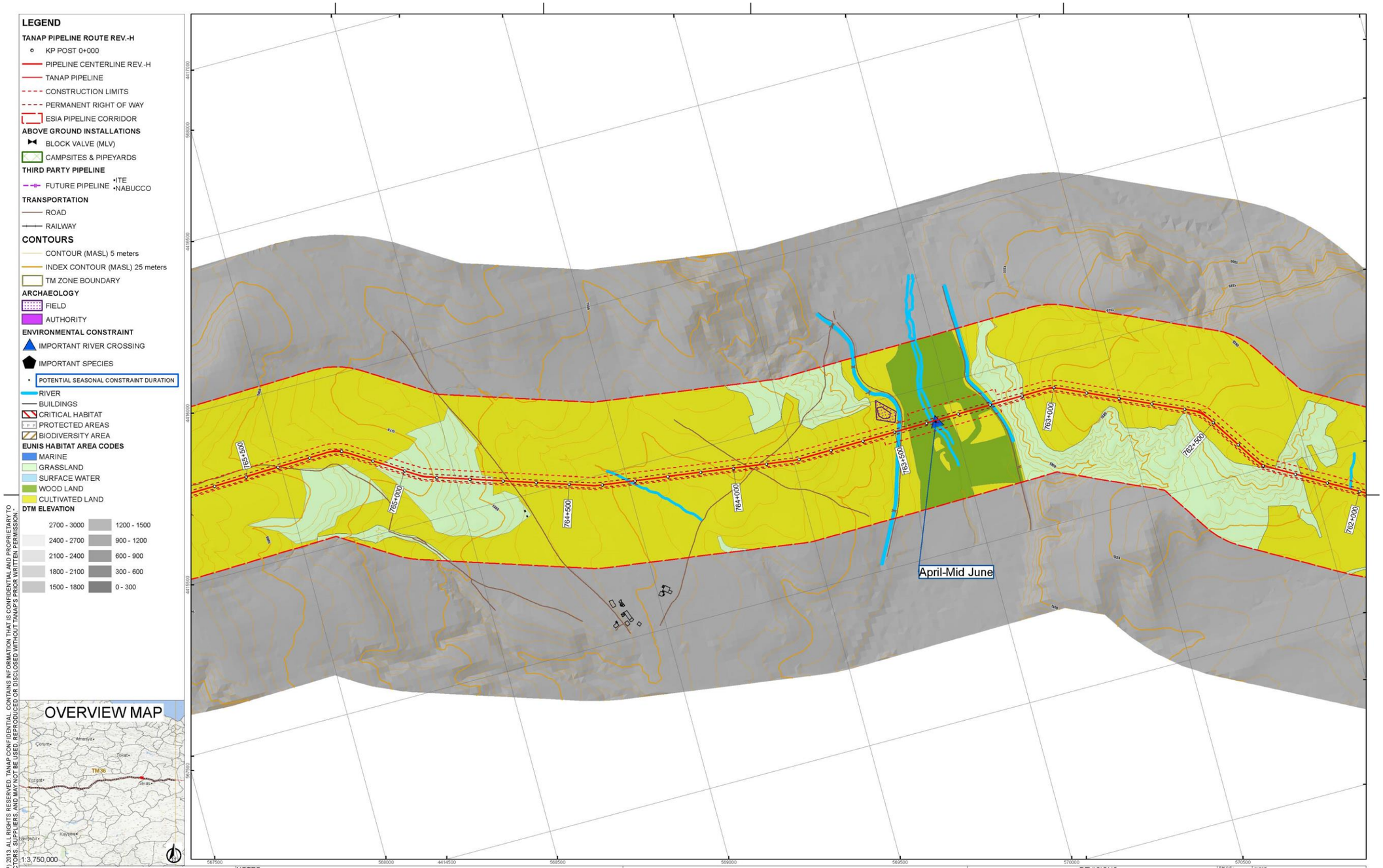

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FM.O.E. CONSULTING ENGINEERS
ENGINEERING CONTRACTOR: BECHTEL
CLIENT: TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
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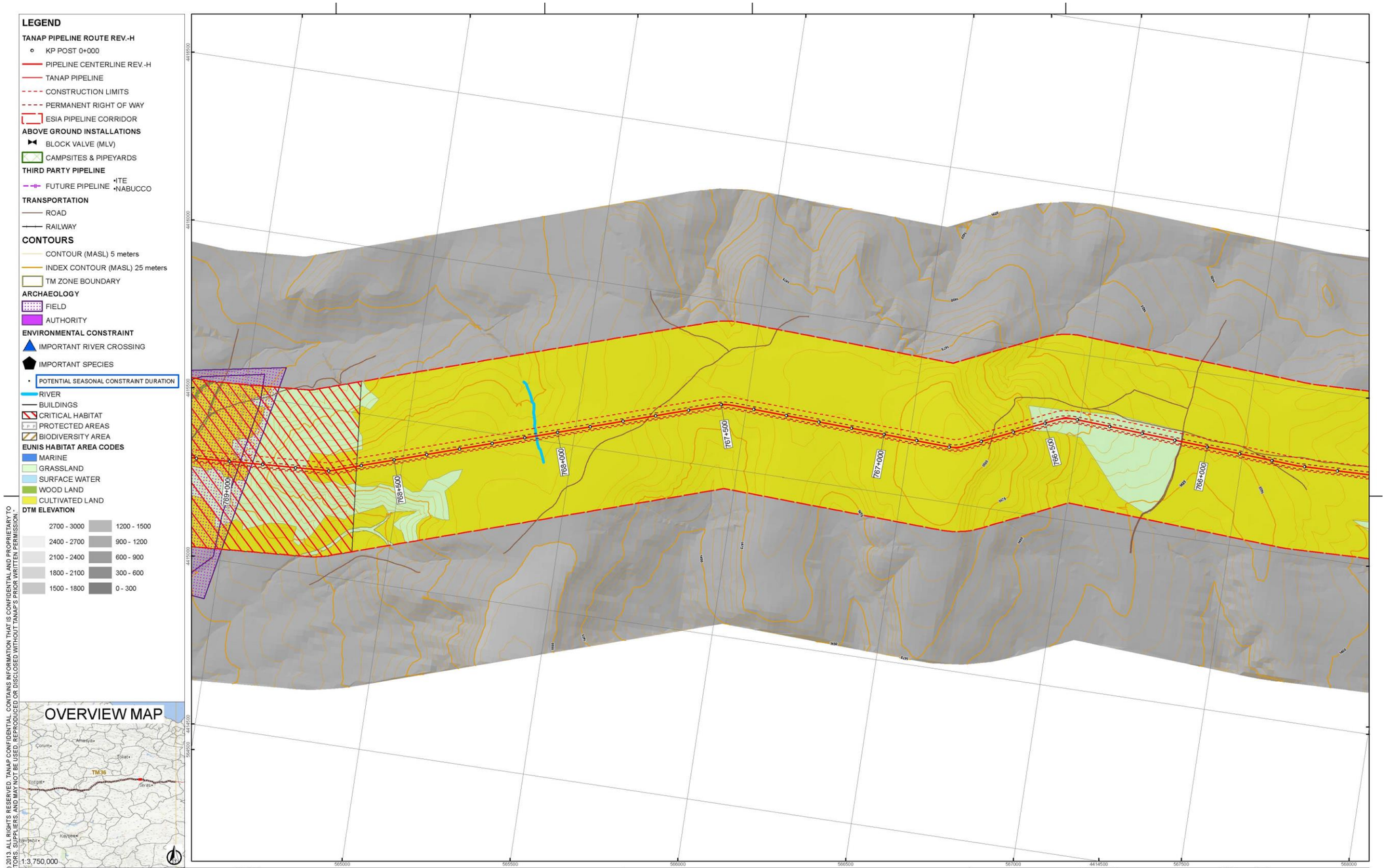

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P.M.O.E.: ILF CONSULTING ENGINEERS
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CLIENT: TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT
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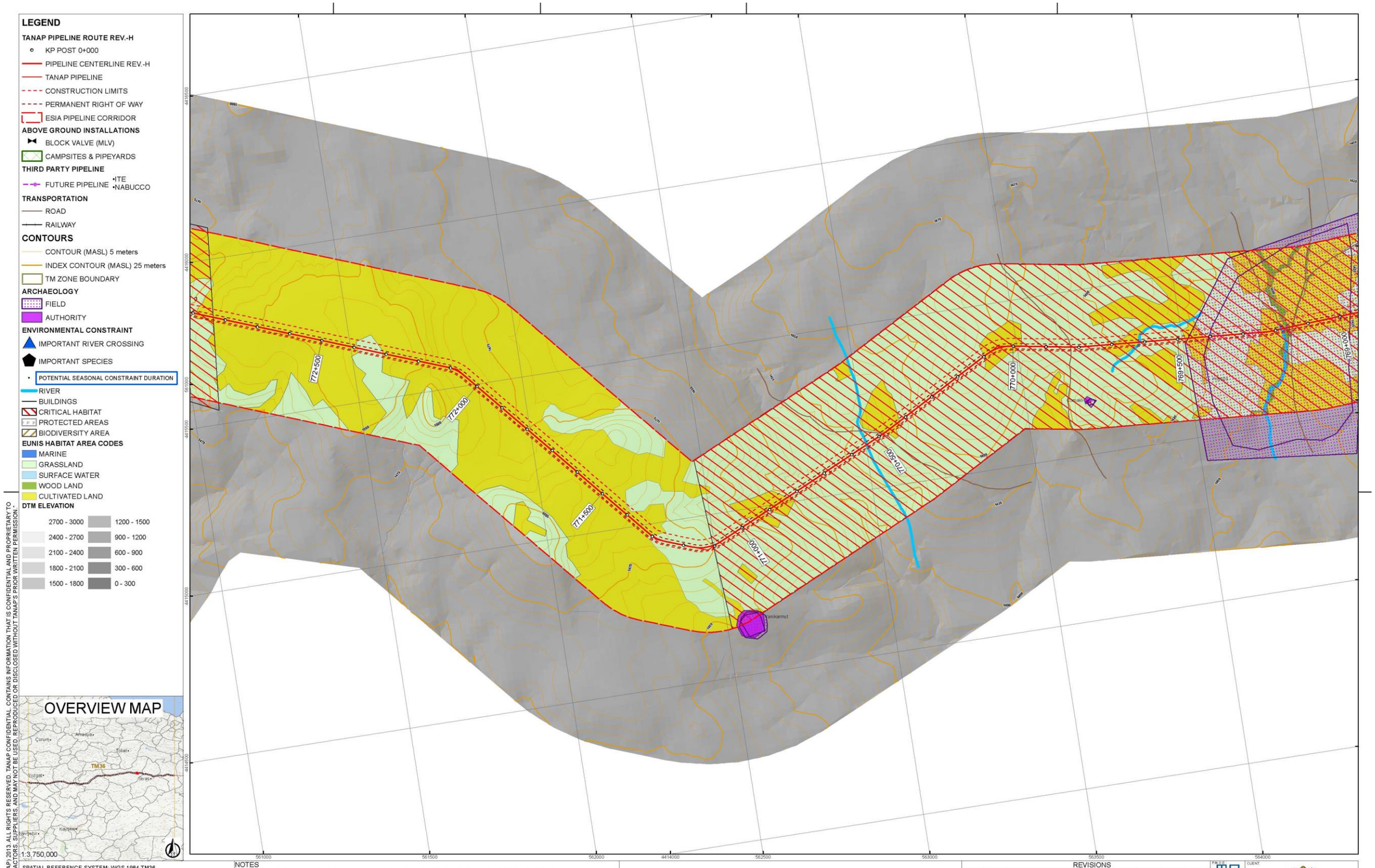

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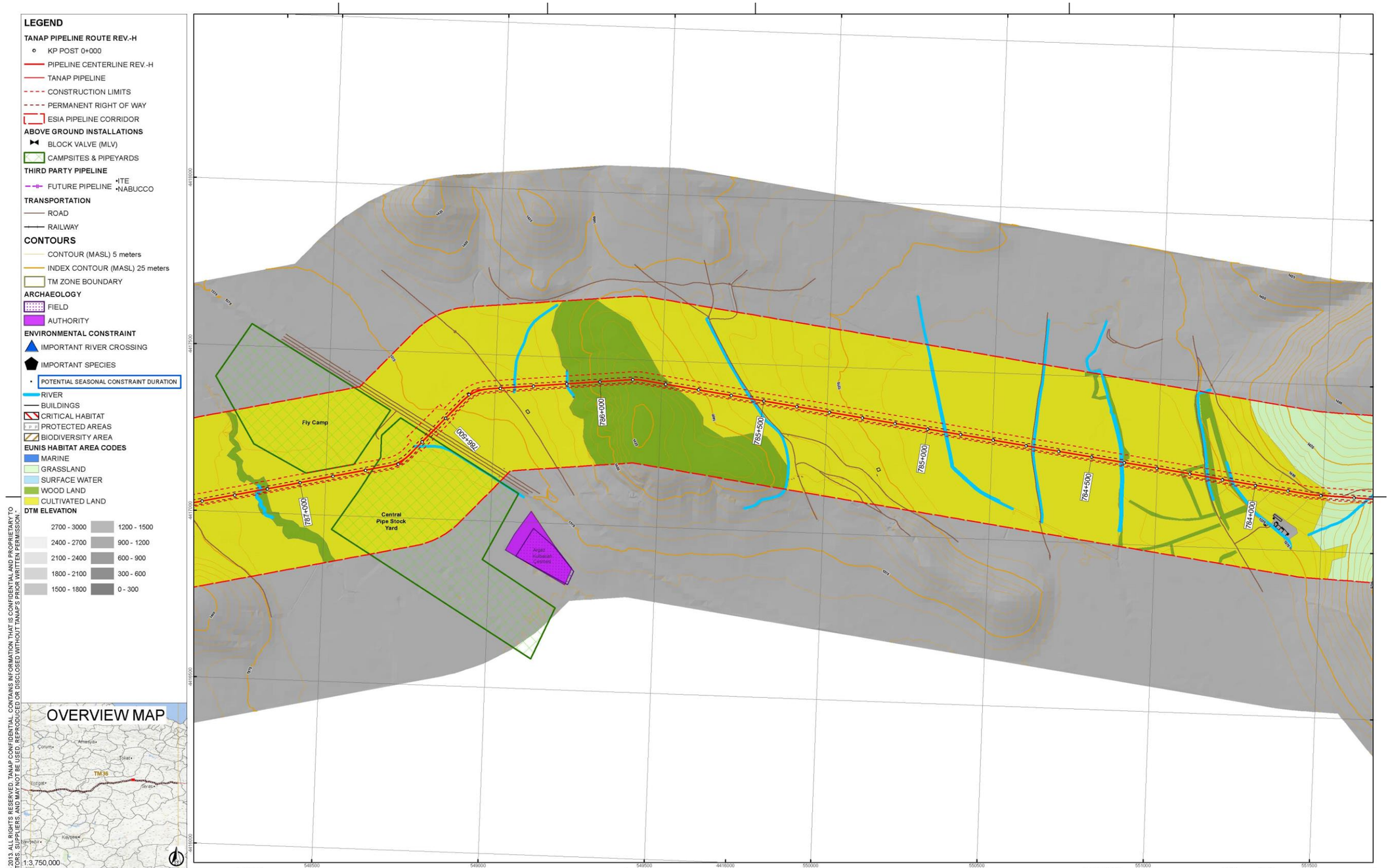

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TANAP
TRANS ANATOLIAN NATURAL GAS PIPELINE
PROJECT

Project Doc.No.	**TKF-PLN-ENV-PL3-018**	**Rev**	**Status**
		P4-0	**IAAC**
Document Title :	**Cultural Heritage Management Plan**		
Tag Nos.			
Contractor:	**Tekfen Construction and Installation Co., Inc.**		
Contractor Document No.		**Rev**	

		Signature	**Date**
	C1- Reviewed & accepted. Resubmit as final rev P4-0 - IAAC. Construction may proceed.		
	C2 - Reviewed & accepted as marked. Revise & resubmit as rev P4-0 - IAAC. Construction may proceed.		
	C3- Reviewed & returned. Correct & resubmit as P4-D, E etc. RE-IFR. Construction shall **NOT** proceed.		
	C4-Review not required. Resubmit for information only rev P4-0 - IFI. Construction may proceed.		

Remarks:-

TEKFEN CONSTRUCTION	TEKFEN CULTURAL HERITAGE MANAGEMENT PLAN	TANAP

TEKFEN CULTURAL HERITAGE MANAGEMENT PLAN

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by	TANAP Approval
P4-A	DIC	09.05.2015	Discipline Internal Check	ITAS	ASON	MKOP	
P4-B	IDC	09.05.2015	Inter-Discipline Check	ITAS	ASON	MKOP	
P4-C	IFR	11.05.2015	Issued for Review	ITAS	ASON	MKOP	
P4-0	IAAC	14.05.2015	Issued As Approved for Construction	ITAS	ASON	MKOP	

DOCUMENT REVISION HISTORY

REV.	REVISION DESCRIPTION	DATE ISSUED	UPDATE / AMENDMENT DETAILS
P4-A	DIC	09.05.2015	First issue
P4-B	IDC	09.05.2015	Issued for IDC incorporating DIC comments
P4-C	IFR	11.05.2015	Issued for Review
P4-0	IAAC	14.05.2015	Issued As Approved for Construction

HOLDS

No.	Section	Description	Input From	Planned Date

TABLE OF CONTENTS

1. INTRODUCTION

1.1. PURPOSE & SCOPE

The purpose of this procedure is to ensure that the impact of construction activities on archaeology and cultural heritage issues in Lot 3 of the Project is controlled and minimized. Additionally, this procedure describes how chance archaeological finds will be managed.

This procedure is applicable where ground disturbance activity occurs.

1.2. RELATIONSHIP TO OTHER PLANS AND DOCUMENTS

This plan is part of the Environmental and Social Management Plan (TKF-PLN-ENV-PL3-001) and it is related with E&S Training Plan (TKF-PLN-ENV-PL3-003).

1.3. ABBREVIATIONS

MoCT	Ministry of Culture and Tourism
ESIA	Environmental and Social Impact Assessment of TANAP Project
ROW	Right Of Way
CHMP	Cultural Heritage Management Plan
E&S	Environmental and Social
CC	Construction Contractor
ID	Identity Number of Chance Find

1.4. REFERENCES

- Environmental & Social Management Plan (ILF-PLN-ENV-GEN-001)
- Environmental & Social Monitoring Procedure (ILF-PCD-ENV-GEN- 001)
- Environmental Requirements for TEKFENs and suppliers (ILF-SPC-ENV-GEN-001)
- **ESIA Report –Turkish Version (TNP-REP-ENV-GEN-001)**
- **ESIA Report –English Version (TNP-REP-ENV-GEN-002)**
- Preliminary Environmental and Social Management Plan (BCH-REP-ENV-GEN-008)
- Integrated ESIA Report Appendix 5.8. Cultural Heritage Management Plan
- Chapter 4 and Appendix 4.6 (Legislation Register) of ESIA
- Chance Finds Procedure (WRP–PCD-ENV-GEN-003)
- Archaeology Constraints maps (ESIA Section 13, Annex 1.1.3)
- Terristrial Archaeology Baseline Report (ESIA Section 13, Annex 2.4, 22)

1.5. DEFINITIONS

Client: TANAP DOĞALGAZ İLETİM A.Ş.

EPCM WorleyParsons Proje Yönetimi ve Mühendislik Limited Sirketi

Chance Find: Potential cultural heritage objects, features or sites that are identified outside of a formal site reconnaissance, normally as a result of construction monitoring.

Ministry of Culture and Tourism: It is a government ministry of the Turkey, responsible for culture and tourism affairs in Turkey.

General Directorate of Cultural Heritage and Museums: A Directorate of the Ministry of Culture and Tourism Ministry responsible for protecting the cultural and natural heritage of archaeological research and the excavations, protection, and ensuring preventive measures against destruction and kidnapping

Museum Directorate: A Directorate of the Ministry of Culture and Tourism Ministry responsible for giving advice and direction on archaeological finds. Will follow directions and decisions from Regional Board Directorate of Protection of Cultural Heritage

Regional Board Directorate Of Protection Of Cultural Heritage: A Directorate of the Ministry of Culture and Tourism Ministry responsible for giving advice and direction on archaeological finds.

