Project Ref:

Construction of Roads, Infrastructure and Buildings at the Commercial Pre-Gate, Gates and Inspection Zone –IP3. Contract C50/2015

Document Title:

CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN (CEMP)

Rev	Date	Prepared by	Reviewed & Approved by	Final Review & Approval
02	20.02.2017	Five Oceans Environmental Services	PROJECT MANAGER	RHKA
01	05.10.2016	Five Oceans Environmental Services	PROJECT MANAGER	RHKA

Issue and Revision

Table of Contents

Definitions, Acronyms and Abbreviations

μgm^{-3}	micro grams per cubic meter
5OES	Five Oceans Environmental Services
AAQMS	Ambient Air Quality Monitoring Station
AST	Above Ground Storage Tank
At Source Noise	Noise monitored 1meter from noise source
Boundary Noise	Noise monitored on fence line of facility
CO	Carbon Monoxide
CO_2	Carbon Dioxide
dB	Decibels
dB (A)	A-weighted Decibels
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EU	European Union
g/m^3	grams per cubic meter
HC	hydrocarbons
ISO	International Organization for Standardization
LA 90	90th Percentile Sound Level
LA Eq	Equivalent Continuous Sound Level
LA Max	Maximum Noise Level Recorded
LA Min	Minimum Noise Level Recorded
LOD	Limit of Detection
m	Meter
MD	Ministry Decree
MECA	Ministry of Environment and Climate Affairs
mgm^{-3}	milligrams per cubic meter
NO_2	Nitrogen Dioxide
NO_x	Nitrogen oxides
O_2	Oxygen
PM_{10}	Particulate Matter less than 10 microns
ppb	Part Per Billion
ppm	Part Per Million
SO_2	Sulphur Dioxide
STP	Standard Temperature and Pressure
TSP	Total Suspended Particulates
USEPA	US Environmental Protection Agency
UGCC	United Gulf Contracting Company
VOC	Volatile Organic Carbons
WB	World Bank
WHO	World Health Organisation

INTRODUCTION

PURPOSE OF THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

This Construction Environmental Management Plan (CEMP) has been prepared for United Gulf Construction Company LLC (UGCC) by Five Oceans Environmental Services LLC (5OES). The CEMP has been prepared specifically for the following project: The Construction of Roads, Infrastructure, Buildings at the Commercial Pre-Gate, Gates and Inspection Zone at the Port of Duqm. The CEMP is a subsequent document to the Environmental Impact Assessment for Port of Duqm Packages 2, 3 and 4 (prepared by K & A consultants) in March 2015. This CEMP has been submitted as part of the commitment to environmental standards and legislation in accordance with the environmental permit and therefore sets out the commitment of UGCC to deliver on the stated environmental obligations.

The purpose of the Construction Environment Management Plan (CEMP) is to provide a framework for identifying, addressing and managing the potential environmental impacts associated with project activities on sensitive environmental resources and receptors. The CEMP has been prepared referring legal and other requirements to ensure appropriate preventive and corrective actions are undertaken in order to meet the project's environmental commitments.

The purpose of the plan is to provide information, guidance and instruction to personnel charged with environmental duties and those responsible for undertaking CEMP work during construction. It provides systematic procedures for monitoring and auditing of potential environmental impacts that may arise from the works.

This CEMP contains the following information:

- Responsibilities of the Contractor(s), Environmental Team (ET), and the Developer with respect to the environmental monitoring and audit and mitigation requirements during the course of the project;
- The basis for, and description of, the broad approach underlying the CEMP;
- Requirements with respect to the construction and the necessary environmental monitoring, audit and mitigation programme to track and manage the varying environmental impacts;
- Details of the methodologies to be adopted including field, laboratory and analytical procedures, and details on quality assurance and quality control programme;
- The rationale by which the environmental monitoring data will be evaluated and interpreted;

- Preliminary definition of Action and Limit levels;
- Establishment of Event and Action plans;
- Requirements for reviewing pollution sources and working procedures required in the event of exceedance of applicable environmental criteria and/or receipt of complaints;
- Requirements for presentation of environmental monitoring and audit data and appropriate reporting procedures; and
- Requirements for review of EIA predictions and the effectiveness of the mitigation measures/environmental management systems and the CEMP.
- Identify the requirements for Environmental Training during the project
- Ask as a stimulus for the production of the Operational Environmental Management Plan upon completion of the project.
- Act as a key, project specific part of UGCC's corporate level ISO 14001 Environmental Management System. Act as a basis for external audits and the ensuring corrective actions as basis for continual improvement both on this project and at UGGC at a corporate level.
- Something about ISO

STRUCTURE OF THE CEMP REPORT

- Section 1: Introduction to the CEMP and the Project; (This section)
- Section 2: General Requirements of the CEMP;
- Section 3: Environmental Action Plans identified for key activities of the project;
- Section 4: Environmental monitoring systems for the environmental parameters that require monitoring.
- Section 5: Environmental Training and Awareness Raising

PROJECT DESCRIPTION

The Port of Duqm is being developed in a series of seven packages, as shown in the map below. This CEMP refers to Package 3 (IP3).

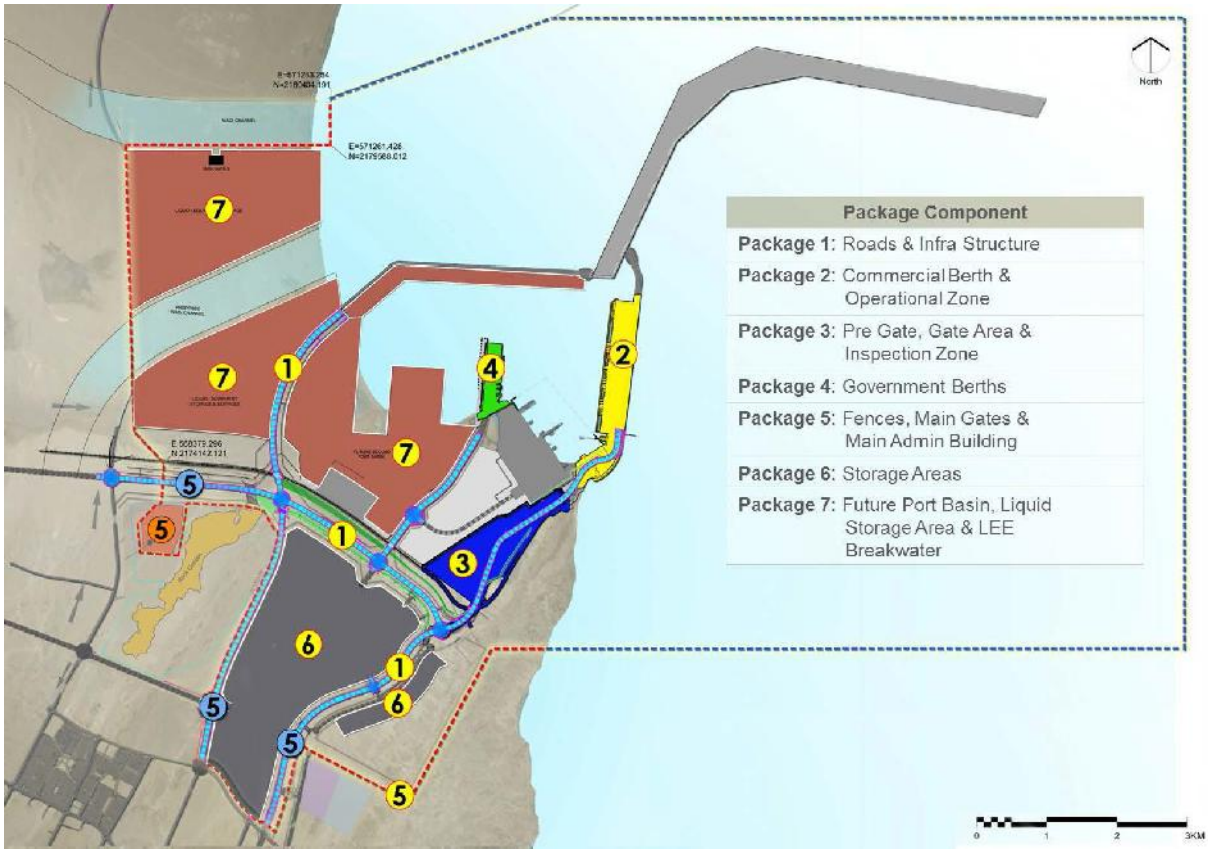


Figure 0-1: Map showing the port of Duqm and the 7 construction packages. This project is Package 3: Pre Gate, Gate Area and Inspection Zone.

The scope of works of Package 3 includes the construction, installation, testing, commissioning and remedying of defects of the following, a) Roads and Paving, b) Infrastructure and c) Building works as shown below:

Road and Paving Works

- Construction of 8.00 Km roads with varied cross sections including the junctions on these roads.
- Construction of all internal roads as access to buildings and Parking areas.
- Supply and Installation of Traffic Signals.
- Construction of 2 Nos. of Helipad with an approximate area of 2,200 m2 in Zone 2 – Inspection Zone.