Project: TANAP, Trans Anatolian Natural Gas Pipeline Project.

2. METHOD

2.1. CHANCE FIND(S)

During construction phase all ground disturbance activities (topsoil stripping, all excavations, trenching etc.) will be monitored by TEKFEN archaeologist(s).

Upon coming across an archeological find, the archaeologist will stop the work and immediately contact TEKFEN Construction Manager and the EPCM archaeologist. The site will be put under protection by flagging, no entry signs etc. Construction machinery will be removed from the area of the archaeological find and the area will be cordoned off by warning tapes.

TEKFEN will provide support to facilitate decision process of the authorities. If authorities require further studies such as test pit excavations, use of remote sensing methods etc. before making a decision, TEKFEN will assist in conducting these studies and submitting the findings to the relevant authorities. In the event that it is necessary to remove any such monument or object off the working width, TEKFEN will obtain prior agreement of the related authorities and persons and comply with their instructions concerning the removal, storage and reinstatement of such monuments and objects.

The following steps will be followed upon a chance finds discovery, as described in Chance Finds Procedure (WRP–PCD-ENV-GEN-003):

STEP 1 – After the discovery of a chance find:

- All work must cease at the location where discovery is made
- A temporary buffer zone around the chance find will be put in place
- If not on site, construction crew will contact CC archaeologist. An archaeologist from CC should be on site during all ground disturbance activities

- TEKFEN archaeologist immediately contacts:
  1. CC construction manager
  2. EPCM archaeologist
- EPCM archaeologist contacts spread boss and museum archaeologist immediately
- CC archaeologist properly secures chance find site: flagging, no-entry signs
- TEKFEN prevents/limit vehicle traffic within the immediate vicinity of chance find
- Protection of site: chance find should not be moved, removed or further disturbed

STEP 2 - Recording

- TEKFEN archaeologist fills out Part A of Chance Find form (Annex 1), and sends a copy to EPCM archaeologist within 24 hours
- TEKFEN archaeologist retains a copy of Chance Find form for his/her record

STEP 3 – Contact with local authority

- EPCM archaeologist notifies closest museum directorate archaeologist of the chance find immediately after receiving notification from CC archaeologist

STEP 4 – Authority's decision

- Museum directorate archaeologist notifies EPCM archaeologist on how to proceed

STEP 4 A – No significance to site

- Per museum directorate archaeologist, site is considered to be of no significance
- EPCM archaeologist informs TEKFEN archaeologist
- TEKFEN and EPCM archaeologists inform their managers
- TEKFEN archaeologist records decision in Part B of Chance Find form and sends a copy to EPCM archaeologist within 24 hour
- TEKFEN archaeologist retains a copy of Chance Find form for his/her record
- No further actions required
- This step closes out the chance find procedure
- Construction activities may resume

STEP 4 B – Significance to site

- Per museum directorate archaeologist, site is considered to be of significance
- Museum directorate archaeologist decides on further actions and informs EPCM archaeologist
- EPCM archaeologist informs TEKFEN archaeologist
- TEKFEN and EPCM archaeologists inform their managers
- TEKFEN archaeologist records decision in Part B of Chance Find form
- Proceed to Step 5

STEP 5 – Site investigation

- Project personnel to follow museum directorate archaeologist's instructions

• After some field investigation, Museum directorate archaeologist declares the site to be of no significance	• After some investigation, Museum directorate archaeologist declares the site to be of minor significance	• After some investigation, Museum directorate archaeologist declares the site to be of major significance

• EPCM archaeologist informs TEKFEN archaeologist • TEKFEN and EPCM archaeologists inform their managers • TEKFEN archaeologist records decision in Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour • TEKFEN archaeologist retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the chance find procedure • Construction activities may resume	• A salvage excavation is to be completed • Museum directorate archaeologist provides instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist • EPCM archaeologist informs TEKFEN archaeologist • TEKFEN and EPCM archaeologists inform their managers • Under the guidance of EPCM archaeologist (following instructions from authorities) TEKFEN provides a team of qualified archaeologist to conduct the salvage excavation. • Once the excavation is completed, TEKFEN archaeologist provides a report to EPCM archaeologist • EPCM archaeologist provides report to museum directorate • Regional Board Directorate of Protection of Cultural Heritage officially confirms completion of recovery and informs EPCM archaeologist. • EPCM archaeologist informs TEKFEN archaeologist that no further actions are required. • TEKFEN and EPCM archaeologists inform their managers • TEKFEN archaeologist records decision in Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour	• An excavation is to be completed • Site is to be treated according to Turkish archaeological regulations "Law on the Conservation of Cultural and Natural Property (2863) 21.07.1983 • Museum directorate archaeologist provides instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist • EPCM archaeologist informs TEKFEN archaeologist • TEKFEN and EPCM archaeologists inform their managers • Under the guidance of EPCM archaeologist (following instructions from authorities) TEKFEN provides a team of qualified archaeologist to conduct the salvage excavation • Once the excavation is completed, TEKFEN archaeologist provides a report to EPCM archaeologist • EPCM archaeologist provides a report to museum directorate • Regional Board Directorate of Protection of Cultural Heritage officially confirms completion of recovery and informs EPCM archaeologist. • Site will be officially recorded and protected according to Turkish regulations • EPCM archaeologist informs TEKFEN archaeologist that no further actions are required, or that a route change is

	• TEKFEN archaeologist retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the chance find procedure • Construction activities may resume	required (via Management of Change) • TEKFEN and EPCM archaeologists inform their managers • TEKFEN archaeologist records decision on Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour • TEKFEN archaeologist retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the chance find procedure • Construction activities may resume or route change is implemented (via Management of Change)

2.2. CONTACT INFORMATION

The contact information for the Museum Directorates in Lot 3 are:

PROVINCE	**CONTACT INFORMATION**
SİVAS	**Address**: Yüceyurt mah. Rahmi Günay cad. Arkeoloji Müzesi SİVAS **Telephone:** (0346) 221 04 46 **Fax:** (0346) 224 40 67 **E-mail:** sivasmuzesi@kultur.gov.tr
YOZGAT	**Address**: İstanbulluoğlu Mahallesi Müze Caddesi No:19 66100 YOZGAT **Telephone:** 0 354 212 27 73 / 212 14 94 **Fax:** 0 354 212 27 73 **E-mail:** yozgatmuzesi@kultur.gov.tr
KIRŞEHİR	**Address**: Kültür Merkezi İçi KIRŞEHİR **Telephone:** (0386) 213 33 91
ANKARA	**Address**: Gözcü Sokak No:2 06240 Ulus / ANKARA **Telephone:** +90 (312) 324 31 60 – 61 – 65 **Fax:** +90 (312) 311 28 39 **E-mail:** anmedmuz@ttnet.net.tr **E-mail:** anmedmuz@gmail.com
ESKİŞEHİR	**Address**: Atatürk Bulvarı No:64 26020 ESKİŞEHİR **Telephone:** 0 (222) 230 13 71 - 220 90 16 **Fax:** 0 (222) 230 17 49 **E-mail:** muze@eskisehirmuze.gov.tr

The contact information for the Protection Boards in Lot 3 are as follows:

PROTECTION BOARDS	AREA OF RESPONSIBILITY	ADDRESS
Kayseri Regional Drectorate of Cultural Entities Preservation Board	Kayseri, Yozgat	Tacettin Veli Mahallesi Lalezade Cad. No:6 Kiçikapı – Melikgazi / KAYSERİ
Sivas Regional Drectorate of Cultural Entities Preservation Board	Sivas, Tokat, Malatya, Yozgat	Atatürk Kültür Merkezi Kat:4 SİVAS
Nevşehir Regional Drectorate of Cultural Entities Preservation Board	Nevşehir, Kırşehir, Niğde	Emek Mah. Nar Yolu No: 28 NEVŞEHİR
Ankara 1 Regional Drectorate of Cultural Entities Preservation Board	Ankara (Çankaya, Yenimahalle, Etimesgut, Keçiören, Mamak, Gölbaşı, Kazan, Sincan, Nallıhan, Beypazarı, Ayaş, Polatlı, Çamlıdere, Kızılcahamam), Bolu, Çankırı, Kastamonu	Konya Sokak No:46 Kat 1 Ulus / ANKARA
Ankara 2 Regional Drectorate of Cultural Entities Preservation Board	Ankara, Çankırı, Kırıkkale, Kastamonu, Çorum, Bolu	II. Meclis Binası Yeni Binalar Ulus/ ANKARA
Eskişehir Regional Drectorate of Cultural Entities Preservation Board	Eskişehir, Afyon, Bilecik	Arifiye Mahallesi Okullar Sokak No: 2 – ESKİŞEHİR

2.3. LEGISLATIVE REQUIREMENTS

The TANAP ESIA report has identified all the legislative requirements for the cultural heritage management. All the legislative requirements, including those of the contractual requirements will be treated as legal and will be maintained in a legal register.

As per TANAP ESIA report, when archaeological strata or remaining are encountered, the requirements of following legislation will be followed:

- Law no 2863 and dated July 23, 1983 regarding Protection of Cultural and Natural Assets
- Regulation on the Fixation and registration of Real estate Cultural and Natural Assets that need to be Protected
- European Convention on the Protection of Archaeological Heritage
- Convention concerning the Protection of World Cultural and Natural Heritage and
- World Bank Group

The Ministry of Culture and Tourism has the authority for all and any sanctions and responsibilities regarding the cultural and natural assets.

2.4. PRE-IDENTIFIED ARCHEOLOGICAL SITES

During TANAP Pre-Construction Phase, in the scope of baseline study, archaeological field surveys have been carried out. For Lot 3, the archeological sites, as per Appendix 5.8. “Cultural Heritage Management Plan” of ESIA report, are given in Annex 2. TEKFEN will follow the

mitigation suggestions as provided in the named table and assigned archaeologist will advise the construction teams accordingly.

2.5. INTANGIBLE CULTURAL RESOURCES

TEKFEN will identify if Project activities can interfere with traditional celebrations or festivities via CLOs verbal contact with local Authorities (such as mukhtars, sub-governors) on a regular basis, especially before the start of construction activities. Alternative solutions will be agreed with local authorities to minimize the interference or restriction of access to elements of traditional culture.

3. TRAINING

Personnel that routinely work in construction activities will receive an overview of project cultural heritage management requirements.

Course Title	Cultural Heritage Management
Duration	TBD
Key Objective(s)	To make attendees aware of the scale of culture and heritage evident across the TANAP pipeline route as well the requirements of the Cultural and Heritage Management Plan
Issues to be covered	Consequences of destroying archaeology Requirements of the Cultural and Heritage Management Plan Procedures to be followed in the event of chance finds
Tools / Method of Delivery	Presentation(s) Group discussions
Target Audience	All staff

4. MONITORING

TEKFEN's archaeologist(s) will be present with all ground disturbance activities and monitor visually all ground disturbance activities such as the topsoil stripping and excavations.

5. REPORTING

Chance Find register, given in Annex 3, will be kept to record all chance finds in a format approved by EPCM. TEKFEN will submit Monthly reports including Chance Find registers to EPCM.

6. RESPONSIBILITIES

Project Manager

- To commit the protection of cultural heritage,
- To ensure the implementation of this procedure,
- To provide necessary resources to implement CHMP.

Project HS&ES Manager

- To prepare, implement, and monitor the E&S Plans,

Environmental Manager

- To implement, and monitor the Cultural Heritage Plans,
- To ensure reports on chance finds are provided to EPCM immediately.
- To audit and inspect the sub-contractors to ensure compliance with CHMP,
- To keep the chance find records,
- To attend the environmental meetings, to inform the participants about the cultural heritage management performance and problems of the workplace's cultural heritage management system,
- To update the chance find register on a monthly basis and provide it to EPCM,
- To issue non compliances when commitments are not applied.

Archaeologists:

- To provide advice to define the areas where the construction activities may continue or shall be stopped.
- To record archaeological features discovered during ground disturbance activities.
- To provide advice in the form of a 'preliminary assessment' to the construction manager on the significance and implications of new archaeological discoveries on the pipeline route.
- To provide awareness trainings on archaeological and cultural heritage to the personnel.

Construction Manager

- To ensure all necessary resources (staff and material) are provided to implement CHMP.

Supervisors and Foremen

- To ensure that their crew understand the importance of cultural heritage
- To stop work and have the area protected from entry and communicate with archaeologist for further instruction.

7. RECORDS

- Chance Find Reports - EPCM
- Chance Find Register

ANNEX 1- ARCHAEOLOGICAL CHANCE FIND FORM

CHANCE FIND REPORT FORM / RASLANTISAL BULUNTU RAPOR FORMU

To be filled out in English/ Ingilizce doldurunuz

PART A **BÖLÜM A**			
Spread: *Saha bölümü*	KP:	Date: *Tarih*	ID:
Name of person reporting chance find: *Rastlantısal buluntuyu rapor eden kişinin ismi*			
Name of contractor archaeologist contacted: *İletişime geçilen yüklenici arkeoloğun ismi*			
Was work stopped in the immediate vicinity of chance find? ☐ Yes ☐ No *Rastlantısal buluntunun tam çevresinde iş durduruldu mu? Evet Hayır*			
Was a buffer zone created to protect chance find? ☐ Yes ☐ No *Rastlantısal buluntuyu korumak için tampon bölge oluşturuldu mu? Evet Hayır*			
NOTIFICATION ***BİLDİRİM***			
Contractor construction manager contacted ☐ Yes ☐ No *Yüklenici inşaat müdürü ile irtibata geçildi Evet Hayır*			
EPCM archaeologist contacted ☐ Yes ☐ No *EPCM arkeoloğu ile iletime geçildi Evet Hayır*			
CHANCE FIND DETAILS ***RASLANTISAL BULUNTU AYRINTILARI***			
GPS coordinates *GPS koordinatları*	Photo record ☐ Yes ☐ No (HD quality – no cell phone photos) *Fotoğraf kaydı Evet Hayır* *(HD kalitesinde – cep telefonu fotoğrafı değil)* If not, explain why: *Yok ise nedenini açıklayınız* Other records ☐ Yes ☐ No Specify (drawings, HD quality videos, etc.): *Diğer kayıtlar Evet Hayır*		

	Belirtin (çizimler, HD kalite videolar, vb.)

Description of chance find:
Rastlantısal buluntunun tanımı

Description of site and vegetation: (e.g. surface sediment type, ground surface visibility, distance to closest watercourse, etc.)
Sahanın ve bitki örtüsünün tanımı: (örn. Yüzey sediman türü, yüzey zemin görünürlüğü, en yakın suyoluna olan mesafe, vb.)

PART B
BÖLÜM B

NOTIFICATION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST
_____ *MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNA BİLDİRİ*

EPCM archaeologist contacted museum directorate archaeologist ☐ Yes ☐ No
EPCM arkeoloğu müze müdürlüğü arkeoloğu ile irtibata geçti. *Evet* *Hayır*

Date of notification:
Bildirim tarihi

Name of museum directorate archaeologist :
Müze müdürlüğü arkeoloğunun ismi

Contact number of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun iletişim numarası

DECISION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST
_____ *MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNUN KARARI*

Date of initial investigation: *İlk araştırma tarihi*	
☐ Site of no significance - Construction to proceed with no further investigation – End of chance find procedure *Önemsiz saha – İnşaat daha fazla araştırma yapılmadan devam edilebilir – rastlantısal buluntu prosedürün sonu.* Date of notice to resume work : *İşe başlama tarihi bildirisi*	☐ Site of significance - Further investigation required *Önemli saha – Ek araştırma gerekmektedir* Fill out Part C *Bölüm C'yi doldurun.*
Name of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun ismi* Contact information: *İletişim numarası*	
EPCM construction manager contacted *EPCM inşaat müdürü ile irtibata geçildi*	☐ Yes *Evet* ☐ No *Hayır*
Contractor archaeologist contacted *Yüklenici arkeoloğu ile irtibata geçildi*	☐ Yes *Evet* ☐ No *Hayır*

PART C
BÖLÜM C

FURTHER FIELD INVESTIGATION
EK SAHA ARAŞTIRMASI

☐ Site of no significance *Önemsiz saha*	☐ Site of minor significance *Az önemli saha*	☐ Site of major significance *Çok önemli saha*

Describe additional work to be conducted:
Yapılması gereken ek işlerin tanımları

Date started: *Başlangıç tarihi*	Date completed: *Bitiriş tarihi*
Date of notice to resume work : *İşe başlama tarihi bildirisi*	
Name of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun ismi:* Contact information: *İletişim numarası*	
Construction manager contacted *İnşaat müdürü ile irtibata geçildi*	☐ Yes *Evet* ☐ No *Hayır*
EPCM archaeologist contacted *EPCM inşaat müdürü ile irtibata geçildi*	☐ Yes *Evet* ☐ No *Hayır*

.

ANNEX 2- LOT 3 ARCHEOLOGICAL SITES

Appendix 5.8. "Cultural Heritage Management Plan" of ESIA report, part of Table 1.4. 1 Archeological Findings (to be revised as per updated maps)