Infrastructure Works

- Potable Water Network and Fire Fighting Network
- Storm Water Drainage and Sewerage Network
- Pump Stations and Electrical works
- Telecommunications
- Street Lighting and Yard Lighting
- Spare Ducts and Fencing and Gate works

Building Works

CQ Gate and Pre-Gate Area (Zone – 1)

- Block 1A – Gate House & In Gate – Out Gate Booths
- Block 1B – One Stop Station – Transaction Building
- Block 1C – Pass Office Building
- Block 1E – Mosque
- Block 1G – Electrical Service Building (Type-1)
- Block 1G – General
- Block 1H – Electrical Service Building (Type-2)
- Block 1J – Fire Fighting Water Tank

C.2 Inspection Zone (Zone – 2)

- Block 2A – Custom – MoH Administration & Inspection Building
- Block 2B – MAF Inspection Building
- Block 2C – MoH Clinic
- Block 2D – Gate House
- Block 2E - Electrical Service Building (Type-1)
- Block 2F - Electrical Service Building (Type-2)
- Block 2G - Fire Fighting Water Tank

- Block 2G – General
- Block 2K – Custom Inspection Staff Building
- Block 2L – Ammunition Building

The land area of the Project has been broken into two zones as shown in the plans below (Figure 0-2: and Figure 0-3:).

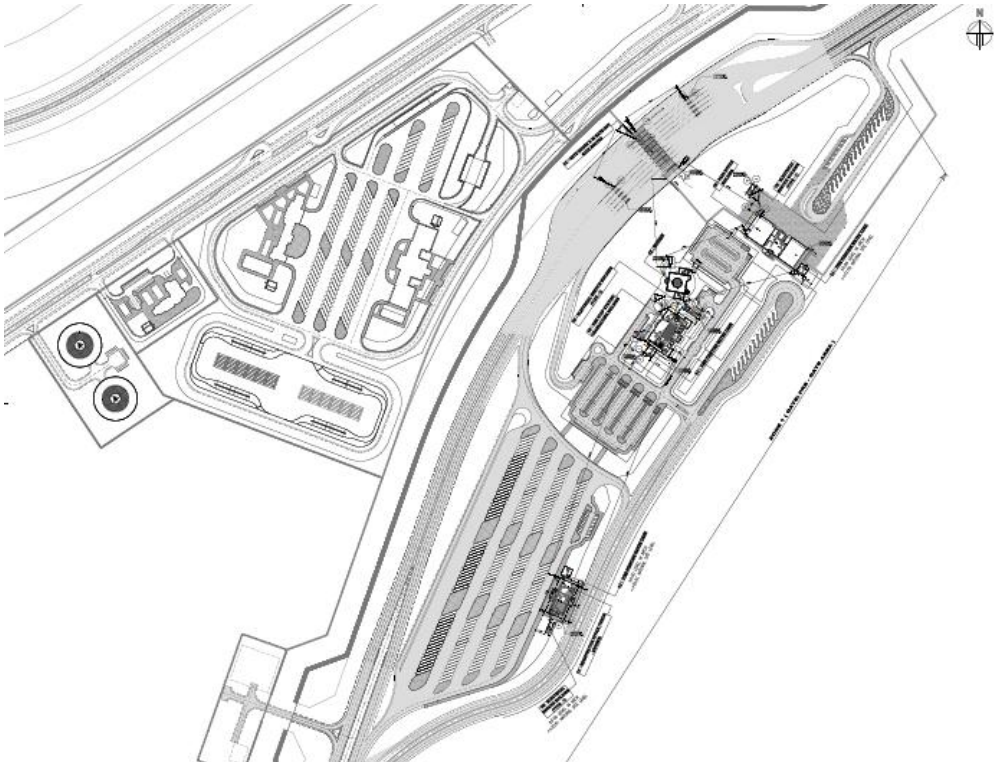


Figure 0-2: Zone 1 of the Project Area, to the south east of the main highway

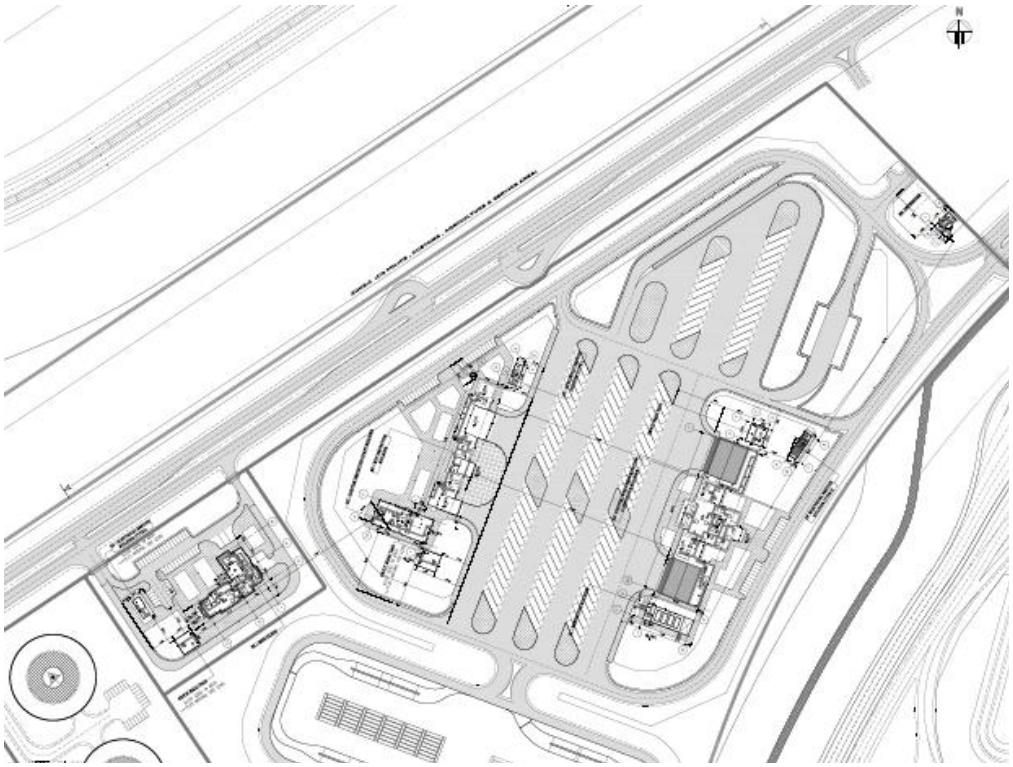


Figure 0-3: Zone 2 of the Project area to the north west of the main highway.

OBJECTIVES OF THE CEMP

The broad objective of this CEMP is to define the procedures for monitoring the environmental performance of the project and to clearly set proposed mitigation during construction. The construction impacts arising from the implementation of the project are specified in the Environmental Impact Assessment (EIA) Report. The EIA Report also specifies mitigation measures and construction practices that will be needed to ensure compliance with the environmental criteria. These mitigation measures and their implementation requirements are presented in the Environmental Mitigation Strategies (Section 0).

The main objectives of the CEMP are to:

- Ensure the mitigation recommendations are implemented in the project;
- Provide a database of environmental parameters against which to determine any environmental impacts, such as through monitoring and site auditing;
- Provide an early indication should any of the environmental control measures or practices fail to achieve the acceptable standards;
- Clarify and identify potential sources of pollution, impact and nuisance arising from the project;
- Confirm compliance with regulatory requirements and EIA Report recommendations;

- Monitor performance of the mitigation measures and assess their effectiveness;
- Take remedial action if unexpected issues or unacceptable impacts arise;
- Verify the environmental impacts predicted in the EIA Report; and
- Audit environmental performance.

CEMP procedures are required during the construction phases of the project to ensure that impacts identified during the impact assessment phase are managed accordingly.

For this specific project the primary activities that have significant environmental impacts have been identified and the following environmental objectives/action plans for the project are set as:

1. *Reduction of Impact of Excavation and deposition of fill, levelling and compaction and dust suppression*
2. *Reduction of Impact of Rock Breaking*
3. *Reduction of Impacts of Waste Generation and Disposal*
4. *Reduction of Impact of Fuel storage, Refuelling activities and other chemical storage*
5. *Reduction of Impact of Construction Material and Resource Consumption*
6. *Reduction of Impacts from Waste Water*

PERMIT CONDITIONS

SEZAD have issued UGGC with three permits for this project which are included in the Appendix C. These permits are:

Ref:	Permit Number	Permit name	Frequency of renewal	Expiry data
1	5/TBH/2016/0088	Permit for the Construction area of IP3	Annual	30.12.16
2	5/TBH/2016/1/103	Permit for Site Accommodation and Facilities	Bi Annual	31.12.16
3	5/TBH/2016/1/0109	Permit for Extraction of Seawater	Bi Annual	30.12.16

Written correspondence for renewal of permits, will be made by UGCC in good time prior to expiry.