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation& Test Pits**	**No Action**	**DESCRIPTIONS**
50	Arpalık 3 (Arpalık Sarnıcı)	Yozgat	876+550-876+810	No Change	1	No material change to the site or feature		x			The area is most probably an open air ritual site. It is located 2 km east of Arpalik Village, 1 km southeast of Yılanlı Hill, 700 m northeast of Asikbaba hill. It is related with Arpalik 1 and Arpalik 2 areas. Human figures and some pits that were most probably dug for water supply were encountered. The area is formed of two pieces of rocks. Some potsherds were observed on the surface. The location is 30 m away from the construction zone. The area is declared as first degree protection zone by the decision of Kayseri Preservation Board with decision no 954 dated 07.02.2014. Based on the findings, route change will be necessary. Following the route change all construction activities have to be carried out under archaeological monitoring.
51	Arpalık 1 (Arpalık Kalesi)	Yozgat	876+980-877+500	No Change	1	No material change to the site or feature		x			The area is a Hilltop Settlement. It is located on the a rock hill which is 100m. north of Belekçehan and Arpalık village road. Painted potsherds belonging to Iron Age and Roman period were encountered on the surface. Potsherds and animal bones were discovered in the three illegal excavation pits made by treasure hunters on top of the hill. The area is 54 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Kayseri Preservation Board with decision no 953 dated 07.02.2014. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
52	Alıçlıseki	Yozgat	883+950-884+000	No Change	1	No material change to the site or feature		x			The location is a tumulus dating back to Roman Period. It is located 1.8 km southeast of Ozan, 500 m of Alacaardic Hill, 2 km west of Kucukkizildag Hill over the Alicliseki hilltop. The area is 41 m away from the construction main axis. The area is declared as first degree protection zone by the decision of Kayseri Preservation Board with decision no 955 dated 07.02.2014. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
53	Kurupınar	Yozgat	915+060-915+260	Moderate	4	Changes to many key archaeological materials, such that the resource is clearly modified (Guide: 30-60% surviving deposits damaged or destroyed)	x	x			The site is a "Flat Settlement" and located in 1 km south of Sarıhamzalı village, 1 km northeast of Kepirce village, 500m north of Kurupınar Mevkii and just on south of Sarıhamzalı Tumulus. On both sides of the site there are two rivers surrounding. On the field surface of the area, Roman pottery pieces form Roman Period, painted and unpainted potsherds, terra cotta tile pieces and some human bones are discovered. According to 21.02.2014 dated and 974 numbered decision of Kayseri Preservation Board of Cultural Assets, the site is registered as 1st degree site and the route change is accepted. After this decision the distance between the site and construction area became 52m. during all construction activities, archaeological survey is recommended as an expert opinion.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
54	Yazılıtaş	Yozgat	920+110-920+220	No Change	1	No material change to the site or feature		x			The site is a "Flat Settlement" located within the boundaries of Yazılıtaş village in Sorgun district, Yozgat, on the left of Yazılıtaş-Akoluk road, in the agricultural land. According to surface pottery findings, the site is dated to Roman and Byzantine Periods. The distance between the site and the construction area is 67m. According to 01.03.2013 dated and 762 numbered decision of Sivas Preservation Board of Cultural Assets, the site is registered as 2nd degree site. During all construction activities, archaeological survey is recommended as an expert opinion.
55	Kaleycikkaya	Yozgat	920+150-920+200	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board. The area is 113 m away from the construction area. Construction activities in the vicinity of the region should be carried out under archaeological monitoring.
56	Kaleycikkaya	Yozgat	920+960-921+150	Moderate	4	Changes to many key archaeological materials, such that the resource is clearly modified (Guide: 30-60% surviving deposits damaged or destroyed)	x	x			The site is a "Hilltop Settlement" and located 1km north of Yazılıtaş village, 1.5 km southeast of Boz Tepe and 600 northeast of Bırcalık Tepe, on a rock hill. Potsherds dating to Neolithic and Chalcolithic Periods are the main findings of the surface. Besides potsherds, bone pieces and 1 piece of flint blade are discovered. Also a treasure pit (illegal excavation) discovered within the area. According to 21.02.2014 dated and 971 numbered decision of Kayseri Preservation Board of Cultural Assets, the site is registered as 1st degree site. With the same numbered and dated decision the route change is also accepted. After the route change the distance between the site and the construction area became 99m. During all construction activities archaeological survey is recommended as an expert opinion.
57	Karadeli Çeşmesi (Ümmet Tepe)	Yozgat	924+550-924+600	No Change	1	No material change to the site or feature		x			The site is a "Tumulus" and located on 1 km northwest of Peyniryemez village, on the southwest of Ümmet Tepe and 1.5 km northeast of Çakırhacılı village. The tumulus is damaged by treasure hunters. There are few potsherds and remains of architectural elements around the site. The distance between the site and the construction area is 81.5m. According to 01.03.2013 dated and 762 numbered decision of Sivas Preservation Board of Cultural Assets, the site is registered as 2nd degree site. During all construction activities around the area, archaeological survey is recommended as an expert opinion.
58	Zekeriye	Yozgat	929+050-929+080	No Change	1	No material change to the site or feature	x	x			The site is registered as 1st degree site by Sivas Preservation Board of Cultural Assets. The distance between the site and the construction area is 17m. The construction activities around this site will be carried out in a reduced area and will not be disturb the area within which the boundaries are defined. Besides this precaution, during all construction activities around the site, archaeological survey is recommended as an expert opinion.
59	Yenicederesi	Yozgat	937+630-937+850	No Change	1	No material change to the site or feature		x			The site is "Hilltop Settlement" and located on 1 km south of Tekkeyenicesi village and on the top of two contiguous hills. Potsherds of the surface indicate the Iron Age. The distance between the site and the construction area is 113m. According to 212.02.2014 dated and 973 numbered decision of Kayseri Preservation Board of Cultural Assets the site is registered as 1st degree site. During all construction activities around the area, archaeological survey is recommended as an expert opinion.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
60	Tekkeyenicesi	Yozgat	937+790-937+950	No Change	1	No material change to the site or feature		x			The area is a Cemetery. It is located on the south of Tekkeyenicesi Village. The area is 41 m away from the construction zone. It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
61	Tekkeyenicesi Tümülüsü (Kuştepesi Tümülüsü)	Yozgat	938+120-938+180	No Change	1	No material change to the site or feature		x			The site is a tumulus registered as 2nd degree site by Sivas Preservation Board of Cultural Assets. The distance between the site and the construction area is 86m. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
62	Avgın	Yozgat	940+500-940+600	No Change	1	No material change to the site or feature		x			The area is a slope settlement. Based on the surface findings, it can be concluded that it belongs to Iron Age. It is located 2 km east of the Çalılı Village, 500 m away from the road connecting Çalılı and Tekkeyenicesi Villages. The area is located 25 m away from the construction zone. It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
63	Çalılı 2	Yozgat	942+300-942+400	No Change	1	No material change to the site or feature		x			It is located 650 m southeast of Çalılı Village on the slopes of the hill known as Mezarlık ridge. The area is an "Old Cemetery". It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
64	Çalılı 1	Yozgat	943+280-943+350	No Change	1	No material change to the site or feature		x			It is located 500 m south of Çalılı Village, 100 m north of Taşlıdölek region. The area is an "Old Cemetery". It is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
65	Taşlıdölek	Yozgat	944+140-944+500	No Change	1	No material change to the site or feature		x			The site is a "Hilltop Settlement" located on 1,2 km west of Çalılı village, alongside of the road from Kayseri to Yozgat, in 100 m south of Kazanpınarı Tumulus. On the field surface, density of potsherds, terra cotta roofing tiles and remains of architectural elements dating to Late Roman – Byzantine Periods, along with metal and glass artifact pieces and bright glazed potsherds. The distance between the site and the construction area is 220m. According to 21.02.2014 dated and 972 numbered decision of Kayseri Preservation Board of Cultural Assets, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
66	Çalılı 2 Tümülüsü	Yozgat	944+350-944+490	No Change	1	No material change to the site or feature	x	x			The site is a "Tumulus dated to Roman Period and located on 1 km west of Çalılı village, alongside of the Çalılı village road from Kayseri-Yozgat main road, and 600m south of Kazanpınarı Mevkii. On the field surface, two treasure pits (illegal excavation) were determined. According to 24.05.2013 dated and 916 numbered decision of Sivas Preservation Board of Cultural Assets, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended. If the route can not be cahged, a justified report must be prepared and expert opinion must be requested form authorized institution.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
67	Killiarkaç	Yozgat	947+550-947+700	No Change	1	No material change to the site or feature		x			The area is a slope settlement. It is located 1.5 km northeast of Lökköy village, 700 m northeast of Paşalıhöyüğü region, 600 m south of Killiarkaç ridge over the slopes of a dry creek. Potsherds belonging to late Roman period and roof tile pieces were observed on the surface. The area is 48 m away from the construction zone and is in the process of registration by the Kayseri Preservation Board. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
68	Erkekli	Yozgat	954+680-955+010	No Change	1	No material change to the site or feature		x			The site is a "Flat Settlement" and located 1 km south of Yozgat-Yerköy main road, 1,8 km southwest of Yukarıelmahacılı village and 600 m east of Kuştepe. On the field surface potsherds dated to Early, Middle and Late Bronze Ages are discovered. The distance between the site and the construction area is 32m. According to 01.03.2013 dated and 762 numbered decision, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
69	Ziyaret Mevkii	Yozgat	956+550-956+650	No Change	1	No material change to the site or feature		x			The area is a flat settlement. Based on the surface findings, it can be concluded that it belongs to Iron Age. It is located about 1.5 km west of Erkekli village, 250 m north of Ziyaretmevkii, 1 km east of Bozoğunhöyüğü Region spread over the banks of Mısırözü Creek. Architectural foundation stones belonging to a 4x4 m structure were observed on the area. The area is in the process of registration by the Kayseri Preservation Board. As expert opinion, all construction activities in the location should be conducted under archaeological supervision.
70	Yukarı elmahacılı	Yozgat	973+960-974+080	Negligible	2	Very minor changes to archaeological materials, or setting		x			The site is a "Flat Settlement" and located 1 km south of Yozgat-Yerköy main road, 1,8 km southwest of Yukarıelmahacılı village and 600 m east of Kuştepe. On the field surface potsherds dated to Early, Middle and Late Bronze Ages are discovered. The distance between the site and the construction area is 32m. According to 01.03.2013 dated and 762 numbered decision, the site is registered as 1st degree site. During all construction activities around the site, archaeological survey is recommended as an expert opinion.
71	Yukarı elmahacılı	Yozgat	974+050-974+110	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board. The area is located 95 m away from the construction main axis. Construction activities in the vicinity of the region should be carried out under archaeological monitoring.
72	Çatalarkaç	Yozgat	979+850-979+920	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board and was declared as first degree protection site.The area is located 235 m away from the main construction axis. Construction activities in the vicinity of the region should be carried out under archaeological monitoring.
73	Külyarma 2	Kırşehir	987+650-987+680	No Change	1	No material change to the site or feature		x			The area is a Tumulus type tomb. It is one of the two tumuli located in Külyarma Region. Traces of illegal excavations of treasure hunters were observed on top of the tumulus. As it is the case with the other tumulus, potsherds belonging to Hellenistic and Roman periods were encountered in the excavated pits. Registration by the Nevsehir Preservation Board is

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
											in progress. It is recommended to carry out all construction activities under archaeological monitoring.
74	Külyarma 1	Kırşehir	987+650-987+680	No Change	1	No material change to the site or feature		x			The area is a Tumulus type tomb. It is one of the two tumuli located in Külyarma Region. Traces of illegal excavations of treasure hunters were observed on top of the tumulus. Potsherds belonging to Hellenistic and Roman periods were encountered in the excavated pits. Registration by the Nevsehir Preservation Board is in progress. It is recommended to carry out all construction activities under archaeological monitoring.
75	Tuzla Köprüsü	Yozgat	1003+380-1003+420	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Sivas Preservation Board. The area is located 153 m away from the main construction axis. Construction activities in the vicinity of the region have to be carried out under archaeological monitoring.
76	Tuztepe	Yozgat	1005+350-1005+440	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Nevşehir Preservation Board (Ref. No. 96743921/ 40.00.0.182). The area is located 95 m away from teh main construction axis. As expert opinion it is recommended to conduct all construction activities in the vicinity of the region under archaeological monitoring.
77	Aralısarı	Kırıkkale	1047+700-1048+150	No Change	1	No material change to the site or feature		x			The area is a "Slope Settlement". It is located about 1.5 km northwest of Besler village. A water resource known as Aga Cesmesi is at the south of the area. Intense potsherds belonging to Roman period were observed on the surface. In addition, pieces of bones, other pieces possibly belonging to glass ornaments and architectural block stones were also observed. The location was declared as third degree protection zone by Ankara Preservation Board No 2 by decision no 656 dated 24.10.2013. The area is 112m away from the construction main axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
78	Yeniyapan	Kırıkkale	1059+400-1059+500	No Change	1	No material change to the site or feature		x			The area which is located 1 km northwest of Yeniyapan village on the side of Kayseri state road is a flat settlement. Potsherds most probably belonging to Bronze Age were observed on the surface. The area and surroundings are intensely used for agriculture. It is recommended to carry out all construction activities under archaeological monitoring.
79	Maşattepe	Kırıkkale	1063+800-1063+850	No Change	1	No material change to the site or feature		x			The cemetery is located over the Masal hill which is 500 m south of Gülkonak Village. As expert opinion, it is recommended to carry out all construction activities under archaeological monitoring avoiding the part of the cemetery remaining in the construction corridor.
79A	Gulkonak										3rd degree archaeological site **the site is a "Flat Settlement" and located in south of Gulkonak village. On the field surface area, pottery pieces from Roman Period (Terra Sigillata, etc.), terra cotta disc pieces (for using Roman Bath) and marble column pieces (in the Gulkonak village) are discovered. According to 03.06.2014 dated and 917 numbered decision of Ankara II Number Preservation Board of Cultural Assets, the site is registered as 3rd degree site and the route change is accepted. After this decision the distance between the site and**

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
											construction area became 15 m during all construction activities, archaeological survey is recommended as an expert opinion.
80	Roma Su Kanalı	Kırıkkale	1075+250-1075+350	No Change	1	No material change to the site or feature		x			The location was declared as the third degree protection zone by Ankara Preservation Board No 2. The area is 213 m away from the Tanap construction axis. Construction activities in the vicinity of the region have to be carried out under archaeological monitoring.
81	Fatmatepesi Sırtı	Ankara	1120+560-1120+590	No Change	1	No material change to the site or feature		x			The tumulus having a diameter of 4.5 m diameter and a height of 1 m. is located at the south of Fatmatepesi Ridge on the area which is currently used for agriculture. Most probably it belongs to the Roman period.The area was declared as first degree protection site by Ankara Preservation Board no 2 with the decision 656 dated 24.10.2013. The location is 48 m away from the construction axis. It is recommended to conduct all construction activities under archaeological monitoring.
82	Gölderesi	Ankara	1128+480-1128+600	No Change	1	No material change to the site or feature		x			The slope settlement is located southwest of Yöreli Village. Some architectural remains (column pieces and marble blocks) probably belonging to the Roman period were observed around the canals surrounding the swamp area. One of the column pieces bears an inscription. A marble block has an inscription in Ottoman language. Roof tiles and potsherds were observed on the hill located southwest of the swamp. The location is 136 m away from the construction axis. The area was declared as third degree protection site by Ankara Preservation Board no 2 with the decision 656 dated 24.10.2013. It is recommended to conduct all construction activities under archaeological monitoring.
83	Gavurkale	Ankara	1133+950-1134+050	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Ankara Preservation Board No 2. The area is located 231 m away from the construction axis. Construction activities in the vicinity of the region have to be carried out under archaeological monitoring.
84	Kırıklı	Ankara	1141+700-1142+050	No Change	1	No material change to the site or feature		x			The area carries potential archaeological risk. Potsherds having archaeological value were observed within the construction corridor located in the north section of the Kırıklı Huyuk protection site (Chalcolithic, Bronze, Iron Age). The archaeological site may possibly extent (lower settlement, necropolis, etc.) towards the pipeline construction corridor. The area is 131 m away from the construction axis. It is recommended to carry out construction activities under archaeological monitoring.
85	Kırıklı	Ankara	1141+830-1141+850	No Change	1	No material change to the site or feature		x			The location is declared as a first degree protection zone by the decision no 5448 dated 15.10.2010 of the Ankara Preservation Board No 1. It is 239 m away from the construction axis. Construction activities in the region has to be implemented under the archaeological monitoring.
86	Çakıllı	Ankara	1154+000-1154+400	No Change	1	No material change to the site or feature		x			The cemetery belonging to Ottoman period is located 3 km northeast of Dikilitaş village. Some architectural elements such as column pieces and marble blocks were observed on the area surface. The location is 130 m away from the construction axis. All construction activities around the cemetery have to be carried out under archaeological monitoring.
87	Küllük	Ankara	1205+580-1205+750	No Change	1	No material change to the site or feature		x			The cemetery is located 2 km northeast of Çanakçı Village and 600 m south of the road between Türkkarsak and Tatlıkuyu Villages. The location is 1 km northeast of the Akgedik

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
											Hill and 600 m south of Küllük hill. The location and environs are used for agriculture. Rows of tombstones in rectangular form were observed in the area. In addition, tips of few tombstones were discovered. The cemetery most probably belongs to late Ottoman and early Republic period. The location is 46 m away from the construction axis. It is recommended to carry out construction activities under archaeological monitoring.
88	Altınini	Eskişehir	1230+750-1231+120	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 111m away from the construction axis. As expert opinion it is recommended to conduct all construction activities around the archaeological area under archaeological supervision.
89	Örenbağları	Eskişehir	1239+300-1239+700	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 124 m away from the construction axis. As expert opinion it is recommended to conduct all construction activities around the archaeological area under archaeological supervision.
90	Kurupınar	Eskişehir	1250+900-1251+150	No Change	1	No material change to the site or feature		x			This slope settlement is located on the state highway from Eskişehir to Sivrihisar on the both slopes around the Boğaziçi creek which is close to the point where the pipeline crosses. In a newly opened water trench, some architectural elements and potsherds most probably belonging to bronze age were observed. On the fields, some columns and other architectural elements such as an architrave were revealed as the result of agricultural activities. The settlement was most probably used in the Bronze age and the Roman period. The location is 233 m away from the construction axis. The area is in the process of registration by the Eskişehir Preservation Board. As expert opinion, it is recommended to carry out all construction activities in the region under archaeological monitoring.
91	Seydi Çayı	Eskişehir	1323+440-1323+550	No Change	1	No material change to the site or feature		x			The area carry potential archaeological risk. Potsherds and roof tiles belonging to Roman and Early Byzantine periods were located on the fields east of Dogancayir village between Seydi creek and Hamidiye - Doğançayır road. The location is 181 m away from the construction axis. The intensity of the findings is low. Therefore it will be sufficient to conduct construction activities under archaeological monitoring.
92	Zafer Tepesi	Eskişehir	1329+450-1329+550	No Change	1	No material change to the site or feature		x			This slope settlement is located 2 km south of Zafer Hill and by the site of irrigation canals. Mortar, roof tiles and potsherds were observed on the surface. Among the discovered pieces, the Glazed potsherds may belong to Byzantine or Ottoman period. The area is 47 m away from the construciton axis. Therefore it will be necessary to conduct all construction activities under archaeological monitoring.
93	Koca Murat	Eskişehir	1329+750-1329+800	No Change	1	No material change to the site or feature		x			The slope type settlement is located 300 m. north of Kocamurat hill. A treasure hunter excavation pit was found on the settlement. The settlement is about 5 m high. The terracotta tablets and few potsherds indicate that it belongs to the Roman period. The lcoation is 125 m away from the construction axis. Eskisehir Preservation Board has initiated a registeration process. As expert opinion, it is recommended to carry out construction activities in the area under archaeological monitoring.

ARCHAEOLOGICAL SITE LOCATIONS				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation&Test Pits**	**No Action**	**DESCRIPTIONS**
94	Koca Murat Tepesi 2	Eskişehir	1329+820-1329+900	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 112 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
95	Koca Murat Tepesi 1	Eskişehir	1329+950-1330+040	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 143 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
96	Güllü Höyük	Eskişehir	1330+180-1331+000	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 97 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
97	Büyükdere	Eskişehir	1332+700-1333+350	No Change	1	No material change to the site or feature		x			The huyuk with a height of 6 m is located on the left hand side of the road from Aksaklı to Büyükdere. Potsherds probably belonging to bronze and iron ages and roof tiles probably belonging to an architectural structure have been observed on the surface. The huyuk was destroyed due to intense agricultural activities and spread over the area. The area is 112 m away from the construction axis. Eskisehir Preservation Board initiated a registration process for the area. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.
98	Üçkuyu Sırtı	Eskişehir	1332+850-1333+360	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskisehir Preservation Board. It is located 207 m away from the construction axis. As expert opinion, it is recommended to carry out construction activities under archaeological monitoring.

Ranking	Description
1	No material change to the site or feature
2	Very minor changes to archaeological materials, or setting
3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)
4	Changes to many key archaeological materials, such that the resource is clearly modified (Guide: 30-60% surviving deposits damaged or destroyed). Considerable changes to setting that affect the character of asset
5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide: 60-100% of surviving deposits damaged or destroyed). Comprehensive changes to setting

ANNEX 3- CHANCE FIND REGISTERS

CHANCE FIND REGISTER - SPREAD 5
Reporting Period:

Total of chance find	
To date	**This reporting Period**

ID (*)	DATE OF CHANCE FIND	KP	CHANCE FIND SUMMARY	NAME OF AUTHORITY NOTIFIED	DATE PART A COMPLETED	DATE PART B COMPLETED	DATE PART C COMPLETED	STATUS OPEN OR CLOSED	REMARKS
SP5-1									
SP5-2									
SP5-3									
SP5-4									

CHANCE FIND REGISTER - SPREAD 6

Reporting Period:

Total of chance find	
To date	**This reporting Period**

ID (*)	DATE OF CHANCE FIND	KP	CHANCE FIND SUMMARY	NAME OF AUTHORITY NOTIFIED	DATE PART A COMPLETED	DATE PART B COMPLETED	DATE PART C COMPLETED	STATUS OPEN OR CLOSED	REMARKS
SP6-1									
SP6-2									
SP6-3									
SP6-4									

ANNEX 4- BOARD DECISIONS FOR LOT 3

	No	İlgili Kurul (Related Board)	İlgili İller (Related Province)	Kültür Varlıklarını Koruma Bölge Kurulu Kararları Decisons of Regional Board Directorate of Protection of Cultural Heritage (RBDPCH)	Güzergah J, Yaklaşık KP (Route J,*Approximate KP)*	Kurul Yazısı Özeti (Board of Text Summary)
Before Take-Off 56 INC	4	Sivas KVKBKM / RBDPCH	SİVAS	30.10.2013 Tarih ve 1167 sayılı Küçük Pilavtepe Antik Yerleşimi, Sivas-Hafik-Yenimahalle *(30.10.2013 date and 1167 no* *The ancient settlement of Küçük Pilavtepe , Sivas-Hafik-Yenimahalle)*	714+500 - 714+800	Kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir *(Excavations must be done under the supervision of Department of the Museum)*
	5	Kayseri KVKBKM / RBDPCH	YOZGAT	14.02.2014 tarih 307 sayılı Yamadı Antik Yerleşimi I. Derece Arkeolojik Sit Alanı *(14.02.2014 date and 307 No* *(The ancient settlement of Yamadı I. Degree archaeological site)*	876+00 - 876+500	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				14.02.2014 tarih ve 308 sayı Yamadı Nekroplü I. Derece Arkeolojik sit alanı *(14.02.2014 date and 308 No* *Necropolis of Yamadı I. Degree archaeological site)*	876+00 - 876+500	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				14.02.2014 tarih ve 309 Numara Arpalık I. derece arkeolojik sit alanı *(14.02.2014 date and 309 No* *Arpalık I. degree archaeological site)*	879+800 - 881+100	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*

				14.02.2014 tarih 310 numara, Arpalık Sarnıcı ve Kaya Mezarı *(14.02.2014 date and 310 no, The Cistern of Arpalık and rock tomb)*	879+800 - 881+100	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				14.02.2014 tarih 311 sayılı yazı Alıçlıseki Tümülüs I. Derece ark. Sit alanı *(14.02.2014 date 311 no, The tumuli of Alıçlıseki I. Degree Archaeological Site)*	887+ 400	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				28.02.2014 tarih 407 sayılı yazı ile bildirilen Kurupınar Mevkii Osmanlı yerleşimi. Güzergah sit sınırları dışına çıkarılmıştır. *(28.02.2014 date 407 no, The locality of Kurupınar, settlement of Ottoman. Route change was done in this registered area)*	918+300 - 919+00	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				28.02.2014 tarih 408 sayılı yazı ile bildirilen Kaleycikkaya Tepesi Yerşimi 28.02.2014 date 408 no, the settlement of Kaleycikkaya Hill	924+500 - 925+00	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir. (*All excavations must be done under the supervision of Department of the Museum)*
				Yozgat-Sorgun Karaburun Köyü, Zekeriye yerleşimi (K58 ve K59 yerleşimleri) I. Derece Ark. Sit Alanı Yozgat-Sorgun, Karaburun village, settlement of Zekeriye (settlement of K58 and K59) I. Degree archaeological site	932+500 - 932+600	K58 kodlu alan, tescilsiz, kontrollü kazı önerilmektedir. *(The name of K58 is unregistered but It recomended under the supervision of the museum directorate)*

				28.02.2014 tarih 406 sayılı yazı ile bildirilen Yenice Deresi Yerleşimi *(28.02.2014 date 406 no, The settlement of Yenice creek)*	941+050 - 942+00	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				28.02.2014 tarih 405 sayılı yazı ile bildirilen Taşlıdölek Yamaç Yerleşimi *(28.02.2014 date 405 no, The slope settlement of Taşlıdölek)*	947+600 - 948+200	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				28.02.2014 tarih 404 sayılı yazı ile bildirilen Erkekli Köyü Düz Yerleşimi *(28.02.2014 date 404 no, The ancient village of Erkekli flat settlement)*	958+300 - 958+700	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
	6	Nevşehir KVKBKM / RBDPCH	KIRŞEHİR	ÇSED raporunda ki kısıtlara uyulmalıdır. *(One must strictly obey to the opinions given for the ESIA report)*		ÇSED raporunda ki kısıtlara uyulmalıdır. (One must strictly obey to the opinions given for the ESIA report)
	7	Ankara II No KVKBKM / RBDPCH	ANKARA (Haymana, Bala) + KIRIKKALE	Aralısarı Arkeolojik sit alanı. ÇSED raporunda ki kısıtlara uyulmalıdır ve tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir. *(Archaeological site of Aralısarı. One must strictly obey to the opinions given for the ESIA report and all excavations must be done under the supervision of Department of the Museum)*	1052+800-1053+500	ÇSED raporunda ki kısıtlara uyulmalıdır ve tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir *(One must strictly obey to the opinions given for the ESIA report and (All excavations must be done under the supervision of Department of the Museum)*
	8	Ankara I No KVKBKM / RBDPCH	ANKARA (Gölbaşı, Polatlı,)	ÇSED raporunda ki kısıtlara uyulmalıdır. *(One must strictly obey to the opinions given for the ESIA report)*		ÇSED raporunda ki kısıtlara uyulmalıdır. *(One must strictly obey to the opinions given for the ESIA report)*

	9	Eskişehir KVKBKM / RBDPCH	BİLECİK + ESKİŞEHİR	ÇSED raporunda ki kısıtlara uyulmalıdır. (One must strictly obey to the opinions given for the ESIA report)		Örenbağları 1. ve 3. Derece Arkeolojik sit alanında güzergah değişikliği yapıldı. (*The route change was done in the Örenbağları 1. and 3. degree Archaeological sit)*
After Take-Off 48 Inc		Eskişehir KVKBKM / RBDPCH				Emir Çiftliği 1 ve 3 derece arkeolojik sit alanı. Test kazıları bu alanda tamamlandı, resmi kurul yazısı beklenmektedir. (*Emir Çiftliği 1 and 3 degree Archaeoılogical site. Test pits excavations were complited in this area. Board decision is expected)*
	11	Bursa KVKBKM / RBDPCH	BALIKESİR + BURSA	1- 19.06.2014 tarih ve 2622 sayılı Balıkesir İl Kültür ve Turizm Müdürlüğünden yazısı, CST 7 kompresor istasyonu Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir. *(19.06.2014 date and 2622 No, letter of Balıkesir Provincial Directorate of Culture and Tourism for CS7 camp station* *(All excavations must be done under the supervision of Department of the Museum)*	1651+800- 1652+500	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*

				2- 24.02.2014 tarih ve 0523 sayılıyazı (14.02.2014 Tarih ve 2960 sayılı kurul kararı) Şevketiye 3. Derece Arkeolojik sit alanı (*24.02.2014 date and 0523 no (Decision of Bursa RBDPCH 14.02.2014 date and 2960 no) Şevketiye 3.Degree Archaeological Site)*	1629+400 - 1631+400	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				3- 30.05.2014 tarih ve 1433 sayılı Bursa KVKBKM yazısı, Kavaktepe 3. Derece Ark. Sit Alanı (*30.05.2014 date and 1433 no, Decision of Bursa RBDPCH, Kavaktepe 3. Degree Archaeological Site)*	1667+200- 1667+700	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				4- 24.02.2014 tarih 517 sayılı Bursa KVKBKM yazısı, (14.02.2014 tarih 2954 sayılı karar) Zillak Tepe 1. Derece Arkeolojik Sit alanı (*24.02.2014 date 517 no, Decision of Bursa RBDPCH, (14.02.2014 date 2954 no) Zillak Tepe 1. Degree Archaeological Site)*	1642+500- 1642+700	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				5- 26.02.2014 tarih ve 568 sayılı Bursa KVKBKM yazısı, (14.02.2014 tarih ve 2961 sayılı kurul kararı) Hamamlı-Kalebayırı 3. derece ark. Sit alanı) (*26.02.2014 date and 568 no, decision of Bursa RBDPCH, (14.02.2014 date and 2961 no) Hamamlı 1. and 3. degree Archaeological Sit)*	1625+700- 1626+500	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*

				6- 26.05.2014 tarih 1375 sayılı Bursa KVKBM yazısı, 08.05.2014 tarih ve 3216 sayılı karar yazısı, Kalebayırı Tümülüsü 1. ve 2 derece ark. Sit alanı (*26.05.2014 date, 1375 no, decision of Bursa RBDPCH, decision of 08.05.2014 date and 3216 no, Kalebayırı Tumuli 1. and 2 derece Archaeological site)*	1625+200-1625+600	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*
				7- 11.11.2013 tarih ve 2534 sayılı Bursa KVKBKM Kararı *(11.11.2013 date and 2534 decision of Bursa RBDPCH)*		Tescilsiz 11 alan civarında inşaat aktiviteleri başlamadan 15 gün önce Bandırma müzesine haber verilmelidir ve çalışmalar müze denetiminde yapılmalıdır. *(The Bandırma Museum must be warned 15 days prior to the excavations which will be done in the 11 unregistered areas and all the work must be done under their supervision)*
				8- 21.12.2012 Tarih ve 1408 sayılı karar ve 11.09.2014 tarih 2309 sayılı Bursa KVKBKM kararı, Kınalar 3. Derece Arkeolojik Sit alanı (*21.12.2012 date and 1408 No, and 11.09.2014 date 2309 decision of Bursa RBDPCH, Kınalar 3. Degree Archaeological Site)*	1670+500-1670+600	Tüm kazıların Müze Müdürlüğü Denetiminde yapılması gereklidir (*All excavations must be done under the supervision of Department of the Museum)*

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TANAP

TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT

Project Document No.	**PLK-PLN-ENV-PL4-009**	Rev	Status
		P4-C	**IFR**
Document Title	**CULTURAL HERITAGE MANAGEMENT PLAN**		
Tag No's			
Contractor	**PUNJ LLOYD – LİMAK JV**		
Contractor Document No.	**PLK-PLN-ENV-PL4-009**	Contractor Rev.	**P4-C**

Tick Box	Descriptions	Signature & Date
☐	**C1/APP** – Reviewed & accepted. Construction may Proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, no action required.	
☐	**C2/AWC** – Reviewed & accepted as marked. Revise and resubmit. Construction may proceed. For documents status IFR\IFA, resubmit as IAA at next revision code. For documents status IAA, resubmit as Re-IAA at next revision code.	
☐	**C3/RWC** – Reviewed & returned. Revise and resubmit. Construction shall **NOT** proceed. For documents status IFR\IFA, resubmit for review Re-IFR\IFA at next revision code. For documents status IAA, resubmit as IFA at next revision code.	
☐	**C4 –** Review not required. Construction may proceed Resubmit for information as IFI at next Revision Code.	
☐	**C5/REJ** – REJECTED. Revise and resubmit. Construction shall **NOT** proceed. Revise document and resubmit for review.	

Remarks:

Punj Lloyd / Limak	**TANAP** **TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT** **48" ONSHORE PIPELINE CONSTRUCTION LOT 4**	TANAP / WorleyParsons resources & energy

CULTURAL HERITAGE MANAGEMENT PLAN

Rev.	Status	Date	Status Description	Issued by	Checked by	Approved by
P4-A	DIC	2/6/2016	Discipline Internal Check	YOGD	ASOV	DHAG
P4-B	IDC	3/6/2016	Inter-Discipline Check	YOGD	BHAG	DHAG
P4-C	IFR	5/6/2016	Issued for Review	YOGD	SDUT	MALB

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P4-A	DIC	2/6/2016	Discipline Internal Check
P4-B	IDC	3/6/2016	Inter-Discipline Check
P4-C	IFR	5/6/2016	Issued for Review

Table of Contents

1 INTRODUCTION

1.1 Background

The Trans Anatolian Natural Gas Pipeline will be built to transport natural gas emanating from the South Caucasus Pipeline Company Pipeline in Georgia to the Trans-Adriatic Pipeline in Greece. In addition to the mainline termination, dedicated off-takes will be provided to BOTAŞ at strategic points in the Republic of Turkey. Contract of Lot 4 of this project is awarded to PUNJ LLOYD – LİMAK Joint Venture and consists mainly of a 48" Onshore Pipeline Construction and also other Above Ground Installations.

1.2 Scope

This document applies to the cultural heritage assets and archaeological finds that are encountered along the pipeline RoW of the LOT-4 pipeline. Apart from these specific documented finds, this document also applies to any new finds that might be encountered during the construction.

This document elaborates the action plans for the following situations:

- Managing the cultural heritage and archaeological assets as documented in the baseline maps of the EIA report; and
- Managing chance finds

1.3 Purpose

This document describes the PLK JV management plan for the management of the cultural and archaeological heritage on the LOT-4 pipeline project, which will be in compliance with the project standards guidelines and standards outlined in document "Cultural Heritage and Management Plan" Appendix 5.8 of the EIA report.

1.4 Definitions

Chance Find	Potential cultural heritage objects, features or sites that are identified outside of a formal site survey, normally as a result of construction monitoring.
Museum Directorate	A Directorate of the Ministry of Culture and Tourism responsible for giving advice and direction on archaeological finds. Will follow directions and decisions from Regional Board Directorate of Protection of Cultural Heritage.
Cultural Assets	All over-ground, underground movable and fixed assets related with science, culture, religion and fine arts, belonging to prehistoric and historic eras.
Natural Assets:	The over-ground, underground or assets that belong to geological areas, prehistoric and historic areas that shall be protected because of their rarity or specifications and assigned values.
Regional Board Directorate of Protection of Cultural Heritage	Responsible authority for relevant province and only decision maker on any intervention, which would be made on the site after the chance find.
General Directorate of Cultural Heritage and Museums:	A Directorate of the Ministry of Culture and Tourism Ministry responsible for protecting the cultural and natural heritage of archaeological research and the excavations, protection, and ensuring preventive measures against destruction and kidnapping.

1.5 Abbreviations

CLIENT	TANAP DOĞALGAZ İLETİM A.Ş.
PROJECT	Trans Anatolian Natural Gas Pipeline Project (TANAP)
EPCM	WorleyParsons Proje Yönetimi ve Mühendislik Limited Şirketi
CONTRACTOR	PUNJ LLOYD – LİMAK Joint Venture
CHMP	Cultural Heritage Management Plan
UNESCO	United Nations Educational, Scientific and Cultural Organization
ROW	Right of Way
H&S	Health and Safety
E&S	Environment and Social

1.6 References

	Document Number	Document Title
1.	TNP-REP-ENV-GEN-001	ESIA Report (Turkish)
2.	TNP-REP-ENV-GEN-002	ESIA Report (English)
3.	WRP–PCD-ENV-GEN-003	Chance Finds Procedure
4.	TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	Cultural Heritage Management Plan (Appendix 5.8. of ESIA Report)
5.	TNP-REP-ENV-GEN-001 TNP-REP-ENV-GEN-002	Terrestrial Archaeology Baseline Report (Chapter 13, Annex 2.4)
6.	Council of Europe ETS No 143, 1992	European Convention on the Protection of the Archaeological Heritage (Revised) (The Valletta Convention)
7.	Official Gazette; Date: 10.12.1987 and No: 19660	Regulation on Determination and Registration of Immovable Cultural and Natural Heritage
8.		General Directorate of Preservation of Cultural and Historical Heritage, “Law on Protection of Cultural and Natural Assets (1) Law No. 2863”, 1983.
9.		UNESCO, “Convention Concerning the Protection of the World Cultural and Natural Heritage”, November 1972.

2 ROLES AND RESPONSIBILITIES

PLK JV is responsible to comply with the above mentioned procedure with all its members and subcontractor during the whole construction period. All employees involved in construction works will be trained for the implementation of the procedure.

2.1 Project Manager

- The Project Manager has overall responsibility on the Cultural Heritage Management issues of the LOT-4 construction works.
- Ensures that all resources and personnel are available as necessary for the CHMP objectives to be met and the necessary measures to be implemented
- Provides support to the E/S teams for planning, resourcing and implementing this CHMP throughout the project
- Ensures that when changes occur in the legislation, or the project requirements, this CHMP is revised and amended as needed and that all affected parties are informed of the changes

2.2 Construction Manager

- Will be responsible to ensure that all activities performed by all staff and subcontractors are in compliance with the PLK JV CHMP.
- Will ensure all necessary staff and material are available to implement PLK JV CHMP

2.3 Environmental Manager

- Will be responsible to ensure that all activities performed by all staff and subcontractors are in compliance with the PLK JV CHMP
- Will be responsible to monitor CHMP,
- Will keep the chance find records,
- Will update the chance find register on a monthly basis and provide it to EPCM
- Will audit and inspect the sub-contractors to ensure compliance with CHMP,
- Will evaluate the compliance with laws, regulations and Project requirements,
- Will provide all necessary reporting to the Project Manager and EPCM,
- Will monitor the implementation of PLK JV procedures on site.

2.4 Archaeologist

- Construction activities may continue or will be stopped.
- Will record archaeological features discovered during ground disturbance activities.
- Will provide advice in the form of a ‘preliminary assessment’ to the construction manager on the significance and implications of new archaeological discoveries on the pipeline route.
- Will provide awareness trainings on archaeological and cultural heritage to the personnel.
- Will ensure Chance Finds Procedure is followed,
- Will evaluate the compliance with laws, regulations and Project requirements,

2.5 Foremen

- To ensure that their crew understand the importance of cultural heritage
- To stop work and have the area protected from entry and communicate with archaeologist for further instruction.

3 LEGISLATION FRAMEWORK

Sections of the cultural heritage legislation are as follows, but not limited to:

Law on Protection of Cultural and Natural Assets (Official Gazette; Date: 21.07.1983 and Law No: 2863): This law sets the definitions regarding the movable and fixed cultural and natural assets that shall be protected. It defines the procedures and activities to be performed and establishes the formation and responsibilities of the organization that will enforce the required principles and implementation of action decisions on this subject. (Official Gazette, 23/7/1983 number 18113).

This law defines archaeological sites in the three following categories:

- 1st degree archaeological sites
- 2nd degree archaeological sites
- 3rd degree archaeological sites

1st Degree Archaeological Sites: Areas requiring highest level of protection. They should be preserved with the exception of scientific excavations. The area should be free of any type of buildings and construction. All kinds of construction, excavation, and modification activities are prohibited. However, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.

2nd Degree Archaeological Sites: Areas requiring high level of protection. They should be preserved based on the conditions of protection and utilization set by the Regional Preservation Boards. Additional construction is prohibited. The same as for the 1st Degree archaeological sites, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.

3rd Degree Archaeological Sites: Areas requiring lowest level of protection. Construction is permitted based on the decisions of Regional Preservation Boards. Before applying for a construction permit, trench excavations should be conducted and the outcomes of these excavations should be reviewed by the relevant museum and if present the head of the scientific excavation team. All excavations are under the supervision of museum expert.

Law 2863 - Article 3

Article 3 of the Protection of Cultural and Natural Entities Law provides the following definitions:

- Cultural Assets are all over-ground, underground or submarine movable and fixed assets related with science, culture, religion and fine arts, belonging to prehistoric and historic eras
- Natural Assets are the over-ground, underground or submarine assets that belong to geological eras, prehistoric and historic eras and that shall be protected because of their rarity or specifications and preciousness

Law 2863 - Article 4

Per ESIA report Chapter 13 Appendix 5.8 - Cultural Heritage Management Plan “Those property owners, who

find movable and real estate cultural and natural assets, know or have just become aware of that there are cultural and natural assets on the lands they own or use shall be obliged to inform the closest museum directorate or village headman or local governor in other places maximum in three days. Such assets shall be notified to the proper major command if they are found in the military garrison and forbidden zones. Being notified; village headman, local governor or relevant authorities who directly become aware of such assets shall take the necessary measures for the preservation and security of such assets. The headman shall inform the closest local governor on the same day about the assets as well as the measures taken; the local governor and other authorities shall inform the Ministry of Culture and Tourism and the closest museum directorate in writing within ten days. The Ministry and museum director receiving the notification shall take the due action as soon as possible as per the provisions of this law.".

Article 7 of the Law: Legal Necessities before the Impact Mitigation Measures The article stated that the related Regional Board Directorate of Protection of Cultural Heritage are responsible for the registration of the cultural and natural heritage. Therefore, for the registration of the immovable cultural assets. It is required to apply officially and directly to the related Regional Board Directorate of Protection of Cultural Heritage.

Regulation on Determination and Registration of Immovable Cultural and Natural Heritage (Official Gazette; Date: 10.12.1987 and No: 19660): Identifies regulations on research and excavation permits to be conducted under the law of protection of cultural and natural entities, the preservation and studies of the findings, as well as the assignments, duties and authorizations, rights and expenses.

European Convention on the Protection of the Archaeological Heritage (Valetta, 16/011992): This convention is known as the Valetta Convention. It sets guidelines for the funding of excavation and research work and publication of research findings.

Convention Concerning the Protection of the World Cultural and Natural Heritage (1972): Sets out the obligations and responsibilities of signatory countries in identifying potential sites within their territories and their role in protecting and preserving them.