ORGANISATION

GENERAL

The control methods and measures of environmental impacts, which will be carried out by UGCC during construction phases, will be collected and organized systematically. The onsite in-house audit will be carried out. UGCC have appointed a third party Environmental Team (ET) to assist with the monitoring and auditing works and to provide specialist advice on undertaking and implementing mitigation measures.

During the development of the project construction phases subject to review, the evidence of any non-conformance of the reviewed activities, if any, will be given to the Project Manager at site with a copy to Construction Manager, HSE Manager and Environmental Protection officer when reported will implement preventive and remedial actions, if any, as soon as possible.

UGCC have appointed a third party Environmental Team (ET) to assist with the monitoring and auditing works and to provide specialist advice on undertaking and implementing mitigation measures.

To maintain strict control of the CEMP process, the project will be monitored by an Independent Environmental Checker (IEC) to verify and validate the environmental performance of their Contractor(s) and the ET. For this project the IEC will most likely be SEZAD/MECA.

A UGCC project organisational chart has been provided in the Appendix B.

PROJECT ORGANISATION

The roles and responsibilities of the various parties involved in the CEMP process are further explored below.

UGCC

UGCC will:

- Implement all of the recommendations on mitigation and monitoring held in the EIA Report and this CEMP;
- Take ownership of, and update, the CEMP throughout the life of the project.
- The environmental review activity will be lead by the Environmental Protection Officer reporting to HSE Manager
- Retain an Environmental Team (ET) to assist with monitoring, analysis and reporting of environmental information. This team may be partly internal staff trained to undertake tasks and/or an appointed external expert(s) such as Five Oceans (5OES);
- Allow an Independent Environmental Checker (IEC) to audit and verify the overall environmental performance of the works and to assess the effectiveness of the ET in their duties;
- Supervise the activities and ensure that the requirements of the CEMP and the contract documents are fully complied with;
- Adhere to the procedures for carrying out complaint investigation;
- Participate in joint site inspections undertaken by the ET;
- Implement all of the recommendations on mitigation and monitoring held in the EIA Report and this CEMP;
- Work within the scope of the construction contract and other tender conditions;
- Submit proposals on mitigation measures in case of exceedance of Action and Limit levels in accordance with the Event and Action Plans;
- Adhere to the procedures for carrying out complaint investigation.

Environmental Team

The ET will:

- Monitor various environmental parameters as required in this CEMP;
- Review the implementation of the mitigation measures;
- Assess the CEMP data and review the success of the CEMP programme, the adequacy of the mitigation measures implemented and the validity of the EIA predictions as well as identify any adverse environmental impacts before they arise;
- Review investigation reports from environmental incidents (e.g. accidental spillages or discharges) to ensure they are properly managed and documented.
- Produce quarterly reports for reporting environmental monitoring data, site environmental conditions and audits to SEZAD;

PMC/Client

The PMC/Client will:

- Review and monitor the implementation of the CEMP and the overall level of environmental performance being achieved;
- Arrange and conduct independent site inspections/audits of the project during construction phases;
- Audit the EIA recommendations and requirements against the status of implementation of environmental protection measures on site;
- Check complaint cases and the effectiveness of corrective measures;
- Check that the necessary mitigation measures are effectively implemented;
- Review CEMP reports submitted by the ET and feedback audit results to ET;
- Report the findings of site inspections/ audits and other environmental performance reviews to UGCC and ET.

CEMP General Requirements

Introduction

In this section the general requirements of the CEMP are presented with reference to relevant findings from the EIA Report that should form the basis of the scope and content of the programme.

The environmental issues that are identified during the environmental assessment process and are associated with the construction phase of the project should be addressed through the monitoring and mitigation strategies specified in this CEMP and the Environmental Permit.

During the construction phase the environmental parameters identified in **Error! Reference source not found.** will be subject to this CEMP. Monitoring of the effectiveness of the mitigation measures will be achieved through the environmental monitoring programme, as well as through inspections. The inspections will include, within their scope, mechanisms to review and assess the contractor(s) environmental performance, ensuring that the recommended mitigation measures have been properly implemented, and that the timely resolution of received complaints are managed and controlled.

Mitigation Strategies

For each of the environmental parameters specific mitigation strategies have been formulated to remove, as far as possible, the significance of any environmental impact. Implementation of the mitigation strategies will be a condition of the environmental permit. The role of the ET will be to ensure that the strategies are fully implemented, during all phases of the project. Detailed mitigation strategies are provided in Section 0.

Environmental Monitoring

The environmental monitoring work throughout the project period will be carried out in accordance with this CEMP and reported by the ET. Monitoring works will comprise of quantitative assessment of physical parameters such as water, air and noise quality impacts, which also form an important part of the whole monitoring programme. Detailed monitoring programme is provided in Section 0.

Action and Limit Levels

Action and Limit Levels are defined levels of impact recorded by the environmental monitoring activities which represent levels at which a prescribed response is required. These Levels are quantitatively defined later in Section 0 of this CEMP and described in principle below:

Action Levels: Levels beyond which there is a clear indication of a deteriorating ambient environment for which appropriate remedial actions are likely to be necessary to prevent environmental quality from falling outside the Limit Levels; and

Limit Levels: Statutory and/or agreed contract limits stipulated in the relevant pollution control legislation or established by SEZAD and included in the construction permit. If these are exceeded, works will not proceed without appropriate remedial action, including a critical review of plant and working methods.

Event and Action Plans

The purpose of the Event and Action Plans is to provide, in association with the monitoring and audit activities, procedures for ensuring that if any significant environmental incident (either accidental or through inadequate implementation of mitigation measures) does occur, the cause will be quickly identified and remediated, and the risk of a similar event recurring is reduced. This also applies to the exceedance of Action and Limit Levels. All Environmental incidents will be reported vide UGCC incident reporting procedure.

Site Inspections

The Environmental Protection Officer (EPO) will undertake weekly and monthly site inspections and audits of on-site practices and procedures. The primary objective of the inspection and audit programme will be to assess the effectiveness of the environmental controls established by UGCC and the implementation of the environmental mitigation measures recommended in the EIA.

The ET will undertake quarterly site monitoring audits which will also review the weekly/ monthly inspections that have taken place.

The audit and inspection programme will undoubtedly complement the monitoring activity with regard to the effectiveness of controlling impacts on environmental receptors, the criteria against which the audits will be undertaken will be derived from the clauses within the contract documents and Environmental Permit, which will seek to enforce the recommendations of the EIA and the established management systems.

ENQUIRIES, INCIDENTS, COMPLAINTS AND REQUESTS FOR INFORMATION

Enquiries, complaints and requests for information may occur from a wide range of individuals and organisations including members of the public, government departments, the press and community groups.

Enquiries concerning the environmental effects of the construction works, irrespective of how they are received, may be reported to UGCC and directed to the HSE team which will set up procedures for the handling, investigation and storage of such information. The following steps will then be followed:

1) An investigation will be initiated to determine the validity of the complaint and to identify the source of the issue.

2) UGCC will undertake the following steps, as necessary:

- Investigate and identify the source of the issue;
- If considered necessary by UGCC, following consultation with the Client/PMC, additional monitoring to verify the existence and severity of the alleged complaint will be implemented;
- Liaise with the Client / PMC to identify remedial measures;
- Implement the agreed mitigation measures;
- Repeat the monitoring to verify effectiveness of mitigation measures; and
- Repeat review procedures to identify further practical areas of improvement if the repeat monitoring results continue to substantiate the complaint.

3) The outcome of the investigation and the action taken will be documented on a complaint log. A formal response to each complaint received will be prepared by UGCC within five working days, in order to notify the concerned person(s) that action has been taken.

4) Enquiries which trigger this process will be reported in the monthly reports which will include results of inspections undertaken by UGCC and details of the measures taken, and additional monitoring results (if deemed necessary). It should be noted that the receipt of

complaint or enquiry will not be, in itself, a sufficient reason to introduce additional mitigation measures.

The complainant will be notified of the findings and procedures put in place to ensure that the issue does not occur again.

A complaints reporting proforma is provided in Appendix D. An environmental incident report is provided in Appendix E.

REPORTING

Environmental monitoring data, site environmental conditions and audits will be reported by the EPO on a monthly basis to the Client / PMC determined by monitoring effort. Quarterly summary reports will also be produced and certified by UGCC. The quarterly reports will be submitted to Client / PMC to show compliance with permit conditions.

Extracts from the Environmental Monthly report are provided in Appendix F.

CESSATION OF THE CEMP

The cessation of the CEMP will be subject to the satisfactory completion of a Final Review Report and agreement with the Client / PMC. The CEMP as well as the original design report then becomes the basis for the production of the Operational Environmental Management Plan.