Regulation on the Fixation and Registration of Real estate Cultural and Natural Assets That Need To Be Protected:

Per ESIA report Chapter 13 Appendix 5.8 - Cultural Heritage Management Plan: "The fixation of the real estate cultural and natural assets that need to be protected as well as the natural protected areas shall be made by obtaining the opinions of the relevant institutions and organizations the activities of which are affected in the coordination of the Ministry of Culture and Tourism. The date, art, zone and other properties of the cultural and natural assets will be taken into consideration during fixation. Adequate works that are similar and reflect the properties of their periods will be fixed as cultural assets that need to be protected taking account of the possibilities of the state. The fixations regarding the real estate cultural and natural assets that need to be protected shall be registered upon the decision of the regional council of protection. The procedures, principles and criteria regarding fixation and registration shall be set forth in a regulation. The real estate cultural and natural assets owner by the registered and affiliated foundations which are under the management or control of the Directorate General of Foundations; and real estate cultural and natural assets such as mosque, tomb, caravansary, madrasah, bath, prayer room, small Islamic monastery, fountain, dervish lodge, water fountain and etc. that are owned by real and legal entities and need to be protected shall be fixed and recorded in inventory by the Directorate General of Foundations. The announcement, declaration and land registry of registration decisions shall be stipulated in the regulation."

Valletta Treaty (formally the European Convention on the Protection of Archaeological Heritage):

Aims to protect cultural heritage "as a source of European collective memory and as an instrument for historical and scientific study. All remains and objects and any other traces of humankind from past times are considered to be elements of the archaeological heritage. The archaeological heritage shall include structures, constructions, groups of buildings, developed sites, moveable objects, monuments of other kinds as well as their context, whether situated on land or under water." (Art. 1)

4 METHODOLOGY

4.1 Baseline Studies and Known Cultural Heritage Sites

Following cultural heritage national and international laws and standards, an archaeological baseline study was conducted prior to the start of the project. The aim of the study was to:

- Identify and report immovable and archaeological assets along a 500m corridor of the planned route and also included compressor stations, campsites, pipe yards, alternative routes and above ground installations etc.
- Develop plans and measures to prevent damages of the identified archaeological sites
- Provide data on the identified potential archaeological to facilitate planning, potential re-routes and prevent construction delays
- Record and collect archaeological data scattered over the pipeline route and relocate the movable artifacts in the relevant museums
- Archive all gathered archaeological data in order to prepare and provide site identifications and registrations to the Ministry of Culture and Tourism

All baseline results can be reviewed in ESIA report Chapter 13 Appendix 2.4 - Terrestrial Archaeology Baseline Report.

ESIA report Chapter 13 Appendix 5.8 - Cultural Heritage Management Plan reports the following information on the identified archaeological sites:

- Archaeological site locations: Names and detailed information
- Prediction of impact magnitude: The distance between the archaeological sites and the construction corridor and aboveground facilities were taken into consideration. The construction impacts over the archaeological sites were determined in terms of international criteria
- Mitigations suggestions: Expert opinion was given to reduce the impacts over the archaeological sites. Suggestion / Proposal could be unique for each site, moreover, more than one / plural suggestions are stated according to significance, range and distance of the sites from the construction corridor
- Site details: Registration status of the archaeological sites and details of the Preservation Board decisions and the subjects playing key role on these decisions are summarized

All details can be found in ESIA report Chapter 13 Appendix 5.8 Table 1.4.1 “Archaeological findings” providing 19 pages on the identified archaeological sites.

4.2 Intangible Cultural Resources

Intangible cultural resources are defined as

- Traditions or living expressions inherited from previous generations and passed on to descendants

such as oral traditions, performing arts, social practices, rituals, festive events, knowledge, practices and skills to produce traditional crafts.

- Contemporary rural and urban practices in which groups take part.

Per ESIA report Chapter 13 Appendix 5.8 - Cultural Heritage Management Plan, PUNJ LLOYD – LİMAK JV will liaise with local authorities to identify if the project activities:

- Can interfere with traditional celebrations or festivities.
- Restrict access to elements of traditional culture

In both cases, alternative solutions will be agreed with local authorities to minimize the disturbances.

4.3 Pre-Construction and Construction Phases

4.3.1 Preconstruction

Prior to the start of the construction activities, Contractor will conduct a cultural heritage survey of the construction locations to be impacted, including, but not limited to, new roads/access tracks, facility laydown areas and other environmentally undisturbed areas.

The pre-construction surveys will enable Contractor to:

- Confirm the identity and nature of sites already recorded during the archaeological baseline study
- Determine and document all necessary mitigation measures necessary for each identified sites to prevent construction impact.

All cultural heritage pre-construction surveys will be documented via reports and photos as per the Section 5 of this document.

4.3.2 Construction

Chance Find Procedure Definition

A chance find is define as potential cultural heritage objects, features or sites identified outside of a formal site reconnaissance, as a result of construction monitoring during ground disturbance activities such as, but not limited to:

- Whole or partial artifacts: ceramics, ceramic sherds, stones, shells, etc.
- Prehistoric or historic human remains
- Features associated with human occupations: middens, structural remains, etc.

Chance Finds Procedure

In case of a chance find, all activities must cease and the following procedure will be immediately implemented as per EPCM Chance Finds Procedure WRP-ENV-GEN-003 Section 3.

In case, human remains are found, Contractor security team, the local authorities, and EPCM will be immediately notified.

STEP 1 – After the discovery of a chance find:

- All work must cease at the location where discovery is made.
- A temporary buffer zone around the chance find will be put in place.
- If not on site, construction crew will contact PLK JV archaeologist.

- PLK JV archaeologist immediately contacts with EPCM archaeologist and PLK JV Construction manager.
- EPCM archaeologist contacts his/her spread boss and museum archaeologist immediately.
- PLK JV archaeologist properly secures chance find site: flagging, no- entry signs.
- EPCM archaeologist contacts spread boss and museum archaeologist immediately
- PLK JV prevents/limit vehicle traffic within the immediate vicinity of chance find
- Protection of site: chance find should not be moved, removed or further disturbed.

STEP 2 – Recording

- PLK JV archaeologist fills out Part A of Chance Find form (Appendix A) and sends a copy to EPCM archaeologist within 24 hours.
- PLK JV archaeologist retains a copy of Chance Find form for his/her record.

STEP 3 – Contact with local authority

- EPCM archaeologist notifies closest museum directorate archaeologist of the chance find immediately after receiving notification from PLK JV archaeologist.

STEP 4 – Authority's decision

- Museum directorate archaeologist notifies EPCM archaeologist on how to proceed.

STEP 4 A – No significance to site	**STEP 4 B – Significance to site**
Per museum directorate archaeologist, site is considered to be of no significance	Per museum directorate archaeologist, site is considered to be of significance
EPCM archaeologist informs PLK JV archaeologist	Museum directorate archaeologist decides on further actions and informs EPCM archaeologist
PLK JV and EPCM archaeologists inform their managers	EPCM archaeologist informs PLK JV archaeologist
PLK JV archaeologist records decision in Part B of Chance Find form and sends a copy to EPCM archaeologist within 24 hours	PLK JV and EPCM archaeologists inform their managers
PLK JV archaeologist retains a copy of Chance Find form for his/her record	PLK JV archaeologist records decision in Part B of Chance Find form
No further actions required	Proceed to Step 5
This step closes out the chance find procedure	
Construction activities may resume	

STEP 5 – Site investigation

- Project personnel to follow museum directorate archaeologist's instructions

After some field investigation, Museum directorate archaeologist declares the site to be of no significance.	After some investigation, Museum directorate archaeologist declares the site to be of minor Significance.	After some investigation, Museum directorate archaeologist declares the site to be of major significance
- EPCM archaeologist informs PLK JV archaeologist - PLK JV and EPCM archaeologists inform their managers - PLK JV archaeologist records decision in Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour - PLK JV archaeologist retains a copy of Chance Find form for his/her record - No further actions required - This step closes out the chance find procedure - Construction activities may resume	- A salvage excavation is to be completed - Museum directorate archaeologist provides instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist - EPCM archaeologist informs PLK JV archaeologist - PLK JV and EPCM archaeologists inform their managers - Under the guidance of EPCM archaeologist (following instructions from authorities) PLK JV provides a team of qualified archaeologist to conduct the salvage excavation. - Once the excavation is completed, PLK JV archaeologist provides a report to EPCM archaeologist - EPCM archaeologist provides report to museum directorate - Regional Board Directorate of Protection of Cultural Heritage officially confirms completion of recovery and informs EPCM archaeologist.	- An excavation is to be completed - Site is to be treated according to Turkish archaeological regulations "Law on the Conservation of Cultural and Natural Property (2863) 21.07.1983 - Museum directorate archaeologist provides instructions, and/or supervision for salvage archaeological excavation to EPCM archaeologist - EPCM archaeologist informs PLK JV archaeologist - PLK JV and EPCM archaeologists inform their managers - Under the guidance of EPCM archaeologist (following instructions from authorities) PLK JV provides a team of qualified archaeologist to conduct the salvage excavation - Once the excavation is completed, PLK JV archaeologist provides a report to EPCM archaeologist - EPCM archaeologist provides a report to museum directorate - Regional Board Directorate of Protection of Cultural Heritage officially confirms completion

	- EPCM archaeologist informs PLK JV archaeologist that no further actions are required. - PLK JV and EPCM archaeologists inform their managers - PLK JV archaeologist records decision in Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour - PLK JV archaeologist retains a copy of Chance Find form for his/her record - No further actions required - This step closes out the chance find procedure - Construction activities may resume	of recovery and informs EPCM archaeologist. - Site will be officially recorded and protected according to Turkish regulations - EPCM archaeologist informs PLK JV archaeologist that no further actions are required, or that a route change is required (via Management of Change) - PLK JV and EPCM archaeologists inform their managers - PLK JV archaeologist records decision on Chance Find form Part C and sends a copy to EPCM archaeologist within 24 hour - PLK JV archaeologist retains a copy of Chance Find form for his/her record - No further actions required - This step closes out the chance find procedure - Construction activities may resume or route change is implemented (via Management of Change)

Pre-Identified Archaeological Sites

During TANAP Pre-Construction Phase, in the scope of baseline study, archaeological field surveys have been carried out. For Lot 4, the archaeological sites, as per Appendix 5.8. “Cultural Heritage Management Plan” of ESIA report, are given in Table 4.1. PLK JV will follow the mitigation suggestions as provided in the named table and assigned archaeologist will advise the construction teams accordingly.

Table 4.1. Archaeological and Cultural Heritage Findings in Lot 4

				RANKING OF MAGNITUDE OF PREDICTED IMPACTS ON ARCHAEOLOGICAL AREA			MITIGATION SUGGESTIONS				SITE DETAILS
No.	**Receptor**	**Ranking**	**Explanations**	**Receptor**	**Ranking**	**Explanations**	**Route Change/ Area Change**	**Archaeological Monitoring**	**Salvage Excavation &Test Pits**	**No Action**	**DESCRIPTIONS**
1	Toraman Sırtı	Eskişehir	2+500-3+000	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)	x	x			The area is a "Slope Settlement" located on the Eskisehir Offtake route. It is located upper part of the region known as Toraman Ridge. Potsherds and rubbles probably belonging to an architectural structure were observed on the surface. Potsherds belong to middle ages. Eskisehir Preservation Board has initiated a registration process (ref document: 42244183-GNL/21-23, 03.01.2014). As expert opinion, route change is recommended for the part remaining in the construction corridor and following the route change conduct all construction activities in the region under archaeological monitoring.
2	Kale Yerleşimi ve Tümülüsü	Eskişehir	16+600-16+800	No Change	1	No material change to the site or feature		x			The area is a Huyuk settlement located on the Eskisehir Offtake route. It is located 1.3 km northwest of Yuruk Karacaoren village and 400 m. southeast of Akpınar Ridge. Two illegal excavations were observed on the road from Yuruk Karacoren to Eskisehir Industry Zone. Some traces of architectural foundation were observed on the huyuk located over a natural hill. Based on the potsherds observed on the surface it is estimated that thelocation was inhabited during Bronze and Iron Ages. The area is registered by the Eskisehir Preservation Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
3	Bakırcı Höyüğü	Eskişehir	23+000-23+500	No Change	1	No material change to the site or feature		x			The area is a Huyuk settlement located on the Eskisehir Offtake route. It is located among the agricultural fields about 850 m north of Sevinc Village. No agricultural activities were conducted on the area and it is well preserved. Huyuk is spread over a relatively large area. Based on the potsherds observed on the surface it is estimated that the area was inhabited in Bronze and Iron Ages. The area has been registered as a first degree archaeological site by the Eskisehir Preservation Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
4	Şaplı Höyük Mevki	Eskişehir	25+500	No Change	1	No material change to the site or feature		x			The area is a "Flat Settlement" located on the Eskisehir Offtake route. It is located 2 km north of Sevinc Village among the agricultural fields located in the region known as Sablah hoyugu Mevkii. The cone of huyuk is visible on 1/25.000 scale maps but was destroyed probably by agricultural activities. The block and rubble stones revealed during the destruction were used to mark corners of the fields. Cultural layers may still exist under the gorund. The potsherds observed dates back to Iron Age, Hellenistic and Roman Periods. The area is registered by the Eskisehir Preservation Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.

5	Dudu Höyük	Eskişehir	29+000-29+500	No Change	1	No material change to the site or feature		x			The area is a Huyuk settlement located on the Eskisehir Offtake route. It is located 2400 m south of Cumhuriyet village and 2600 northeast of Hasanbeydistrict. The highest point of the huyuk is about 7 m. the huyuk spreads over an area which is 360 m at the south while the widest poing over the east west direction is 130 m. Pieces of ceramic reliefs dating back to Hitite period were observed on the surface. Some glazed potsherds carrying characteristics of middle bronze ages were also observed. Pieces of roof tiles are also among the findings. The area is registered by the Eskisehir Preservation Board. As expert opinion, it is recommended to conduct all construction activities in the area under archaeological monitoring.
6	Emir Çiftliği ve Çevresi	Eskişehir	1362+600-1366+800	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)	x	x			The areas were registered by Eskisehir Preservation Board with decision no 1821 dated 13.09.2013. The board does not allow any construction activities in the region as stated by letter no 42244183-720-2504. As expert opinion, route change is recommended for the section located within the construction corridor and after the route change conducting all construction activities under archaeological supervision. In case route change is not possible due to technical reasons. Application should be made to the Board with a justification letter.
7	Emirinçiftliği Mezar Anıtı	Eskişehir	1363+500-1364+050	No Change	1	No material change to the site or feature	x	x			There are many rock tombs and a rectangular shaped cult area in the region. It is located 2.3 km northeast of Gokcekisik Village and 0.9 km norhteast of Teke Tepe. The tombs were carved over the rock formation located on the south of the area. The tombs resemble Phrygian structures and each has size of approximately 6 x 4 x 2.3 m with an entrance of 3.5 m x 2 m. Small niches were observed on the walls. The cult area has rectangular shaped with a visible entrance. Eskisehir Preservation Board initiated the registration process. The route has to be moved at least 100 m away from the construction corridor as stated by the Board decision no 1777 date 11.09.2013.
8	Gökçekısık	Eskişehir		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)	x	x			Area is flat settlement.Some potsherds fragments were observed on the surface in Pipe Stock Yard which located about Eskişehir-Merkez- Gökçekısık village. There are Phyrigian settlement in Northwest of the Gökçekısık village and arrounds and registered as 1st. Degree archaeological area. The potsherd fragments which observed in Pipe Stock Yard may belongs to Phyrigian settlement at Gökçekısık as a different archaeological settlement. Eskisehir Preservation Board has initiated the registration process. As stated on letter 42244183-720-2504, the location of the camp site has to be changed.
9	Emirçiftliği Yörük Mezarlığı 1	Eskişehir	1365+280-1365+370	No Change	1	No material change to the site or feature		x			The area is declared as first degree protection zone by Eskisehir Preservation Board. It is located 116 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
10	Kümbetakpınar	Eskişehir	1392+880-1393+300	No Change	1	No material change to the site or feature		x			The slope settlement is located at the north of Kümbetakpınar Village and south of Çambayır Hill about 700-800 m east of Kocakalemli area. Stones belonging to an architectural structure, potsherds and roof tiles dating to Ottoman period were observed on the surface. It is located 106 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.

11	Haşhaşlık Tepe	Eskişehir	1400+450-1400+850	No Change	1	No material change to the site or feature		x			The formation resembling a huyuk is at 3 km northeast of Dereyalak Village and 3.5 km northwest of Aşağı Kuzfındık Village on the southern slopes of Haşhaşlık hill at immediate north of Karcık creek. Intense potsherds roughly belonging to middle ages have been observed on the surface. At the west of the location a pathway and a simple bridge is located. No architectural remains were observed on the slopes but scattered stones indicate the presence of an architectural structure on the hill. The area is currently used for agriculture. Potsherds are more intense on the slopes as compared to the top of the hill. The area is very convenient for a settlement with the surrounding forests, proximity to water spring and suitability for agriculture. The area is located 138 m away from the construction axis. Eskisehir Preservation Board initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
12	Karcık Höyük	Eskişehir	1401+750-1402+120	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Eskişehir Preservation Board. It is located 147 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
13	Yeni Üreğil	Bilecik	1415+180-1415+230	No Change	1	No material change to the site or feature		x			This a tomb structure in the form of a tumulus. It is located about 1.5 south east of Yeni Üreğil Village and 1 km northwest of Hasan hill over a terraced plain. The tomb structure may belong to any period between Phrygian and Roman. No artefacts that could help to dating is observed. It is located 102 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
14	Yeşilçukurca	Bilecik	1419+280-1419+360	No Change	1	No material change to the site or feature				x	The modern cemetery about 400 m west of Yeşilçukurca village is currently used by the villagers. No archaeological mitigation measures are necessary during the construction activities.
15	Düzağaç	Bilecik	1422+650-1423+100	No Change	1	No material change to the site or feature		x			The slope settlement and Necropolis is located 1 km south of Düzağaç village. The area covers both banks of the Küçükçayır creek. Stone debris and roof tile pieces were observed on the surface. It is located 141 m away from the construction axis. Eskisehir Preservation Board initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
16	Selimdede Tepesi	Kütahya	1432+600-1434+300	No Change	1	No material change to the site or feature		x			The archaeological area and the shrine is located 1.5 km south of Çukurca Village, 2 km northeast of Muratlı village. The area resembling a natural hill is at the south of Akçaalan reef. Iğder creek passes over the southern slopes. A shrine for a dervish named Selim Ata (1320-1400) who lived in Murat I period is located over the hill. In addition to the main structure with an unknown date, there is a chapel structure (masjid). A fountain, a concrete building for public gatherings and toilets are also present. The area was terraced before the shrine was built. On the same hill, close to the shrine, there is a fountain structure. Four columns and some architectural elements belonging to Roman or Byzantine period were used in the construction of the fountain. The hill has archaeological importance with the scattered architectural remains made of baked clay and potsherds. All construction activities around the site should be carried out under archaeological monitoring.
17	Muratlı	Kütahya	1435+700-1436+350	No Change	1	No material change to the site or feature		x			The slope settlement is on the west and south slopes of the hill located at the north of Muratlı Village. Potsherds and roof tile pieces belonging to middle ages were observed over the surface. It is located 128 m away from the construction axis. Kutahya Preservation Board has initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.