ENVIRONMENTAL IMPACT ACTION PLAN

The table below illustrates the environmental Action Plan and mitigation strategies to be employed for the project and which will be subject to auditing during the construction period. These mitigation strategies cover both mitigation measures identified in the EIA report and conditions of the Environmental Permit. These activities have been spatially mapped on the appended Environmental Risk Map. The aim of the map is to be printed at large scale a displayed on site cabins walls to act as visual reminder of this CEMP and to assist environmental awareness and training during the project.

For this specific project the primary activities that have significant environmental impacts have been identified and the following environmental objectives for the project are set as:

1. *Reduction of Impact of Excavation and deposition of fill, levelling and compaction and dust suppression*
2. *Reduction of Impact of Rock Breaking*
3. *Reduction of Impacts of Waste Generation and Disposal*
4. *Reduction of Impact of Fuel storage, Refuelling activities and other chemical storage*
5. *Reduction of Impact of Construction Material and Resource Consumption*
6. *Reduction of Impacts from Waste Water*

A detailed action plan for each of these activities follows as Table 0-1.

Table 0-1: Environmental Action Plan/Checklist

Action Plan 1: Reduction of Impacts of Excavation and deposition of fill, levelling and compacting Approximately 1,000,000m³ of cutting in Zone 1 is required and 4-5,000,000m³ of filling is required in Zone 2. Extra fill material will be brought in from approved borrow pit areas. The primary impacts are dust generation, loss of terrestrial ecology, and usage of sea water for dust suppression.			
Ref	**Description and Mitigation Strategy**	**Responsibility Person/Party**	**Relevant Legislation and Guidance**
1.1	All earthworks will follow the best practice guidelines e.g. BS 6031 (2009) Code of Practice for Earthworks or similar.		BS 6031 (2009) Code of Practice for Earthworks.
1.2	All excavated material will be considered for its suitability for re-use on the site. All material that can be re-used should be. If any topsoil is present this will be stockpiled separately from sub-soil. Topsoil will then be returned as the final layer (not buried) so as to promote the germination of seeds which are found within that layer. The re-establishment of natural vegetation will serve to stabilise the soil and limit soil erosion.		As above and SEZAD permit 5/TBH/2016/0088, condition nr
1.3	During storage, mounds of excavated material will be placed on raised ground, so that erosion risks are minimised. Limit earthworks as much as possible during windy or storm conditions.		As above
1.4	Dust suppression using water or soil binders will be implemented to avoid the erosion of soils in the work areas and storage piles.		As above

1.5	Water for dust suppression will be abstracted from designated seawater location only (near IP4).		SEZAD permit nr 5/TBH/2016/1/0109
1.6	Method statement for dust suppression to outline route for water tank and wind speed at which additional dust suppression measures should be taken		As above
1.7	Heavily used access tracks will be considered for blacktop surfacing to reduce dust generation and avoid the need for dust suppression		As above
1.8	Intake for seawater abstraction pump will have a suitable screen to avoid damage to or from marine life (fish, crabs, seaweed etc.)		As above
1.9	The contractor will minimise any activity which negatively affects soils in the project area such as the use of heavy machinery off designated access roads. Such activities must be carefully and rigorously controlled.		As above
1.10	Wheel washes will be used for vehicles leaving the site where appropriate, to minimise the amount of mud and debris deposited on the roads.		As above
1.11	Vehicles carrying dusty materials will be covered to prevent materials being blown from the vehicles whilst travelling.		As above
1.12	Low speed limits for vehicles on unmade surfaces will be enforced, minimising the generation of airborne dust.		As above
1.13	Only modern, well maintained machinery will be used so to minimise mobile source emissions.		As above

1.14	All fill material coming on to site will be inspected to ascertain whether it should be considered a potential source of contamination as well as other geotechnical criteria required for compaction. The results of this check will determine the material's management and storage.		As above
1.15	Hunting, killing or catching of wild animals and birds is prohibited as per MD 101/2002 and removing eggs from nests and general harassment of local wildlife is considered undesirable and will be avoided during construction. All staff will be made aware of this.		As above and MD101/2002
1.16	No uncontrolled fires will be allowed on site, and construction personnel will be made aware of the key ecological features of the site and briefed to how they can avoid unnecessary disturbance.		As above
Action Plan 2: Reduction of Impacts of Rock Breaking The exact required quantity of rock breaking is unknown but could be as much as 80,000m3. The environmental impacts of rock breaking include noise and dust generation. Rock breaking also consumes more fuel than normal excavation, and increases wear and tear issues for the plant involved.			
Activity	**Description and Mitigation Strategy**	**Responsibility**	**Relevant Legislation and Guidance**
2.1	Avoidance of rock breaking by selection of more suitable material where possible.		MD79/1994 Noise Pollution Control in the Public Environment, SEZAD Permit nr 5/TBH/2016/0088, condition 3

2.2	All rock-breaking activities will be preceded by a soft start to allow sensitive fauna to move away from the noise source before noise levels reach the operational level.		As above
2.3	Avoidance of rock breaking activities out of hours and during weekend and public holidays.		As above
2.4	Workers should not be exposed to noise levels in breach of standards set by MD 80/1994		As above
2.5	Noise monitoring will be conducted periodically to ensure compliance with legislation and if complaints arise.		As above
2.6	All machinery will be regularly maintained and serviced and a record kept of such maintenance and servicing.		As above
Action Plan 3: Reduction of Impacts of Waste Generation and Disposal Waste and Hazardous waste will be generated from this project at both the labour camp and the construction site. This will be particularly be an issue once the earth moving phase is complete, and the building phases commences. Waste will be temporarily stored on the site the transferred to the designated land fill site approximately 7km from the site.			
Activity	**Description and Mitigation Strategy**	**Responsibility**	**Relevant Legislation and Guidance**

3.1	Facilities will be established for storage and handling of hazardous construction wastes prior to mobilisation on site.		MD17/1993 Regulations for the Management of Solid Non-hazardous Waste MD18/1993 Regulations for the Management of Hazardous Wastes SEZAD permit 5/TBH/2016/0088, condition 6, 8, 11, 12, 13, 15, 17, 18, 30
3.2	Hazardous waste storage areas will be laid out to facilitate appropriate segregation of incompatible materials. Regular inspection of hazardous waste storage sites will occur to ensure compliance with guidelines.		As above
3.3	Any hazardous waste material will be sited on an impervious base within an oil-tight bund with no drainage outlet. All fill pipes, draw pipes and sight gauges will be enclosed within the bund, and the tank vent pipe will be directed downwards into it.		As above

3.4	Liquid wastes, including solvents and oil, will be securely stored in bunded compounds prior to collection by a registered waste contractor. Under no circumstances will any waste liquids be discharged to the surface water system. Some liquid wastes may be discharged to the foul sewer via a designated facility, if appropriate consent is in place.		As above
3.5	Liquid wastes will be prevented from leaching from bins or skips – this includes dry wastes that may become wet, e.g. through exposure to rain.		As above
3.6	Hazardous waste containers will be labelled according to MD317/2001. Any unused chemicals and those with remaining functional capacity will be recycled as far as possible, including wet lithium, nickel cadmium and lead acid batteries for high PCB-containing transformer fluid through a contracted specialist. Containers will be compatible with the hazardous substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.		As above and MD317/2001
3.7	Hazardous waste storage areas will have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 25% by volume of the chemical waste stored in that area, whichever is the greatest. Surfaces on which chemical or oil spillage may be expected shall be surfaced with chemical resistant paving materials.		As above
3.8	Hazardous waste storage areas will be enclosed on at least three sides and will have adequate ventilation.		As above

3.9	Hazardous waste storage areas will be covered to prevent rainfall from entering (water collected within Where possible hazardous waste will be remediated before disposal. This could include treatment, stabilisation and/or neutralisation. A parameter list will be used to identify the nature of hazardous waste. Hazardous waste will be disposed of via a licensed waste collector, accompanied by a manifest for each trip for transportation from the place of generation (this will include a copy of the consignment notice), to a facility licensed to receive hazardous waste, which offers a hazardous waste collection service and supply of the necessary storage containers.		As above
3.10	In the event of a spill, immediate clean-up will be undertaken. It is recommended that appropriate spill kits or absorbent materials are held on site. It is essential that staff know what to do in an emergency. An up-to-date incident response plan will be maintained, hazards identified and a contingency plan drawn up, giving advice on what action to take and who to inform. These plans will be displayed clearly and regular exercises undertaken.		As above
3.11	Handling and use of chemicals and chemical substances will be in compliance with the requirements of Royal Decree No. 46/95, Law on Handling and Use of Chemicals.		As above and RD 46/95
Action Plan 4. Reduction of Impacts of Fuel Storage, Refuelling and Chemical Handling Fuel will be stored at the Labour Camp in a facility designed by Oman Oil. Refuelling of plant will occur across the construction site by an off road mobile oil truck. Chemicals will be stored at the labour camp in designated areas.			
Activity	**Description and Mitigation Strategy**	**Responsibility**	**Relevant Legislation and Guidance**