18	Ahmet Sırtı	Kütahya	1436+400-1436+500	No Change	1	No material change to the site or feature		x			The tumulus type tomb is located at immediate east of Çukurca junction of the Muratlı-Ilıcaksu road about 800 m southeast of Ilıcaksu village. The tumulus is about 4 m high and most probably belongs to Iron age. There are agricultural fields over the tumulus.The area is located 98 m away from the construction axis. Kutahya Preservation Board has initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
19	Arapdede	Kütahya	1456+850-1456-950	No Change	1	No material change to the site or feature		x			The shrine is located on the Killik hill which is 2.8 km north of Saruhanlar village. The shrine is in a structure with stone walls and roof tiles which is built like other houses in the village. A sarcophagus made of concrete which is about 5 m long in the form of a grave is located in the shrine. An irregular stone wall surrounds the shrine and forms a porch. The building is not currently in use. The area is located 130 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
20	Çayırağzı Sırtı	Kütahya	1461+700-1462+100	No Change	1	No material change to the site or feature		x			The area is a hill top settlement. Cayagazi ridge has a shape of wide spread hill and located at 800 m east of Soğucak village and 300 m south of Orhaneli creek, on the north of the road to Böçen village. Intensive roof tiles were observed on the hill top. It is estimated that the area is a middle age settlement composed of a few houses. The ridge is currently used for agriculture and the surface discoveries were located on a big rock formation. The area is located 209 m away from the construction axis. Kutahya Preservation Board has initiated the registration process. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
21	Soğucak	Kütahya	1461+880-1462+050	No Change	1	No material change to the site or feature		x			The modern cemetery is located 600 m east of Soğucak Village and 200 m west of Çayırağzı ridge. The cemetery is surrounded by a stone wall. A small section on the south is located within the construction corridor. The area is located 63 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
22	Nalbant	Bursa	1479+200 - 1479+650	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)	x	x			The site is a “Flat Settlement” located 800 m north of Nalbant village in Harmancık district and 700 m south of Danişment village in Hoban district. This archaeological site is divided in two by the asphalt road passing through. On the surface field pieces of rough pottery examples dated to Roman period are discovered which are more dense on the eastside of the road. On 100 m southeast of the area and within 500 m corridor of the pipeline route, there are Demir Kaynak Türbesi and Modern Cemetery. In the cemetery, spolien used of marble stone blocks of architectural elements are determined. A route change is accepted for the area that the boundaries are defined and the distance between the site and the construction area is 23m. During all construction activities around the area, archaeological survey is recommended as an expert opinion.
23	Üycekdede	Bursa	1488+750-1488+900	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection site by Bursa Preservation Board. The area is located 106 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
24	Dereköy	Bursa	1503+400-1503+500	No Change	1	No material change to the site or feature		x			The modern cemetery belongs to Dereköy. The area is located 36 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
25	Dallıca Köyü	Bursa	1573+550-1573+800	No Change	1	No material change to the site or feature		x			This modern cemetery is located 1 km northeast of Dallıca Village and 600 m west of Yarlıyatak Hill. It is located within the 500 m pipeline corridor 41 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision. It is recommended to carry out all construction activities under archaeological monitoring.
26	Arnavut Sırtı	Bursa	1585+750-1585+900	No Change	1	No material change to the site or		x			The location was declared as the first and second degree protection zone by Bursa Preservation Board. The area is located 96 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision

27	Ekinlitepe Mevkii	Balıkesir	1597+800-1598+050	No Change	1	No material change to the site or feature		x			The slope settlements are located 2.5 km west of Göbel and 2 km south of Muradiye. The area is currently used for agriculture. Intense potsherds belonging to Byzantine period and clay roof tiles were observed on the surface. The area is declared as first degree protection site by Bursa Preservation Board with decision 2534 dated 11.11.2013. The area is located 33 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
28	Kalebayırı	Balıkesir	1617+950-1618+150	No Change	1	No material change to the site or feature		x			The location was declared as the first and second degree protection site by Bursa Preservation Board. The area is located 167 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities in the region under archaeological supervision.
29	Kalebayırı Arkeolojik Alanı	Balıkesir	1618+600-1619+000	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)	x	x	x		The location was declared as the first and second degree protection zone by Bursa Preservation Board. Route change is necessary for the location where the boundaries are defined. Following the route change, construction activities in the region have to be carried out under archaeological monitoring.
30	Hamamlı	Balıkesir	1619+200-1619+900	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)	x	x	x		The location was declared as the first and third degree protection zone by Bursa Preservation Board. Route change is necessary for the location where the boundaries are defined. Following the route change, construction activities in the region have to be carried out under archaeological monitoring.
31	Şevketiye	Balıkesir	1622+400-1624+750	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)	x	x			The site is a “Hill Settlement” located on hilltops include Çadır Tepe on 1.4 km northeast of Şevketiye village, and just on west of the finding area Boyalık Tepe located 2.2 km south of Akçaova village. The site draws attention with its proximity to natural resources. On the field surface, lots of potsherds and pieces of roofing tiles are discovered. According to findings the site can be dated to Late Roman Period. Bursa Preservation Board of Cultural Assets registered the site as 2th degree archaeological site by 14.02.2014 dated and 2960 numbered decision. According the same decision of the board, the field work must carry out by supervision of the related museum.
32	Bekirağa Tepesi	Balıkesir	1626+350-1626+700	No Change	1	No material change to the site or feature		x			The slope settlement is located 1.6 km east of Bayramiç village and 2.4 km southwest of Akçaova village. Potsherds and pieces of roof tiles made of baked clay were observed on the surface. Discovered pieces indicate that the area may belong to late Roman - Early Byzantine period. The area is located 208 m away from the construction axis. As expert opinion, it is recommended to conduct all construction activities under archaeological supervision.
33	Kapaklıçeşme	Balıkesir	1628+700-1630+050	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)	x	x			The site is a “Hill Settlement” located 1.5 km north of Bayramiç village, around the Kapalıçeşme Mevkii on 800 m west of Kocakoru Tepesi. On the field surface, a large quantity of Middle Age pottery and terr cotta roofing tiles are discovered. In the surrounding of the site, agricultural activities are still in progress. According to 14.02.2014 dated and 2959 numbered decision of Bursa Preservation of Cultural Assets, the site is registered as 3rd degree site; however, this registered area is not located within the 500 m corridor of the pipeline route. When the expert opinion and digital data are considered, for the part of the area within the construction corridor, archaeological test pits are necessary. According to excavation results and decision of the related board, all construction activities should be archaeologically supervised if necessary.

34	Çeşmebayırı Sırtı	Balıkesir	1631+100-1631+700	Negligible	2	Very minor changes to archaeological materials, or setting		x			The area is most probably a slope settlement and located on 4 km southwest of Asmalıdere village, 1 km southeast of Yeltepe and 1.5 km south of Bağlarbaşı Hill. Roof tile pieces and potsherds belonging to Roman period were observed on the surface. Since the area is used for agriculture, it is also possible that the material was brought to the location as a result of agricultural activities. All construction activities should be carried out under archaeological monitoring. According to decision 2534 dated 11.11.2013 of the Bursa preservation board, excavations should be carried out and all activities should be conducted under the supervision of local museum directorate.
35	Zillak Tepe	Balıkesir	1635+800-1636+000	No Change	1	No material change to the site or feature		x			The slope settlement is located, 5 km. west of Manyas Lake, 750 m southeast of Ilıcak village and 500m. southwest of Sivri Dere. A concrete cistern was built on the top of the area. Potsherds, stone architectural elements and pieces of roof tiles made of baked clay were observed on the surface. Discovered pieces indicate that the area may belong to Middle Ages - Byzantine period. Some architectural elements made of andezid stone were observed over the slopes where the waer storage is located. The area is 51 m away from the construction axis. Bursa Preservation Board initiated the registration process for the site with decision 2534 dated 11.11.2013. As expert opinion, route change is recommended for the section located on the construction corridor. Following the route change, construction activities in the region should be conducted under archaeological supervision.
36	Üzümlü	Balıkesir	1636+300-1638+100	No Change	1	No material change to the site or feature		x			The area is most probably a slope settlement and it is located on both banks of the Beyridlik creek flowing about 1 km southeast of Üzümlü Village. Potsherds belonging to late Roman or Early Byzantine period and roof tiles made of baked clay were observed on the area. Due to agricultural activities, the pieces are scattered over a wide area. the location is 76 m away from the construction main axis. As expert opinion, route change is recommended for the section located on the construction corridor. Following the route change, construction activities in the region should be conducted under archaeological supervision.
37	Paşaçiftliği	Balıkesir	1642+600-1643+100	Negligible	2	Very minor changes to archaeological materials, or setting		x			Located about 1 km south of Paşaçiftliği village. The area is located 1 km east of Dedeali Hill and 1 km north of Şarakman Hill. Bağlık creek flows along the south of the area. The area is very convenient for settlement in terms of water resources and agricultural fields. The area is most probably a flat settlement. Intense potsherds and roof tile pieces made of clay were observed on the surface. The findings most probably belong to late Roman or early Byzantine period. The area is 17 m away from the construction axis. Based on the decision 2534 dated 11.11.2013 of the Bursa Preservation Board, all construction activities have to be carried out under archaeological monitoring.
38	Deveci Düzü	Balıkesir	1644+850-1645+100	No Change	1	No material change to the site or feature		x			This Slope Settlement is located on the area called Devecidüzü Region which is 1.2 km west of Paşaçiftliği Village. Potsherds, pieces of roof tiles made of baked clay and rubble stones belonging to architectural elements were identified over a wide area. The area is currently used for agriculture. The findings most probably belong to late Byzantine or Ottoman period. The location is 89 m away from the construction axis. It is recommended that all construction activities should be carried out under archaeological monitoring.
39	Sağnıç Sırtı	Balıkesir		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)		x			The site located approximately 1.8 km west of Paşaçiftliği village is used as agricultural land. The potsherds with medium density are mostly pieces of rough plastered and stone mixed Roman pottery examples (there is a small quantity of mouth-handle and body pieces). These rough plastered examples correspond with roofing tiles forms and they could have been used for covering some graves. Due to these facts, the area can be determined as Necropole. During all construction activities around the site, archaeological survey is recommended as an expert opinion.

40	Armutlu Tepe	Balıkesir	1649+150-1650+500	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)		x			The area is most probably a slope settlement and located 1.2 km north of Körpeağaç Village. The area covers both sides of the road from Körpeağaç to Havutça and also includes Armutlu Hill. Intense potsherds and roof tile and brick pieces made of clay were observed on the surface. Although the size of the settlement is observed to be small, the potsherds were spread over a wide area. The marble column base located at the bottom of a wall in Havutça village which is located 2.5 km south of the area is an indication of archaeological potential of the region. This base belonging to Roman or Byzantine period may date back the same period with the Armutlu Hill settlement. The area is currently used for agriculture. This might be the reason why the artefacts are scattered over a wide area. The location is on the construction corridor of the project. As stated by decision 2534 dated 11.11.2013 of the Bursa Preservation Board, archaeological monitoring is recommended for all construction activities in the area.
41	Cankurtaran	Balıkesir	1653+180-1653+300	No Change	1	No material change to the site or feature		x			The area is most probably a flat settlement and located 850 m northeast of Ulukır Village. Intense tablet pieces made of baked clay were observed over the surface. The area most probably dates back to Roman period. The area is 24 m away from the construction axis. As stated by decision 2534 dated 11.11.2013 of the Bursa Preservation Board, archaeological monitoring is recommended for all construction activities in the area.
42	Ahlatlıbaba Tepesi	Balıkesir	1657+000-1657+280	Negligible	2	Very minor changes to archaeological materials, or setting		x			The area is most probably a slope settlement and located 3 km northwest of Ulukır Village. Power lines cross the area. Potsherds and roof tile pieces made of clay belonging to late Byzantine and Ottoman period were observed on the surface. The area is 14 m away from the construction axis. As stated by decision 2534 dated 11.11.2013 of the Bursa Preservation Board, archaeological monitoring is recommended for all construction activities in the area.
43	Akyol Deresi	Balıkesir	1660+190-1660+500	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)		x			The area is most probably a slope settlement and spreads over both banks of Akyol creek passing about 2.5 km east of Çifteçeşmeler Village. Relatively intense potsherds and roof tile pieces made of clay were observed on the surface. The findings most probably belong to late Roman or early Byzantine period. The area resembles a small village having few houses. The area is convenient for settlement due to proximity to water resources and agricultural fields. As stated by decision 2534 dated 11.11.2013 of the Bursa Preservation Board, archaeological monitoring is recommended for all construction activities in the area.
44	Kavaktepe	Balıkesir	1660+870-1660+950	No Change	1	No material change to the site or feature		x			The area has slope settlement features. It is located about 11 km northeast of Çifteçeşmeler Village and 800 m south of Kavaktepe. Akyol creek passes 600 m. east. Intense potsherds and roof tile pieces were observed on the surface. The artefacts become more intense on the northwest of the area. The small village settlement most probably belongs to late Roman or early Byzantine period. Bursa Preservation Board initiated the registration process for the site with decision 2534 dated 11.11.2013. As expert opinion, route change is recommended for the section located on the construction corridor. Following the route change, construction activities in the region should be conducted under archaeological supervision.
45	Çifteçeşmeler	Balıkesir	1662+080-1662+410	No Change	1	No material change to the site or feature		x			The area is declared as third degree protection site by decision 1508 of the Bursa Preservation Board dated 21.12.2012. The area is 85 m away from the construction axis. As expert opinion, it is recommended that all activities in the area should be conducted under archaeological supervision.
46	Çatalahmet Tepe	Balıkesir	1662+300-1664+200	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)		x			The area carries high potential risk. It is located 2 km northeast of Kınalar Village and 1.6 km northwest of Çifteçeşmeler village. The area can be defined as an extension of the Cifteçeşmeler Protection Zone over the TANAP pipeline axis. Findings on the surface are spread over a 1.8 km x 900 m area. Because of intense agricultural activities, the artefacts are scattered over a wide area. Potsherds, roof tile and pieces belonging to late Roman, Middle Age and Byzantine periods were observed on the surface. The area is within the 500 m impact corridor of the TANAP route and partially located on the construction corridor. As stated by decision 2534 dated 11.11.2013 of the Bursa Preservation Board, archaeological monitoring is recommended for all construction activities in the area.

47	Tavşantepe	Çanakkale	1674+600-1674+800	Negligible	2	Very minor changes to archaeological materials, or setting		x			The area has slope settlement features. It is located 800 m northwest of Gerlengeç village, 500 m east of Tavşantepe and over the northern slopes of Akpınar creek. Intense potsherds and roof tile and brick pieces belonging to Byzantine - Ottoman period made of clay were observed on the surface. The area is within the 500m impact corridor and 14 m away from the construction axis. It is recommended to carry out all construction activities in the identified region under archaeological monitoring.
48	Salkımtepe	Çanakkale	1690+100-1690+200	No Change	1	No material change to the site or feature		x			The location was registered by Çanakkale Preservation Board. It is 170 m away from the construction axis. Construction activities in the archaeological region should be carried out under archaeological monitoring.
49	Aktoprak	Çanakkale	1694+100-1695+100	Minor	3	Changes to key archaeological materials such that the asset is slightly altered	X	x			The site is a Necropole registered as 1st degree archaeological site by 21.11.2003 dated and 2525 numbered decision of Çanakkale Preservation Board of Cultural Assets. With 26.09.2013 dated and 1158 numbered decision of the same board, the route change request of the board is defined. After this alteration, the distance between the site and the construction axe of Tanap pipeline route is
50	Palamut Dalyan-Osmancık Göçüğü	Çanakkale	1705+400-1710+300	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits damaged or destroyed)		x			The area is identified as High Potential Risk area from Archaeological point of view. “Pigging Station Marmara East Camp" is also located in the potential risk area.potsherds, roof tile pieces and similar architectural materials belonging to late Roman-Byzantine period were observed on the surface. The area is located close to the Parion Ancient city. Therefor it is necessary to conduct all construction activities under archaeological monitoring.
51	Kemer Mevkii	Çanakkale	1706+800-1706+980	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30% surviving deposits	x	x			The site is a “Flat Settlement” registered as 3rd degree archaeological site by 30.10.2013 dated and 1201 numbered decision of Çanakkale Preservation Board of Cultural Assets. The site was within the boundaries of East Marmara Region Pigging Station, after the change of the location of the station the site remained out of the area. However, the site is still located within the boundaries of 500 m impact corridor of the pipeline route, and the distance between the site and the construction area is 34 m. The site can be dated to Roman Period and during all construction activities, archaeological survey is recommended as an expert opinion.
52	Arkeolojik Alan	Çanakkale	1706+950-1707+150	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Çanakkale Preservation Board. It is located 205 m away from the construction axis. It is recommended to conduct all construction activities in the region under archaeological monitoring.
53	Kavakköy	Çanakkale	1734+450-1734+650	No Change	1	No material change to the site or feature		x			The area is located about 2 km east of Kavakkoy Village of Gelibolu. It is a Flat Settlement area with roof tiles and potsherds belonging to Roman Period. The area is within the 500 m impact area with a distance of 96 m to construction axis. It is declared as third degree archaeological protection area by Canakkale Preservation Board with decision 1158 dated 26.09.2013. The decision states that the construction activities should be conducted under the supervision of relevant institutions and archaeologists.
54	Kalealtı	Çanakkale	1748+700-1749+000	No Change	1	No material change to the site or feature		x			The location is 300 m west of Kalealti Village and 400 m north of Derincalik Mevkii. Some potsherds and architectural elements made of baked soil (roof tile and brick pieces) were observed on the surface. Remains of a fortress is at the immediate west of the location. The area is 28 m away from the construction axis and registered as first and third degree protection site by Canakkale Preservation Board. As expert opinion it is recommended to conduct all construction activities in the area under the supervision of archaeologist.
55	Mahmutköy	Edirne	1760+550-1761+750	No Change	1	No material change to the site or feature		x			The area carries potential archaeological risk. Scattered potsherds, roof tile and brick pieces belonging to middle ages were observed on the surface on the hilltop located southwest of Mahmutköy. The area is very convenient for a settlement. All construction activities should be carried out under archaeological monitoring.

56	Cevizlik	Edirne	1762+000-1762+200	No Change	1	No material change to the site or feature		x			This Huyuk type settlement is located 1.4 km west of Mahmutköy and bears archaeological findings belonging to Prehistoric and Classical periods. Potsherds and roof tiles made of baked clay dating back to prehistoric period were observed 600 m southeast of Cevizlik Region over the area on the right hand side of the road to Mahmutköy. The area is inside the 500 m impact corridor and 49 m away from the construction axis. It is recommended to conduct all construction activities under archaeological monitoring.
57	İzzetiye Köprüsü	Edirne	1770+500-1770+650	No Change	1	No material change to the site or feature		x			The location was declared as the first degree protection zone by Edirne Preservation Board. It is 212 m way from the construction main axis. During the construction works, activities creating vibration should be avoided and all construction activities in the region have to be carried out under archaeological monitoring.
58	Tayyare Sırtı	Edirne	1774+750-1774+850	No Change	1	No material change to the site or feature		x			The area is most probably a flat and slope settlement. It is located 1.7 km northeast of Siğilli Village, 2.3 km southwest of Keşan on the road from Siğilli to Keşan. Potsherds belonging to Byzantine - Ottoman period were observed on the surface. A water spring is located about 200 m south of the area. The location is 69 m away from the main construction axis. All construction activities around the site should be carried out under archaeological monitoring.
59	Kumlu Çeşme	Edirne	1787+050-1787+700	Minor	3	Changes to key archaeological materials such that the asset is slightly altered (Guide: 10- 30%		x			The area is most probably a slope settlement. It is located about 1.5 km northwest of Korucu Village. Dried creeks are located on the north of the area. Acıçeşme creek passes about 1.5 north. The potsherds encountered on the surface are rough and law fired Roman Ceramics. All construction activities around the site have to be carried out under archaeological monitoring.
60	Sivritepe	Edirne	1787+980-1788+000	No Change	1	No material change to the site or feature		x			The area is a "Tumulus". It is located 1 km southwest of Korucu Köy. It might belong to Iron Age (Achaemenid) period. It is registered as first degreee protection zone by Edirne Preservation Board with decision no 1390 dated 18.12.2013. The area is 125 m away from the construction axis. As expert opinion, it is recommended to carry out all construction activities in the region and its vicinity under archaeological monitoring.
61	Hıdırköy	Edirne	1790+700-1791+050	No Change	1	No material change to the site or feature		x			The area is most probably a slope settlement. It is located about 800 m southwest of Hıdırköy. The area is currently used for agriculture and divided into two by a tractor pathway. Intense potsherds, pieces of roof tiles and bricks made of clay were observed on the surface. Patterns on the glazed ceramics indicate a time line of Byzantine-Ottoman period. The area is 129 m away from the construction axis. It is recommended to carry out all construction activities under archaeological monitoring.
62	Turpçular	Edirne	1795+100-1795+300	No Change	1	No material change to the site or feature		x			The area which is surrounded by a wall is a modern cemetery located on immediate west of Turpçular Village and located 359 m away from the construction axis. It is recommended to carry out all construction activities under archaeological monitoring.
63	Bağlı Sırtı	Edirne		Major	5	Change to majority or all of the key archaeological materials, such that the resource is totally altered (Guide:60-100% of surviving deposits damaged or destroyed)		x			The site is approximately located near 2700 m south of Sarıcaali village in İpsala district. Irrigation channels are installed in the western plain, which is formed by the alluvium deposit of the Meriç River. Some pottery examples are discovered on the northern side of the FMS-GR station. These pieces are examples of rough plastered and stone mixed Roman pottery. Although not yet certain, they can be classified as roofing tiles. Besides these dominated examples, some pithos rims and handles and cooking pots are observed. The site can be stated as a “slope settlement” due to the topographic and archaeological features of the area. During every construction activities in this field where Tanap FMS-GR station will be constructed, archaeological supervision is recommended as an expert opinion.