4.1	All fuel tanks and permanent storage areas will be provided with bunds of a capacity equal to 110% of the storage capacity of the largest tank or 25% of all containers, to prevent spilled fuel oils from polluting soils.		SEZAD Permit 5/TBH/2016/0088, conditions 13, 14
4.2	Regular checking of bunds or drip trays will be conducted for maintenance requirements, for instance emptying drip trays.		As above
4.3	Tool box talks will be delivered to site workers on preventing pollution.		As above
4.4	Workers who are required to handle corrosive, oxidising or reactive chemicals will be provided with specialised training and appropriate PPE.		As above
4.5	A complete list of chemicals, including type, quantity and proposals for transport, storage, handling, use and disposal will be provided and appropriate permits acquired.		As above
4.6	Chemicals and chemical substances used will be registered with the Ministry of Environmental and Climate Affairs (MECA). The Material Safety Data Sheets (MSDS) for each chemical or chemical substance will be forwarded to MECA/SEZAD as part of the registration procedure.		As above
4.7	Chemicals and chemical substances will be stored according to the Hazardous Chemicals Storage Regulations from MECA, and storage and transport will be approved by the Civil Defence Administration of the ROP.		As above
4.8	Handling and use of chemicals and chemical substances will be in compliance with the requirements of Royal Decree No. 46/95: Law on handling and use of chemicals.		RD 46/95

4.9	The consumption and use of chemicals will be recorded and stored. Discrete chemicals identified as 'waste chemicals' will be recorded in a separate log book. The Environmental Manager shall approve how the waste can be disposed before it can be moved.		As above
4.10	Vandalism and theft are possible causes of pollution. Lockable valves will be fitted on all storage tanks, fences will be secure, and doors and gates kept locked. Where possible, materials will be stored under cover and potential pollutants will be transferred into safe storage without delay.		As above
4.11	The quantity of chemicals stored at site and the amount of chemicals used will be minimised as much as possible.		As above
4.12	In the event of a spill, immediate clean-up will be undertaken. Appropriate spill kits or absorbent materials will be held on site. It is essential that staff know what to do in an emergency. An up-to-date incident response plan will be maintained, hazards identified and a contingency plan drawn up, giving advice on what action to take and who to inform. These plans will be displayed clearly and regular exercises undertaken. The Contractors are required to prepare method statements and procedures for immediate clean-up actions following any spillages of oil, fuel or chemicals. It is recommended that any wider Contaminated Land Guidance Note includes general measures for addressing pollution incidents, including handling, storage, remediation and transfer.		As above
4.13	Where maintenance and washing of vehicles and other machinery is conducted, concrete sumps will be installed to ensure that oily wastes are contained for later disposal.		As above
4.14	Machinery will be kept in good working order to minimise the risk of leaks and drip trays will be used where necessary.		As above

4.15	Ensure refuelling occurs at least 10 m from a wadi to reduce risk of pollution transfer		As above
4.16	All concrete washout activities to occur in a designated area that is bunded and sealed from ground contamination. Cement truck drivers to be clearly informed of the location of the concrete washout facility and a system of penalty/rewards made for ground contamination of concrete washout in the event that the facility is not used.		As above
Action Plan 5 : Reduction of Impacts of Material and Resource Usage In this project large volumes of concrete, asphalt, steel and to a less extent glass copper and aluminium will be used. The construction contractor may be limited in his ability to influence the natural resources required to construct the project, however the construction methodology chosen, procurement strategy, storage onsite and site practices will significantly have an impact on the level of waste generated from the project. The environmental impact of material use is depletion of natural resources and climate change.			
Activity	**Description and Mitigation Strategy**	**Responsibility**	**Relevant Legislation and Guidance**
5.1	Procurement of materials to ensure correct volumes to avoid over ordering or extra deliveries which could result in wastage		Waste Resources Action Programme (WRAP) Guidance on measuring and reporting construction, demolition and excavation waste[1]

5.2	Discussions with suppliers to limit unnecessary packaging materials whilst also ensuring transport and delivery of materials does not result in damaged products		As above
5.3	Materials laydown areas to be planned so as to limit damage of materials from collisions with vehicles/construction plant		As above
5.4	Procurement strategy during the building phase to favour prefabrication offsite wherever possible to limit cut to fit on site which in an effort to reduce waste.		As above
5.5	Procurement strategy to highlight the use of recycled products (e.g. surface water drainage pipes) where ever possible		As above
5.6	Construction materials reuse area to be set up and well managed to encourage reuse of materials rather than disposal. Clear labelling to be adopted; 'A place for everything and everything in its place'		As above
5.7	Material that have a low embodied carbon footprint will be preferred where possible over those with a higher footprint. An example will be the use of reputable blended cements (for example using fly ash or granulated blast furnace slag) over Ordinary Portland cement.		As above

Action Plan 6 : Reduction of Impacts from Waste Water

In this project 'domestic waste water' or sewage will be generated at the camp location. The average quantities per day will be 95 m3/day (25,000 US Gallons per day). This will be taken to Duqm STP on Muscat Road in Duqm by licenced tanker of volume 37m3 (10,000 US Gallons). Approximately 5m3/day (1300 US Gallons/day) of sewage will be collected from the portable toilets located in the working areas of IP3.

Activity	**Description and Mitigation Strategy**	**Responsibility**	**Relevant Legislation and Guidance**

6.1	A strategy for minimising the consumption of water on site (in accordance with Action plan 5) will be adopted in order to minimise the production of waste water. This will include an active schedule of preventative maintenance of the water fixtures (leaking toilets, facets etc.). This will also include an awareness campaign amongst workers and labourers on water consumption without compromising adequate health and hygiene requirements.		Best Practice and SEZAD permit conditions 4 and 15
6.2	Septic tanks and portable toilets shall be regularly inspected and emptied to ensure no overflow or contamination. All areas will be regularly cleaned and maintained.		As above
6.3	Tankers and associated pumps and hoses shall regularly inspected and maintenance schedules upheld throughout the lifetime of the project		As above
6.4	No surface water shall be allowed to enter the sewage system at site. All manhole covers will be designed to keep out rain or flood water, any leaks in the sewerage system at the site will be fixed immediately.		As above
6.5	An alternative plan will be developed given the possible scenario of plant shutdown at Duqm STP.		As above
6.6	All Hazardous waste including, but not limited to; engine oils, lubricants and concrete washout will be kept out of the sewerage system at the camp which will be reserved for 'domestic' sewage only. Engine oils and lubricant and concrete waste to be dealt with as Hazardous Waste under Action Plan 3. Concrete washout may be 'treated' on site to become non-hazardous in a designated approved concrete washout facility.		As above

ENVIRONMENTAL MONITORING

The following section describes the types of environmental monitoring that will be carried out during the project:

AIR QUALITY, CLIMATE AND NOISE

Air and noise parameters will require monitoring during the construction phase. Construction equipment and processes have the potential to create a dusty and noisy environment.

MONITORING METHODOLOGY

Air Quality-Construction

24hr monitoring of particulates (using an Areocet 531) as well as visual assessment of site activities during site visits will assist in identifying problem dust release. Daily ad hoc measurements by UGCC of dust levels using a particle mass counter referenced to a nearby control location will also quantify any potential issues on an ongoing basis. Visual assessment should be undertaken daily from the edge of the krookie boundary to enable effective mitigation implementation.

Testing of point source air emissions will be Ringelmann inspections for each of the stationary sources to identify efficiency of fuel combustion. Failure to achieve the agreed emission parameters and efficiency will instigate an upgrade and/or maintenance of the stationary source. All sources shall be inspected at regular intervals and replaced as necessary to ensure acceptable performance (i.e. that the design criteria with regard to emission standards are met). Results of these tests will be provided to SEZAD for comment every quarter.

Noise-Construction

Construction noise will be assessed on a monthly basis using a handheld noise meter to test ambient noise levels on a regular basis. Locations will be positioned along each boundary side at four locations (north, east, south, and west) where the noise levels can be monitored at the site boundary to confirm the levels are compliant with MD 79/94. Noise levels will be compared to baseline measurements conducted whilst no construction activities are present.

Noise will also be monitored on site near noisy construction equipment / activities on a monthly basis in order to compare with acceptable noise levels in the workplace as provided by MD 80/94. To determine the noise monitoring locations, a mapping of noisy construction equipment and activities will be developed and maintained.

ACTION/LIMIT LEVELS

Air Quality-Construction

Action will be taken when it is obvious that significant amounts of dust are being disturbed into the air. Particle mass counter results which are significantly greater within the working zone compared to the control location will also identify that action needs to be taken. Limit Levels have been reached when visibility is impaired by dust and working condition have become unhealthy, difficult and dangerous and dust is seen to be above reasonable thresholds at receptor sites.