4.4 Intangible Cultural Resources

PLK JV will identify if Project activities can interfere with traditional celebrations or festivities via CLO's verbal contact with local Authorities (such as mukhtars, sub-governors) on a regular basis, especially before the start of construction activities. Alternative solutions will be agreed with local authorities to minimize the interference or restriction of access to elements of traditional culture.

5 MONITORING AND RECORDING

5.1 Monitoring

All ground disturbances activities will be actively monitored by the archaeologists to address potential chance finds and to protect known archaeological sites within the project footprint and within the project-affected communities.

The archaeologists will monitor the following:

- All ground disturbance activities
- Proper protection of know archaeological sites
- Installation and maintenance of protection barriers during all chance finds

During the monitoring activities, if cultural heritage related non-compliances are identified, the archaeologists will issue a non-compliance report using the EPCM non-compliance form and implement corrective actions to prevent re-occurrence.

The corrective actions will be implemented, closed out and recorded in a timely manner. The timing of corrective actions will depend upon the non-compliance and its related corrective actions and will be agreed upon with EPCM.

Once all corrective actions have been implemented and closed out, lessons learned from the incident will be shared with all personnel to pro-actively prevent re-occurrence of the same issue.

Quarterly audits will be conducted, as per the ESMP, to ensure that all project measures and requirements are in place and in compliance.

5.2 Recording

Records of induction courses and all cultural heritage related trainings, pre-start meetings and toolbox talks will be recorded in sign-up sheets retained for audit purposes.

The sign-in sheets will include at a minimum:

- Training or discussion topics
- Name of participants and duty
- Name of trainer
- Date

All archaeological inspections and monitoring of the construction sites and communities will be

recorded in reports and retained for audit purposes.

All activities and grievances pertaining to the cultural heritage management will be recorded and retained for audit purposes.

The archaeologists and Environment manager will ensure that all cultural heritage-related records are retained as required.

These records will include, but are not limited to:

- Induction course sign-in sheets records
- All archaeological training, toolbox talks sign-in records
- Archaeological monitoring/inspections reports
- Archaeological related complaints/grievance records
- Community consultations, actions and grievances in the TANAP Online Stakeholder Interaction Database (OSID)
- Chance find report forms
- Chance finds register
- NCR reports and registers
- Cultural heritage incident reports and register
- Audits reports
- Monthly E/S reports

6 TRAINING

Contractor will provide all necessary information regarding the cultural heritage requirements to all its personnel, and sub-contractors, during the induction course.

The latter will introduce the following topics:

- General archaeological presentation
- Brief overview of the cultural heritage legislation, emphasizing the fact that it is strictly forbidden and illegal to disturb or remove cultural heritage artifacts off site for personal gain
- Ground disturbance measures
- Chance finds procedure
- Reporting requirements
- Identification of key staff

Furthermore, all archaeologists will receive additional training which will include the following, but are not limited to:

- Roles and responsibilities of the archaeologists
- In-depth presentation of the cultural heritage legislation and requirements
- In-depth information chance finds procedure
- In-depth information on reporting and communication with EPCM archaeological team

- Documentation and recording

All trained personnel will sign an attendance sheet and the training records will be entered in the training tracking system.

To reinforce the induction course training, the archaeologists will conduct regular toolbox talks for all Contractor crews to ensure that all requirements presented in this plan have been understood and are being applied throughout the project.

Appendix A - Chance Find Report Form

APPENDIX A CHANCE FIND REPORT FORM

CHANCE FIND REPORT FORM
RASTLANTISAL BULUNTU RAPOR FORMU

To be filled out in English
İngilizce doldurunuz.

PART A **BÖLÜM A**			
SPREAD: SAHA BÖLÜMÜ	KP:	DATE: TARİH	ID:
Name of person reporting chance find: Rastlantısal buluntuyu rapor eden kişinin ismi			
Name of contractor archaeologist contacted: İletişime geçilen yüklenici arkeoloğun ismi			
Was work stopped in the immediate vicinity of chance find? Rastlantısal buluntunun tam çevresinde iş durduruldu mu?			
NOTIFICATION **BİLDİRİM**			
Contractor construction manager contacted Yüklenici inşaat müdürü ile irtibata geçildi			☐ Yes / Evet ☐ No / Hayır
EPCM archaeologist contacted Epcm arkeoloğu ile irtibata geçildi			☐ Yes / Evet ☐ No / Hayır
CHANCE FIND DETAILS **RASTLANTISAL BULUNTU AYRINTILARI**			
Gps coordinates: Gps koordinatları			
Photograph Record: Fotoğraf kaydı			☐ Yes / Evet ☐ Yes / Evet
If not, explain why: Yok ise nedenini açıklayınız			
Other records: Specify (drawings, HD quality videos etc.) Diğer Kayıtlar Belirtin (Çizimler, yüksek kalite videolar vb.)			☐ Yes / Evet ☐ Yes / Evet
Desctription of site and vegetation: (e.g. surface sediment type, ground surface visibility, distance to closest watercourse etc.) Sahanın ve bitki örtüsünün tanımı: (Yüzey sedimen türü, yüzey zemin görünürlüğü, en yakın su yoluna olan mesafe)			

PART B BÖLÜM B	
NOTIFICATION _____ MUSEUM DIRECTORATE ARCHAEOLOGIST _____ MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNA BİLDİRİ	
EPCM archaeologist contacted museum directorate archaeologist EPCM arkeoloğu müze arkeoloğu ile irtibata geçti	☐ Yes / Evet ☐ No / Hayır
Date of notification: Bildirim tarihi	
Name of museum directorate archaeologist: Müze müdürlüğü arkeoloğunun ismi	
Contact number of museum directorate archaeologist: Müze müdürlüğü arkeoloğunun iletişim numarası	
DECISION OF _____ MUSEUM DIRECTORATE ARCHAEOLOGIST _____ MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNUN KARARI	
Date of initial investigation	
☐ Site of no significance – Construction to proceed with no further investigation – End of chance find procedure Önemsiz saha – İnşaat daha fazla araştırma yapılmadan devam edebilir – Rastlantısal buluntu prosedürünün sonu Date of notice to resume work: İşe başlama tarihi bildirisi	☐ Site of significance – Further investigation required Önemli saha – Ek araştırma gerekmektedir. Fiil out Part C Bölüm C'yi doldurun
Name of museum directorate archaeologist: Müze müdürlüğü arkeoloğunun ismi. Contact information: İletişim numarası	
EPCM construction manager contacted: EPCM inşaat müdürü ile irtibata geçildi	☐ Yes / Evet ☐ No / Hayır
Contractor archaeologist contacted	☐ Yes / Evet ☐ No / Hayır

PART C BÖLÜM C		
FURTHER FIELD INVESTIGATION **EK SAHA ARAŞTIRMASI**		
☐ Site of no significance Önemsiz saha	☐ Site of minor significance Az önemli saha	☐ Site of major significance Çok önemli saha
Describe additional work to be conducted: Yapılması gereken ek işlerin tanımı		
Date started: Başlangıç tarihi	Date completed: Bitiriş tarihi	
Date of notice to resume work: İşe başlama tarih bildirisi		
Name of museum directorate archaeologist: Müze müdürlüğü arkeoloğunun ismi Contact information: İletişim numarası		
Contractor construction manager contacted Yüklenici inşaat müdürü ile irtibata geçildi	☐ Yes / Evet ☐ No / Hayır	
EPCM archaeologist contacted Epcm arkeoloğu ile irtibata geçildi	☐ Yes / Evet ☐ No / Hayır	

Appendix B - Chance Finds Register

APPENDIX B Chance Finds Register

Total of chance find	
To date	This reporting Period

ID	DATE OF CHANCE FIND	KP	CHANCE FIND SUMMARY	NAME OF AUTHORITY NOTIFIED	DATE PART A COMPLETED	DATE PART B COMPLETED	DATE PART C COMPLETED	STATUS OPEN OR CLOSED	REMARKS
SP7-1									
SP7-2									
SP7-3									
SP7-4									

Appendix C - Contact Information

APPENDIX C CONTACT INFORMATION

LOT-4:

PROTECTION BOARDS	AREA OF RESPONSIBILITY	ADDRESS
Eskişehir Regional Drectorate of Cultural Entities Preservation Board	Eskişehir, Afyon, Bilecik	Arifiye Mahallesi Okullar Sokak No: 2 – ESKİŞEHİR
Bursa Regional Drectorate of Cultural Entities Preservation Board	Bursa, Balıkesir	Osmangazi Caddesi Orhangazi Çıkmazı No: 22 Tophane/BURSA
Kütahya Regional Drectorate of Cultural Entitie Preservation Board	Kütahya, Uşak	Cumhuriyet Mahallesi, Esnaf Caddesi, Esnaf ve Sanatkarları Birliği Binası (Metem Tesisleri) Kat: 4 / KÜTAHYA
Çanakkale Regional Drectorate of Cultural Entities Preservation Board	Çanakkale	Cevatpaşa Mah. İnönü Cad. No:2 Çanakkale
Edirne Cultural Heritage Preservation Board	Edirne, Kırklareli, Tekirdağ	Maarif Caddesi No: 18 İlhan Koman Evi – EDİRNE

PROVINCE OF THE MUSEUM	ADDRESS AND CONTACT INDIRMATION
ESKİŞEHİR	**Address**: Atatürk Bulvarı No:64 26020 ESKİŞEHİR **Telephone:** 0 (222) 230 13 71 - 220 90 16 **Fax:** 0 (222) 230 17 49 **E-mail:** muze@eskisehirmuze.gov.tr
BURSA	**Address**: Kültürpark içi-Çekirge/BURSA **Telephone:** (0224) 234 49 18 **Fax:** (0224) 234 49 19 **E-mail:** bursamuzesi@kultur.gov.tr
BALIKESİR	**Address:** Paşabayır Mahallesi Ziyaret Bahçesi Mevkii Bandırma BALIKESİR **Telephone:** (0266) 714 82 71
KÜTAHYA	**Address**: Cumhuriyet Caddesi, Ulu Camii yanı KÜTAHYA **Telephone:** (0274) 223 69 90 **Fax:** (0274) 224 26 38 **E-mail:** muzemi@ttnet.net.tr
ÇANAKKALE	**Address**: İzmir Caddesi ÇANAKKALE **Telephone:** (0286) 217 65 65 **Fax:** (0286) 217 11 05
TEKİRDAĞ	**Address**: Kültür Sarayı Camiatik Mah. Roterdam Cad. Malkara TEKİRDAĞ **Telephone:** (0282) 427 00 53
EDİRNE	**Address**: Meydan Mahallesi Kadirpaşa Mektep Sokak No:7 EDİRNE **Telephone:** +90(284) 225 11 20 - 225 16 25 **Fax:** (0284) 225 57 48 **E-Posta:** edirnemuzesi@kulturturizm.gov.tr **Web Site:** http://www.edirnemuzesi.gov.tr

CULTURAL HERITAGE MANAGEMENT PLAN
ANNEX C PROTOCOL WITH TANAP AND GENERAL DIRECTORATE OF CULTURAL HERITAGE AND MUSEUMS

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P3-A	DIC	06.06.2016	Discipline Internal Check
P3-B	IDC	13.06.2016	Interdisciplinary Check
P3-0	IAA	19.07.2016	Issued As Approved

HOLDS

No.	Section	Description	Input From	Planned Date

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Kültür Varlıkları ve Müzeler Genel Müdürlüğü

Sayı : 51337267-160.02.(33) – 231544
Konu : Trans Anadolu Doğal Gaz
Boru Hattı Projesi (TANAP)

04-12-2013

TANAP Doğal Gaz İletim A.Ş.
Kızılırmak Mah.Ufuk Üniversitesi Cad.
Farilya Business Center No: 8/47 Kat:2
Çukurambar-Çankaya/ANKARA

İlgi: 01.10.2013 tarih ve 0030 sayılı yazınız ile eki.

"Trans Anadolu Doğal Gaz Boru Hattı Sistemi" kapsamında Ülkemiz ile Azerbaycan Cumhuriyeti Hükümeti arasında imzalanarak yürürlüğe giren Hükümetlerarası Anlaşmaya ilişkin olarak TANAP Projesi kapsamında, Kurumlarımız arasında imzalanması planlanan Protokole yönelik ilgi yazınız incelenmiştir.

Söz konusu yazıda Trans Anadolu Doğal Gaz Boru Hattı (TANAP) Projesi kapsamında, boru hattı güzergâhı üzerinde karşılaşılabilecek arkeolojik veya kültür mirasının tespitine ve kurtarma kazılarına ilişkin olarak, Şirketiniz ve Bakanlığımız müzakereleri ile nihai haline getirilen Protokolün, taraflar arasında imzalanması talep edilmektedir.

TANAP Projesi kapsamında boru hattı güzergâhı üzerinde karşılaşılabilecek arkeolojik veya kültür mirasının tespiti, kurtarma kazısı ve yüzey araştırması çalışmalarına yönelik olarak TANAP Doğal Gaz İletim Anonim Şirketi ile tarafların hak ve yükümlülüklerini belirleyen bir Protokolün yapılması Bakanlığımızca uygun görülmüş olup, anılan Protokolün imzalı 2 nüshası yazımız ekinde gönderilmektedir.

Bilgilerinizi ve gereğini rica ederim.

Melik AYAZ
Bakan a.
Daire Başkanı

EK: Protokol(2 Nüsha - Toplam 10 sayfa)

II.T.B.M.M. Ulus 06543/ ANKARA Tel: 508 60 00/508 61 90 Faks: 508 61 59
www.kultur.gov.tr. E-Mail: kazilar@kultur.gov.tr

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Kültür Varlıkları ve Müzeler Genel Müdürlüğü

Sayı : 51337267-160.02.(33) – 231544 04-12-2013
Konu : Trans Anadolu Doğal Gaz
Boru Hattı Projesi (TANAP)

TANAP Doğal Gaz İletim A.Ş.
Kızılırmak Mah.Ufuk Üniversitesi Cad.
Farilya Business Center No: 8/47 Kat:2
Çukurambar-Çankaya/ANKARA

İlgi: 01.10.2013 tarih ve 0030 sayılı yazınız ile eki.

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Söz konusu yazıda Trans Anadolu Doğal Gaz Boru Hattı (TANAP) Projesi kapsamında, boru hattı güzergâhı üzerinde karşılaşılabilecek arkeolojik veya kültür mirasının tespitine ve kurtarma kazılarına ilişkin olarak, Şirketiniz ve Bakanlığımız müzakereleri ile nihai haline getirilen Protokolün, taraflar arasında imzalanması talep edilmektedir.

TANAP Projesi kapsamında boru hattı güzergâhı üzerinde karşılaşılabilecek arkeolojik veya kültür mirasının tespiti, kurtarma kazısı ve yüzey araştırması çalışmalarına yönelik olarak TANAP Doğal Gaz İletim Anonim Şirketi ile tarafların hak ve yükümlülüklerini belirleyen bir Protokolün yapılması Bakanlığımızca uygun görülmüş olup, anılan Protokolün imzalı 2 nüshası yazımız ekinde gönderilmektedir.

Bilgilerinizi ve gereğini rica ederim.

Melik AYAZ
Bakan a.
Daire Başkanı
04/12

EK: Protokol(2 Nüsha - Toplam 10 sayfa)

Yazının bir örneği ve ekleri (protokol) 2 nüsha elden teslim aldım
TUNCER YAZAR
İdari İşler Memuru
04.12.2013

04 / 12 / 2013 Arkeolog : S. ŞAHİN
04 / 12 / 2013 Şube Müd.V. : N. BABACAN

Türkiye
II.T.B.M.M. Ulus 06543/ ANKARA Tel: 508 60 00/508 61 90 Faks: 508 61 59
www.kultur.gov.tr. E-Mail: kazilar@kultur.gov.tr

PROTOKOL NO: TNP-PTC-PAL-GEN-007

TRANS ANADOLU DOĞAL GAZ BORU HATTI GÜZERGAHINDAKİ KÜLTÜR VARLIKLARINA İLİŞKİN YÜRÜTÜLECEK ÇALIŞMALARA AİT PROTOKOL

Madde 1-Taraflar

Bu protokol TANAP Doğalgaz İletim A.Ş. (TANAP) ile Kültür ve Turizm Bakanlığı, Kültür Varlıkları ve Müzeler Genel Müdürlüğü arasında düzenlenmiştir.

Madde 2-Tanımlar / Kısaltmalar

a) 'İzin Belgesi''; Kültür ve Tabiat Varlıklarıyla ilgili olarak yapılacak araştırma kazı ve sondaj İzin Belgesi' ni,

b) ''Bakanlık''; Kültür ve Turizm Bakanlığı 'nı,

c) ''Genel Müdürlük''; Kültür Varlıkları ve Müzeler Genel Müdürlüğü' nü

d) ''Koruma Bölge Kurulu''; İlgili Koruma Bölge Kurulu'nu,

e) ''Kazı Başkanlığı''; İlgili Müze Müdürlüğü' nü

f) "Çalışma Ekibi"; Arkeolojik çalışmalarda bulunacak olan ekip olup, TANAP tarafından yetkili kılınacak müteahhit firmadır. Çalışma Ekibi'nin TANAP için görevlendirileceği kazı ve sondaj çalışmalarında resmi başkanlık ilgili Müze Müdürlüğü tarafından yürütülür. Çalışma ekibi, TANAP Projesi kapsamında Kültür ve Turizm Bakanlığının saha çalışmaları için teknik desteği sağlamakla yükümlü olacaktır.

g) "Arkeolojik Gözlem Ekibi"; Proje güzergahı doğal gaz boru hattı inşaat koridorunda gerçekleştirilen inşaat çalışmaları esnasında yürütülecek tüm üst toprak sıyırma çalışmalarını izleyecek ekip. TANAP veya onun tarafından yetkili kılınacak müteahhit firma.

h) ''TANAP''; TANAP Doğalgaz İletim A.Ş.'yi

i) "Boru Hattı Güzergahı" Trans Anadolu Doğal Gaz Boru Hattı güzergahı ve onun etki alanı'nı (500 m)

j) "İnşaat Koridoru" boru'nun döşeneceği 16 metre daimi ve 20 metre geçici kamulaştırmanın yapılacağı alan'ı

k) ''Kazı Alanı'' inşaat koridoru veya etki sahası üzerinde yer alan veya inşaat aşamasında belirlenen arkeolojik ve/veya kültürel miras alanlarını,

l) ''Arkeolojik Çalışmalar''; Arkeolojik araştırma yüzey araştırması, arkeojeofizik çalışmalar, sondaj kazısı, kurtarma kazısı, temizlik, rölöve, restitüsyon, restorasyon, konservasyon, belgeleme, envanterleme ve fotoğraf işlerini ifade eder.

Madde 3-Protokol amaç / kapsam:

İşbu, Protokol Trans Anadolu Doğalgaz Boru Hattı Projesi önemine binaen proje çalışmalarında herhangi bir gecikmeye sebep vermemek ve boru hattı güzargahı üzerinde karşılaşılabilecek arkeolojik veya kültür mirasının layıkıyla ve en kısa sürede tespiti ve kurtarılması amacıyla hazırlanmıştır.

Protokol çerçevesinde, Boru Hattı Güzergahı üzerinde yer alması muhtemel arkeolojik veya kültürel miras alanlarının tespitine ve bu alanların kurtarma çalışmalarına yönelik uyulması gereken uygulamaların kapsamı ve tarafların sorumluluk sınırları belirlenmiştir.