Limit Levels for source emissions will be set by Omani legislation (MD 118/2004) for point source emissions (SPM-0.05 mg/m^3, SOx-0.035 mg/m^3, CO-0.05 mg/m^3, and NOx-0.15 mg/m^3). SEZAD may set additional Limit Levels of other emitted constituents as part of the environmental permit. Action Levels will be set by Client / PMC based on what is achievable and allows sufficient scope for mitigation before the Limit Level is reached.

Noise-Construction

Limit Levels will be set by Omani legislation (MD 79/1994 and MD 80/1994). Therefore noise levels at the site boundary should be less than 70 dB (A) and noise levels in the working areas less than 85 dB (A). Action Levels will be set by Client / PMC based on what is achievable and allows sufficient scope for mitigation before the Limit Level is reached.

EVENT AND ACTION PLANS

Air Quality-Construction

Achievement of the Action Levels will instigate implementation of the mitigation strategy for dust suppression. Following exceedance of the Limit Level construction will stop and additional mitigation put in place which provides a suitable working environment for the construction workforce (e.g. dust masks and goggles).

In the event that the Action Levels are achieved the following procedure will be followed by UGCC:

- Repeat the monitoring measurements to ensure their accuracy;
- Identify the source/reason of impact;

- Implement the proposed mitigation methods.

In the event the Limit Levels are exceeded the same procedure will be followed, however the offending emission will be stopped, through cessation of work, following confirmation that the threshold had been breached.

Noise-Construction

Achievement of the Action Levels will instigate implementation of the mitigation strategy (e.g. PPE for workers). Following exceedance of the Limit Level construction will stop and additional mitigation put in place which provides a suitable working environment for the construction workforce (e.g. silencers on equipment).

WASTE MANAGEMENT

Waste streams from the construction phase will include:

- Non-hazardous solid waste;
- Hazardous solid waste;
- Non-hazardous liquid waste ;
- Hazardous liquid waste; and
- Inert construction waste.

Various types of waste will be generated during the construction phase and will be listed and classified depending on their physical status (solid / liquid), category (inert / non-hazardous / hazardous) and final destination (reuse / recycle / recover / treat / landfill). Based on this detailed inventory, wastes will be sorted at the source to ensure appropriate segregation and storage depending on physical status, dangerousness and disposal method.

For most waste streams, classification as hazardous or non-hazardous will be straightforward and will help determine, along with other waste characteristics, how the waste will be disposed of. For some of the waste streams however, additional monitoring / analysis may be required to identify whether the waste is considered hazardous or not, as it may depend on the concentration of certain composition parameters.

MONITORING METHODOLOGY

The waste streams will be kept separate and temporarily stored within a hazardous containment zone that will prevent contamination of the environment. If in doubt the waste will be tested by taking representative samples and sending them to a laboratory for analysis. The

waste will be tested to check whether it is hazardous or not, as defined by MECA guidelines and the Basel Convention. If required, waste sampling and analysis will conform to standard laboratory methods (USEPA, ASTM, APHA or equivalent), and will be performed by a laboratory accredited to ISO 17025:2005 *General requirements for the competence of testing and calibration laboratories*.

If waste is found to be hazardous it will be recorded and stored appropriately in the hazardous storage area until it can be removed off-site to an approved facility in Oman. All non-hazardous waste will be removed and stored in a separate designated area for reuse, recycling or disposal to landfill. A Waste Log-book and consignment notes will be established to ensure that wastes (hazardous and non-hazardous waste) are placed at the approved location(s) and treated and/or disposed of as required.

The spreadsheet outlined in Appendix F will be used to record waste volumes.

ACTION/LIMIT LEVELS

No Action/Limit Levels can be assigned for this parameter because monitoring will only return a result of 'hazardous' or 'non-hazardous'. This result will dictate what method of disposal must be applied.

EVENT AND ACTION PLANS

Hazardous waste will require storage, management and disposal. At this stage there is no disposal facility for hazardous solid waste in Oman. Hazardous waste will be stored at a designated site within the UGCC site (or an approved storage site advised by Client/PMC). MD 18/93 requires that a consignment note is sought for the transportation and storage of hazardous waste. A manifest will accompany each trip, which includes the results of the parameter tests required by MECA. The tests that are required are determined by the type of waste that is under investigation. Therefore if in doubt MECA shall be consulted to understand what tests they require for each waste stream.

No constraints will be placed on what could be done with the waste if it is considered non-hazardous. UGCC will store the waste on site. Metals, oils and other recyclable construction waste can be sold to an external buyer. All remaining waste streams will be sent to an approved landfill.

SOCIO-ECONOMICS

The monitoring of air/noise quality and waste management is considered sufficient to monitor the socio-economic parameter.

The following are potential sensitive receptors which have been identified from site visits.

- Oman Dry Dock Company – particularly in regards to how dust could affect painting works
- Galfar Camp – located adjacent to the IP3 area
- Strabag Camp – located further inland from the IP3 area
- UGCC Camp – located behind the Strabag camp

Should further monitoring and reporting be required at sensitive receptors EPO will instruct the ET accordingly.

Ecology

Bird and wildlife monitoring shall be conducted by UGCC during monthly site visits. Particular vigilance should be made to the management of food waste – it should be kept in enclosed bins to avoid attracting animals.

Land use, Landscape and Visual Amenity

Monitoring is not considered necessary for this environmental parameter.

Cultural Heritage

Should cultural heritage (archaeology) be identified during the project, work shall cease in the location and the Ministry of Heritage and Culture shall be notified immediately.

Monitoring Activities Summary

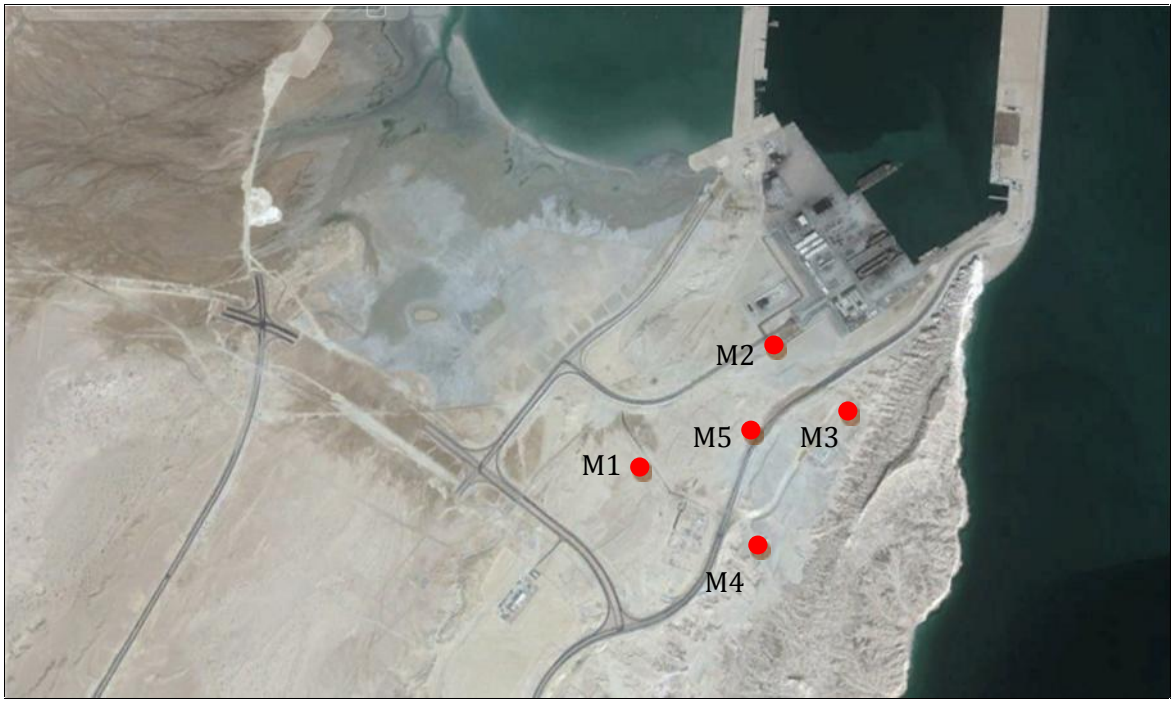
The below table summarizes the site monitoring activities to be conducted on site during the construction phase.

Table 0-1: Site Monitoring Activities Summary

CEMP Action Plan	Activity by UGCC	Activity by 5OES
AP 1 :Reduce Impacts from Excavation and deposition of fill, levelling and compacting	Weekly 24hr dust monitoring of 4 nr site boundary locations. 3 hourly monitoring of wind speed using UGCC met station, compared with visual inspection of dust. Wind speed dust generation threshold to be establish to inform dust suppression programme.	Quarterly 24hr dust measurement using Met One Areocet particulate monitor (location to be determined) for verifications purposes.
AP 2: Reduce Impacts from Rock Breaking	Weekly noise measurement at 4 key boundary locations (Leq(dBA), Lmax (dBA)). Weekly spot check noise measurements with respect to MD79/94 especially during rock breaking using hand held noise meter (Bruel Kjaer 2238/ 2250 or equivalent).	Quarterly noise measurement at four boundary locations(to be determined) using hand held noise meter (Bruel Kjaer 2238/ 2250 or equivalent).
AP 3: Reduce Impacts from Waste Generation and Disposal	Monthly recording of waste volumes as per proforma provided.	Quarterly reporting of waste volumes and audit of waste management practice
AP 4: Reduce Impacts from Fuel	Weekly inspection of fuel	Quarterly audit of fuel and

Storage, Refuelling and Chemical Handling	and chemical handling practice	chemical handling practice
AP 5: Reduce Impacts from Material and Resource Usage	Monthly review of procurement procedures and resource handling. Recording of consumption via the waste and resources tracking spreadsheet.	Quarterly audit of site practice Quarterly reporting of emissions produced from fuel consumption.

Table 0-2: Location Map for Monitoring activities



The above table shows the approximate locations of the 5 monitoring station labelled M1-M5. These are positioned at or near the boundaries of the site with M5 being in the centre. The exact location of the station will depend on determining a safe and secure location. The GPS location of the station will be recorded in the reporting spreadsheet enclosed in Appendix F.

ENVIRONMENTAL TRAINING AND AWARENESS RAISING

Environmental training will be carried out via the following methods:

ENVIRONMENTAL PROTECTION OFFICER

Suitable training will be given to provide the Environmental Protection Officer with requisite skills to carry out his duties. This will typically be 5 days dedicated Environmental training accredited to IEMA or equivalent. This may include training on developing waste management facilities, supervising environmental monitoring works (air and noise in particular).

5.2 SITE INDUCTIONS

Site inductions begin with a focus on safety issues but will include a section on the Environmental Impacts including the basic rules for waste management and chemical handling. The site induction will include section to identify the geographic location of the following Waste Management facilities (hazardous and non-hazardous), concrete washout facility, water abstraction point, chemical store and the fuel storage location. The site induction will include a section on what to do in the event of an environmental emergency (such as an oil spill or a fire) and preventatives practices and observations that can be taken to avoid such emergencies.

5.3 Tool Box Talks

Tool box talks are brief, 5-10 minute, once a day or once a week explanation to labourers or workers in language and means that they understand one safety or environmental aspects that are critical to their workplace. An example might be a tool box talk on how to refuel vehicles in a safe and responsible manner to avoid spills.

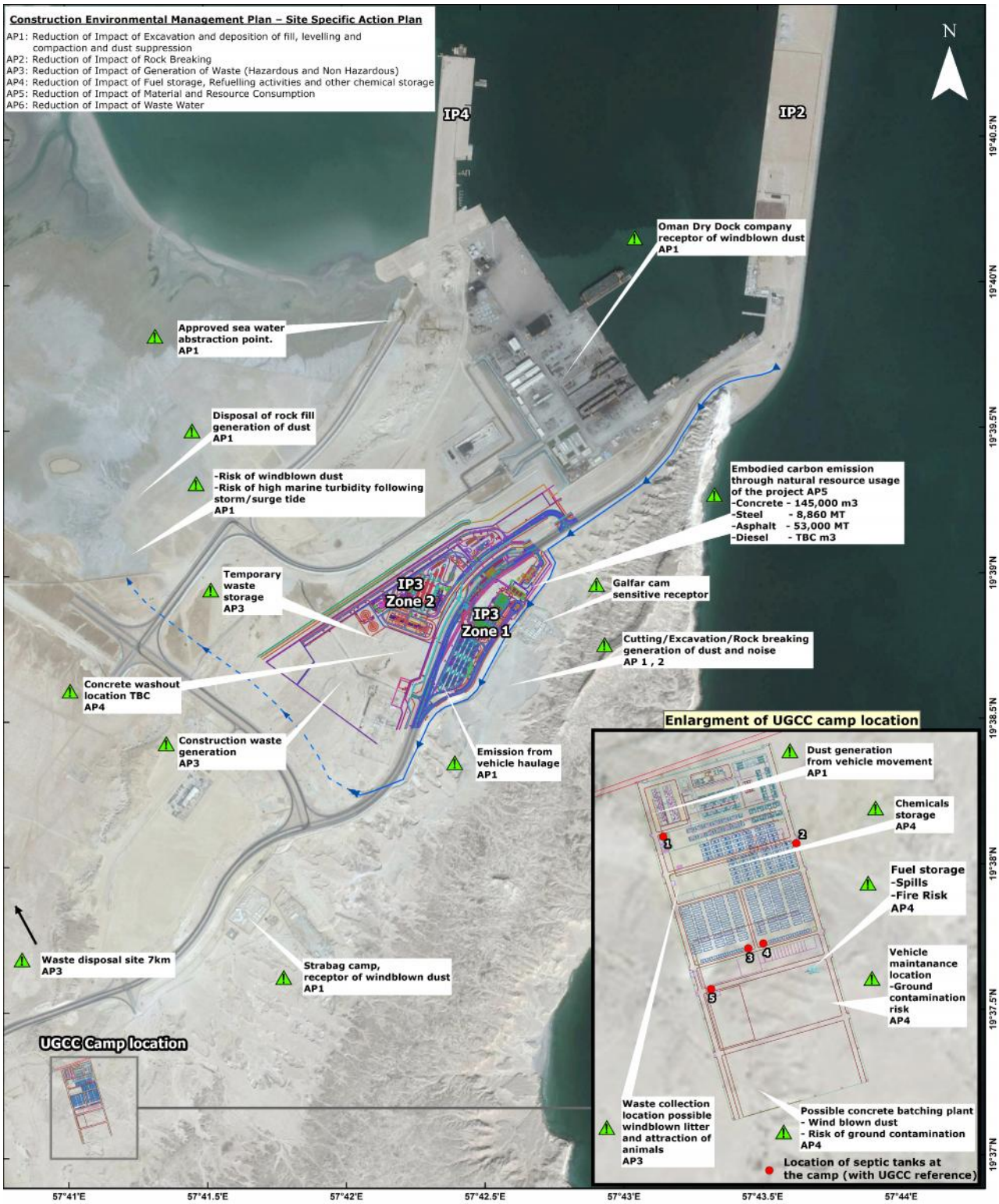
5.4 ENVIRONMENTAL AWARENESS CAMPAIGNS/EVENTS

These will be organised on, for example and annual basis and will be the means by which a large number of people in the space of a few hours are taken out of their daily work environment and given an explanation on the importance of key aspects of the project. Participatory style events such as workshops, beach clean ups, team building events, tree planting, etc. are preferred to a lecture style approach in this case.

The appended Environmental Risk Map will aid in the training and awareness raising to staff of key environmental issues. Also appended is an Environmental training register to be used to record all training events.