Bu doğrultuda Kültür ve Turizm Bakanlığı'ndan kurtarma çalışmalarına yönelik protokolde belirlenen izinler dışında ayrıca özel bir izin ya da müsaade alınmasına gerek görülmemektedir.

Madde 4-Kanun / Yönetmelikler:

- 3386 Sayılı Kanunla değişik 2863 Sayılı Kültür ve Tabiat Varlıklarını Koruma Kanunu
- 10 Ağustos 1984 tarih ve 18485 sayılı Resmi Gazete'de yayımlanan Kültür ve Tabiat Varlıklarıyla ilgili Yapılacak Araştırma Sondaj ve Kazı Yönetmeliği
- 13/03/2013 tarih ve 94949537-160.99-51264 sayılı Bakanlık Makamı Onayı ile yürürlüğe giren "Kültür ve Tabiat Varlıklarıyla ilgili yapılacak Yüzey Araştırması Sondaj ve Kazı Çalışmalarının Yürütülmesi Hakkında Yönerge."
- Türkiye Cumhuriyeti Hükümeti ile Azerbaycan Cumhuriyeti Hükümeti arasında, 26 Haziran 2012 tarihinde İstanbul'da imzalanan Hükümetlerarası Anlaşma ve eki Ev Sahibi Hükümet Anlaşması

Madde 5-Sorumluluklar:

<u>İnşaat Öncesi Dönem:</u>

Yüzey Araştırması ve Kurtarma/Sondaj Kazıları İzinlerinin Alınabilmesi İçin:

1. Çalışma Ekibi'nin önceden ilgili Müze Müdürlüğüne bildirilmesi Kültür ve Tabiat Varlıklarıyla ilgili Olarak yürürlükteki mevcut mevzuat hükümleri kapsamında yapılacak Araştırma, Sondaj ve Kazılar Hakkında Yönetmelik, TANAP veya TANAP'ın yetkili kılacağı müteahhit firma tarafından çalışma ekiplerinde görevlendirilecek uzmanlarda aranan şartlar:

   a) Özgeçmişinin bildirilmesi,

   b) Üniversitelerin ilgili bilim dallarından mezun olması (Protohistorya- Önasya Arkeolojisi, Klasik Arkeoloji, Prehistorya, Sanat Tarihi v.b.)

   c) Arkeoloji alanında asgari 3 sezon kazı veya yüzey araştırması vb. arazi tecrübesine sahip olmak.

2. Kültür ve Turizm Bakanlığı / Kültür Varlıkları ve Müzeler Genel Müdürlüğü ve ilgili Koruma Bölge Kurulu çalışma ekipleri tarafından Boru Hattı Güzergahı üzerinde arkeolojik yüzey araştırması sonucunda belirlenen alanların tespit ve tescil işlemlerinin en kısa sürede yapılmasını sağlayacaktır.

3. TANAP'ın, Boru Hattı Güzergahı üzerinde yapılan arkeolojik çalışmalara ilişkin rapor ile birlikte ilgili Koruma Bölge Kurulunun alacağı kararlar Kültür ve Turizm Bakanlığı / Kültür Varlıkları ve Müzeler Genel Müdürlüğü ile İlgili Müze Müdürlüğüne bildirilir.

4. Çalışma Ekibi tarafından hazırlanan bilimsel rapor ile Koruma Bölge Kurulu Kararı ilgili Müze Müdürlüğünce incelenir. Kazı, sondaj vb. çalışmaların yapılması planlanıyor ise konuya ilişkin olarak hazırlanacak çalışma programı, ekip listesi, talep formu vb. belgeleri içeren başvuru değerlendirilmek üzere Kültür ve Turizm Bakanlığı / Kültür Varlıkları ve Müzeler Genel Müdürlüğü 'ne iletilecektir.

5. Kültür ve Turizm Bakanlığı / Kültür Varlıkları ve Müzeler Genel Müdürlüğü ilgili Müze Müdürlüğü'nün başvurusunu en kısa sürede değerlendirerek uygun bulunması halinde kazı izni verilecektir.

6. Kültür ve Turizm Bakanlığı / Kültür Varlıkları ve Müzeler Genel Müdürlüğünün izni kapsamında gerçekleştirilecek kazı çalışmalarında yetki ve yönetim Müze Müdürlüğü'ne aittir.

7. Çalışma yöntemleri Müze Müdürlüğü ve uzmanlarınca belirlenecektir.

8. Çalışmalara ait tüm giderler TANAP tarafından karşılanacaktır.

9. Müze Müdürlüğü'nce gerekli görülecek araç-gereçler çalışma başlamadan önce TANAP tarafından temin edilecektir.

10. Çalışmalarda çıkartılacak kültür varlıklarının temizlik, ölçüm, rölöve, plan, kesit çizimleri ile fotoğraf çekimleri ve diğer giderler için ihtiyaç duyulan eleman, araç-gereç, madde ve malzeme TANAP tarafından karşılanacaktır.

11. Çalışma yapılacak alanlarda ikamet eden kiracı, varis vb. hak sahiplerinden doğabilecek hukuki sorunlar TANAP tarafından çözümlenecektir.

12. Çalışmaların devamı süresince, alanın ve mekânların (depo, laboratuvar, büro v.b) güvenliği TANAP tarafından sağlanacaktır. Müze Müdürlüğü uzmanlarının bulunmadığı süre içinde çalışma alanlarına ve mekânlarına hiçbir suretle girilmeyecek ve müdahale edilmeyecektir.

13. Gerekli işçiler TANAP tarafından sağlanacaktır. Ayrıca, Müze Müdürlüğü denetiminde ve müzeye karşı sorumlu olarak çalıştırılacak olan serbest arkeologlar ve işçilerin sigorta, vergi ve her türlü kanuni hakları TANAP tarafından yerine getirilecektir. İşçilere ait yeme-içme ve taşıma gibi giderler TANAP tarafından karşılanacaktır.

14. Üçüncü şahıslar ve diğer kurum ve kuruluşlarla ilgili doğabilecek sorunların muhatabı ve sorumlusu TANAP olacaktır.

15. Çalışma alanlarında Müze Müdürlüğü'nün yeterli göreceği her türlü can ve mal güvenliği TANAP tarafından sağlanır.

16. Çalışmalar sırasında çalışmaları ve davranışları beğenilmeyen işçilerin işine Müze Müdürlüğü'nün talebi ile TANAP tarafından son verilecektir.

17. Çalışmalar sırasında bulunan taşınır kültür varlıklarının Müze Müdürlüğü'ne nakli, teslimi ve korunması Müze Müdürlüğü denetiminde TANAP tarafından sağlanacaktır.

18. Çalışma sonucunda ortaya çıkacak kalıntıların fotoğraf, plan, kesit, rölöve v.b. dokümanların Müze Müdürlüğü uzmanları denetiminde TANAP tarafından ücreti ödenecek uzmanlarca yapılacak ve Müze Müdürlüğü'ne teslim edilecektir.

19. Çalışma sonuçlarının bilimsel yayım hakkı Kazı Başkanlığına veya uygun göreceği kazıyı fiilen yöneten uzman veya bilim insanına aittir.

20. Müze Müdürlüğü'nün onayı ve izni olmadan ekip üyesi dışında çalışmanın yapıldığı alana kimse alınmayacak, üçüncü şahıslara ve kurumlara, çalışmalarla ilgili olarak bilgi, belge, fotoğraf vb. verilmeyecektir.

21. Buluntular hakkında TANAP hiçbir şekilde basına bilgi veremez. Basınla ilgili bilgilendirmeler, Kültür Varlıkları ve Müzeler Genel Müdürlüğü'nün görüşüne göre Valilik izniyle Müze Müdürlüğü'nce veya onun yetkilendireceği kişi ile yapılacaktır.

22. Çalışmaların başlama ve bitiş tarihi ile günlük mesai saatleri Müze Müdürlüğü tarafından belirlenecek ve özel durumlar dışında değişiklik olmayacaktır.

23. Çalışmalarda ortaya çıkan ve geçici olarak depoda korunmasına karar verilen buluntular TANAP tarafından temin edilecek veya amaca uygun olarak inşa edilecek güvenli bir depoda muhafaza edilecektir. Müze Müdürlüğü yetkilileri ile çalışmada görevli uzmanlarca istenildiğinde kontrol edilecektir. Bu buluntular Müze Müdürlüğü yetkilileri ile çalışmada görevli uzmanlarca istenildiğinde kontrol edilecektir. Bu buluntular Mülkiyet Sahibi tarafından sağlanacak araçlarla Müze Müdürlüğü'ne nakledilecektir.

İnşaat Dönemi :

Öngörülmüş ve Öngörülmemiş Arkeolojik veya Diğer Kültür Varlıkları için:

1. Boru hattı proje faaliyetleri sırasında rastlantısal olarak ortaya çıkabilecek arkeolojik bulgular ve kalıntılarla ilgili uygulanacak koruma/kurtarma faaliyetleri hakkında çalışma aşamaları, Çalışma Ekibi tarafından hazırlanacak bir "rastlantısal buluntu prosedürü" ile standart hale getirilecektir. Bu prosedür proje faaliyetlerinde çalışan tüm taraflara resmi olarak bildirilecektir. Bu prosedürün tüm proje faaliyetleri süresince uygulanması ile ilgili her türlü tedbirin alınmasından TANAP sorumlu olacaktır.

2. İnşaat döneminde inşaat koridoru sınırları içerisinde rastlantısal olarak herhangi bir kültür varlığına rastlanması durumunda hazırlanmış olana prosedür çerçevesinde faaliyet durdurularak aynı gün mesai saatleri içerisinde ilgili Müze Müdürlüğüne TANAP'ın Arkeolojik Gözlem Ekibi tarafından haber verilecektir. Müze Müdürlüğü, Kültür ve Turizm Bakanlığı'nın görüşü doğrultusunda Trans Anadolu Doğalgaz Boru Hattı Projesi işlemlerine öncelik verecektir.

3. En yakın Müze Müdürlüğü'nden ilgili müze uzmanının inşaat yerine ivedi intikali TANAP tarafından sağlanacaktır.

4. Müze Müdürlüğü uzmanı, alanın incelenmesi sonucunda aynı gün düzenleyeceği öngörülen çalışmaya ilişkin bilgiler ve çalışma ekip listesi ile birlikte, gerekli diğer bilgiler içeren raporu, ivedilikle (mesai saatleri dahilinde, durumun aciliyetini göz önünde bulundurarak) Kültür Varlıkları ve Müzeler Genel Müdürlüğü'nün bilgisine sunacaktır.

5. Kurtarma çalışmaları yapılması konusu Kültür Varlıkları ve Müzeler Genel Müdürlüğünce değerlendirilerek en kısa süre içerisinde gerekli cevap ve izni ilgili Müze Müdürlüğü'ne ulaştırılacaktır.

6. Kazı Başkanlığı ve çalışma ekibi, kurtarma çalışmaları ve araştırma çalışmalarını planlayacak ve uygulamaya koyacaktır. İşin önceliğine göre alanlarda görevlendirilecek uzman arkeolog ve vasıfsız işçi sayısı ve çalışma süresi ayrıca belirlenecektir. Bu alanlarda yürütecek, arkeolojik çalışmalardan elde edilecek bulgularla ilgili kazı başkanlığının hazırlayacağı rapor doğrultusunda Koruma Bölge Kurulu karar alacak olup, bu kurul kararı doğrultusunda, TANAP proje faaliyet planlaması yapacaktır.

Madde 6: Yürürlük ve Süre

İşbu protokol, taraflarca imzalandığı tarihte yürürlüğe girecek ve Trans Anadolu Doğalgaz Boru Hattı Projesi kapsamındaki inşaat işleri tamamlanana değin yürürlüğünü koruyacaktır.

Gerektiğinde taraflar arasında ek protokol hazırlanabilecektir.

Madde 7: Yürürlüğe Giriş Tarihi

İşbu protokol, adı geçen taraflar arasında 02.12.2013 tarihinde 4 (dört) nüsha halinde tanzim ve imza edilmiştir.

02.12.2013

TANAP Doğalgaz İletim A.Ş.

Turgay GÜNAY
Proje Müdürü

Ertuğrul ALTIN
Genel Müdür

Kültür Varlıkları ve Müzeler Genel Müdürlüğü

Zülküf YILMAZ
Genel Müdür Yardımcısı V.

CULTURAL HERITAGE MANAGEMENT PLAN
ANNEX D SCOPE OF WORK ARCHAEOLOGY CONSULTANT

DOCUMENT REVISION HISTORY SHEET

Rev.	Revision Description	Date Issued	Update / Amendment Details
P3-A	DIC	06.06.2016	Discipline Internal Check
P3-B	IDC	13.06.2016	Interdisciplinary Check
P3-0	IAA	19.07.2016	Issued As Approved

HOLDS

No.	Section	Description	Input From	Planned Date

APPENDIX A: SCOPE OF SERVICES

1. SCOPE

a) Test Pits And Salvage Excavations

The Scope of Services mainly covers the test pit and if necessary the salvage excavations under supervision of related Museum Directorates with all desktop studies, field work, reporting (including GIS data and maps), and consultation activities with all related authorities and also supply of all relevant materials and services for the documentation, registration, preservation/protection and salvation of the findings in the archaeological sites listed under item 4, which have been identified during the survey studies.

The Scope of Services covers the following activities as a minimum:

- Preparation and submission of a Project Execution Plan for Client approval,
- Complying with the requirements of Protocol signed between TANAP and Ministry of Culture and Tourism.
- Consultation with the related state authorities (e.g. Boards and museums) on behalf of Client, completion of all preparatory works, planning of the site activities with the related Museum Directorates and obtain all necessary permits before any field work starts.
- Preparation of any documentation required by Regional Directorates of Cultural Entities Preservation Board
- Assignment of all necessary experts who will conduct the site activities and ensuring that these experts are allocated at site.
- Perform the test pit and/or salvage excavations under supervision of related Museum Directorates.
- Supply of all technical equipment to be used during the execution of the works.
- Employment and assignment of all required personnel (archaeologists, topographers, workers, etc.) during the execution of the works (including provision of transportation and accommodation services for these personnel) in accordance with the requirements of the Labour and Health and Safety legislation in Turkey and also in compliance with the project's Health and Safety standards.
- Documentation, registration, preservation and transportation (if necessary) of all findings in accordance with the applicable international standards and best practices.
- Preparation of all necessary assessment and evaluation reports of the test pit and/or salvage excavations as approved by an academics, translation thereof into English as required by the Client, and getting necessary permits from the authorities related with findings.
- Consultation with all related Boards and Museum Directorates on behalf of the Client and communication of all decisions and consultation results to the Client.
- Signing rental agreements with all types of land owners/users within the study/survey area, making payments on behalf of the Client (required as a result of these rental agreements) to the relevant land owners/users, and getting written consent for entry into and exit from site from the relevant land owners/users.

b) *Archaeological Monitoring Services During Construction (Optional)*

All construction activities will be subject to archaeological monitoring. For this purpose, Client will monitor all the activities on site, both the archaeological surveys and excavations, as well as all activities conducted by construction contractors. Depending on the need, Client may request these archaeologists from Contractor.

During construction phase, Client may ask for the assignment of one or more short or long-term archaeologists by the Contractor for the monitoring of the site activities by a Task Order. These personnel who shall report directly to Client will be assigned and mobilised on site only after written approval of their CVs and mobilisation by Client. Payment for monitoring archaeologists shall be made based on day-work rates given in Price Schedule B, no Management Fee (M2) will be paid.

In case monitoring personnel are required during excavation works, these personnel will be different than those assigned for excavations team.

2. METHODOLOGY

The Contractor should consider the following information for cost, time and resource planning:

a. *For test pits*

- The geomorphologic and topographical structure of the field, the density of surface findings and its proximity to the pipeline construction corridor (36 meter corridor) will be evaluated before test pits excavations in order to select the technique(s) to be used in test pits excavations.
- Exact test pit dimensions including the depths will be determined by the local authority.
- Excavations in pits with 3x2 meter size shall be considered by manual labour with the use of mainly picks, hoes, trowels and shovels.
- The depth of each test pit may vary depending on the soil layer, archaeological findings etc. The maximum depth shall be 3 meters which is the depth of trench bed. For payment purposes, the depth and dimensions, which are instructed by the local authority, will be used for the test pits.
- A total of fourteen test pits having size 3x2 meter shall be considered over a section of 200 meters of construction corridor. The final number of test pits will be determined by the local authority.
- Archaeological scientific methods will be used during the excavation activities as well as documenting findings.
- The activities at each site shall be supervised by two experienced archaeological experts.

b. *For salvage excavations:*

- For payment purposes, the depth and dimensions, which are instructed by the local authority, of salvage areas will be used.

- The area on the construction corridor will be excavated with 10x10 meter trenches. The extent of salvage excavation will cover all archaeological area on the pipeline construction corridor.
- The salvation activities shall only cover artefacts and remains located down to 3 meter depth which correspond to depth of the trench bed.
- The activities at each trench shall be supervised by two experienced archaeological experts.

Archaeological scientific methods shall be used during the excavation activities as well as documenting findings. Any archaeological findings discovered out of the construction corridor will not be within the Scope of Services.

The Contractor shall submit detailed procedures for test pit and salvage excavations works addressing the above mentioned requirements.

During the excavation works, HSSE rules and procedures of the Client will strictly be followed. HSSE training will be provided to each member of archaeological team by a certificated trainer. All the team members will be provided with personal protective equipment (PPE). Only the drivers who have taken defensive driving, off-road driving, anti-skid, fatigue management and night driving courses will be allowed to drive.

3. INFORMATION TO BE PROVIDED BY THE CLIENT

The Client will provide all related maps and other available information of the sites (aerial photographs, coordinates, GPS data, correspondences with the related authorities, etc.).

4. LIST OF POSSIBLE ARCHAEOLOGICAL SITES

The possible archaeological sites identified by the Client where the test pits and if required salvage operations will be carried out include but not limited to the following;

No.	Name of the Site	Province/ District/ Village or Neighbourhood	Approximate study/ survey area (36 m X L of the site)	Service
1	Deveağılı	Erzurum/Horasan/Gökçe	36x193m, total area 6948 m2	Test pits
2	Demirdöven	Erzurum/Pasinler/Demirdöven	36x220m, total area 7920 m2	Test pits
3	Dolangez Tabya	Erzurum/Pasinler/Büyüktuy	36x1076m, total area 38736 m2	Test pits
4	Tasmasor II	Erzurum/Yakutiye/Çayırtepe	36x588m, total area 21168 m2	Test pits
5	Şevketiye	Balıkesir/Manyas /Şevketiye	36x1800m, total area 64800 m2	Test pits
6	Hamamlı	Balıkesir/Manyas/Kalebayırı	36x610m, total area 21960 m2	Test pits
7	Kalebayırı	Balıkesir/ Manyas/Kalebayırı	36x295m, total area 10620 m2	Test pits

No.	Name of the Site	Province/ District/ Village or Neighbourhood	Approximate study/ survey area (36 m X L of the site)	Service
8	Kavaktepe	Balıkesir/Gönen/Çifteçeşmeler	36*375, total area 13500 m2	Test pits
9	Emir Çiftliği	Eskişehir Merkez	36*4406, total area 158616 m2	Test pits
10	Örenbağları Arc. Site[1]	Eskişehir/Günyüzü	36*570, total area 20520 m2	Test pits

[1] This area not yet finalized.

5. QUALIFICATIONS OF THE KEY PERSONNEL

Please refer to Appendix F of Contract.

6. REFERENCES

1. Law numbered 2863, on the Protection of Cultural and Natural Resources
2. Regulation on Research, Drilling and Excavation of Cultural and Natural Assets, published in the Official Gazette dated 10.08.1984.
3. Instruction on Surface Research, Drilling and Excavation of Cultural and Natural Assets, approved by the Minister of Culture and Tourism dated 13/03/2013 numbered 94949537-160.99-51264
4. The Host Government Agreement between the Government of the Republic of Turkey and The Trans Anatolian Gas Pipeline Company B.V Concerning Trans-Anatolian Natural Gas Pipeline System published on Official Gazette date 19 March 2013.
5. Protocol signed between TANAP and Ministry of Culture and Tourism (Protocol Ref: TNP-PTC-PAL-GEN-007).