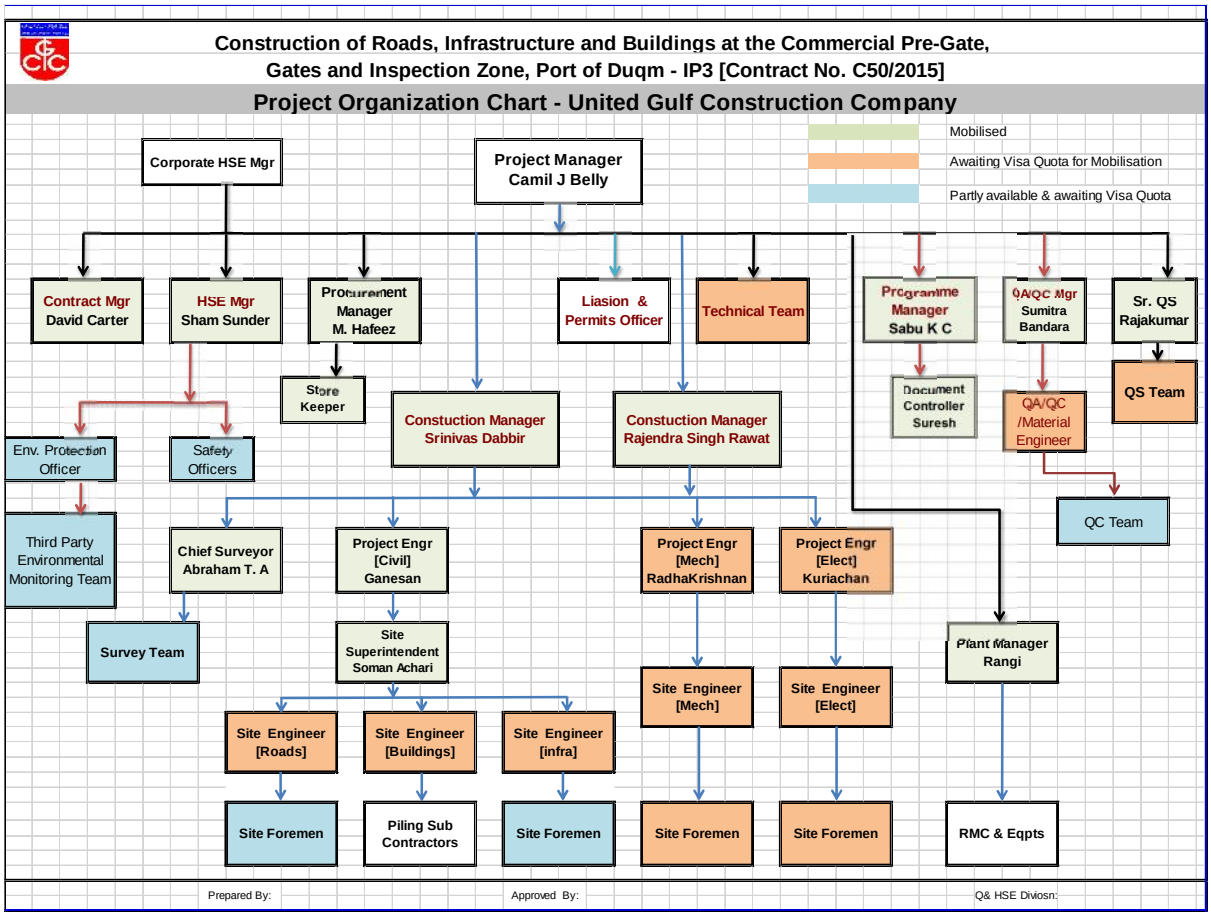
APPENDIX A ENVIRONMENTAL RISK MAP

The following risk map is an integral part of this CEMP is visual display to be used in training, inductions and printed at large scale on the site cabin walls to provide a visual reference to the CEMP.



KEY PLAN Oman	LEGEND Environment risk Surface water culvert	NOTES 1 This Environmental Risk Map is part of the Construction Environmental Action Plan (CEMP).The purpose of the map is to provide visual reference to the CEMP, to be displayed in large scale on site cabin walls and to assist with HSE inductions / traing. 2. AP refers to Action Plan in section 3 of the CEMP	SCALE 0 250 500 m REFERENCE DRAWINGS UGCC - IP3- BT- LOC-01	CLIENT Special Economic Zone Authority, Port of Duqm	CONTRACTOR Gulf Construction Company LLC ENVIRONMENTAL CONSULTANCY	PROJECT: CONSTRUCTION OF ROADS, INFRASTRUCTURE & BUILDINGS AT THE COMMERCIAL PRE-GATE, GATES & INSPECTION ZONE, PORT OF DUQM PACKAGE IP3: DRAWING TITLE **ENVIRONMENTAL RISK MAP REV 2** (CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN)

APPENDIX B UGCC ORGANISATIONAL CHART



APPENDIX C ENVIRONMENTAL TRAINING REGISTER

Environmental Training Register
This training presence list shall be prepared by the Environmental Protection Officer (EPO) and signed by every trainee for each environmental training or awareness session.
Training Information
Type of training: Pre-construction Environmental Induction ☐ Weekly Awareness / Toolbox Talk Topic:……
Training date and time:

List of Attendees

N°	Name	Position	Present (Y/N)	Signature if present	Justification if absent
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

APPENDIX D ENVIRONMENTAL COMPLAINTS REGISTER

Complaint Form	
This form will be used by anyone receiving a third party complaint related to environmental aspects of the Project's construction activities. After having taken immediate corrective action (as applicable), please complete this form and return it to the Environmental Protection Officer (EPO).	
Complaint Description	
Date of complaint:	**Time of complaint:**
Contact details of complainant:	**Complaint form*:**
Area/activity concerned:	**Precise location:**
Complaint description:	
Immediate actions taken further to complaint (if any):	
Suggested preventive/corrective actions:	
Completed by	
Name:	**Position:**
Date and time:	**Signature:**
Received by EPO	
Date and time:	**Signature:**
Summary Outcomes of Investigation	
Root causes generating the complaint:	
Proposed preventive/corrective actions: (Refer to the full investigation report for details as applicable)	
Reviewed and Approved by UGCC	

Name:	**Position:**
Date:	**Signature:**
Notification to Client/PMC: Y / N	**Date notification:**
Date of formal response to complainant:	

* Post, email, phone calls, direct discussion, other

APPENDIX E ENVIRONMENTAL INCIDENT REPORTING FORM

Environmental Incident Reporting Form	
This form will be used by any Project member identifying an environmental non-conformance or incident. After having taken immediate corrective action (as applicable), please complete this form and return it to the Environmental Protection Officer (EPO).	
Non-Conformance / Incident Description	
Date of identification:	**Time of identification:**
Area/activity concerned:	**Precise location:**
Non-conformance / incident description:	
Apparent cause (if known):	
Immediate actions taken (if any):	
Suggested preventive/corrective actions:	
Completed by	
Name:	**Position:**
Date and time:	**Signature:**
Received by EPO	
Date and time:	**Signature:**
Summary Outcomes of Investigation	
Root causes of the non-conformance / incident:	
Proposed preventive/corrective actions: (Refer to the full investigation report for details as applicable)	

Reviewed and Approved by UGCC	
Name:	**Position:**
Date:	**Signature:**
Notification to Client/PMC: Y / N	**Date of notification:**

APPENDIX F UGCC ENVIRONMENTAL REPORTING SPREADSHEET

(Extracts are shown below only)

UGCC Environmental Report 2016

Activity report

(All inputs of subcontractors working for the main contractor must be included)

Activity on site	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Staff - employed	People												
Staff - subcontractors	People												
Excavator (greater that 15 Tonnes)	Nr												
Excavator (less than 5 tonnes)	Nr												
Bulldozer	Nr												
Tipper Truck	Nr												
Water Bowser	Nr												
Buses	Nr												
Large stationary generators	Nr												
Small mobile generators	Nr												
Lightweight Equipment (eg pumps, tower lights, vibrators etc.)	Nr												
Environmental Incidents/Near Miss:	Nr of incidents												

UGCC Environmental Report 2016

Waste Report

(All inputs of subcontractors working for the main contractor must be included)

Non-Hazardous Waste			Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec			
Type of Waste	Parameter	Units	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Annual average Recycled/ Reused	Disposal Location
Non Hazardous Construction Waste																												
	Wood	Tonnes																									#DIV/0!	
	Concrete/Demolition Waste	Tonnes																									#DIV/0!	
	Metal (excluding drums)	Tonnes																									#DIV/0!	
	Plastic (excluding drums)	Tonnes																									#DIV/0!	
	Green Waste	Tonnes																									#DIV/0!	
Non Hazardous Office/Domestic Waste																												
	Paper / cardboard	Tonnes																									#DIV/0!	
	Aluminium Cans	Tonnes																									#DIV/0!	
	Toner cartridges	Tonnes																									#DIV/0!	
	Plastic	Tonnes																									#DIV/0!	
	Kitchen Waste	Tonnes																									#DIV/0!	
Hazardous Waste																												
Oily waste	Used Oil	m^3																									#DIV/0!	
	Waste/Spent Lubricants	m^3																									#DIV/0!	
	Tank & Other sludges	m^3																									#DIV/0!	
	Contaminated oily sand/soil	Tonnes																									#DIV/0!	
Chemical Waste	Waste chemicals - solid	Tonnes																									#DIV/0!	
	Waste Chemicals - liquid	m^3																									#DIV/0!	
	Contaminated metal/ plastic drums	Units																									#DIV/0!	
	Paint Tins	Units																									#DIV/0!	
Other	Vehicle Batteries	Units																									#DIV/0!	
Medical Waste (if any)	Clinical Wastes	Tonnes																									#DIV/0!	

UGCC Environmental Report 2016

Resources Report

(All inputs of subcontractors working for the main contractor must be included)

Fuel Usage:			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Diesel for vehicles/plant	m^3												
	Petrol for vehicles/plant	m^3												
	Diesel for Pumps/Tower Lights etc.	m^3												
	Diesel for Generators	m^3												
	Total deisel/petrol used	m^3												
Electricity Usage:														
	Municipality connection - average monthly usage	kw												
	Electricity generated on site	kw												
Water and Waste Water														
	Potable Water Used	m^3												
	TSE used for dust suppression	m^3												
	TSE used for irrigation	m^3												
	Sewage	m^3												
Concrete used in project														
	Blinding concrete	m3												
	Stuctural concrete	m3												
Steel used in project														
	Reinforcing bar	Tonnes												
	Structural steel	Tonnes												
Asphalt used in project														
	Asphalt used in project	Tonnes												
Ozone Depleting Substances (ODS) used in project														
	Nr of air conditioning units using ODS (e.g R22)	Units												
	Nr of refrigerators units using ODS	Units												
	Other source of ODS	Units												

UGCC Environmental Report 2016

Noise Report

Month	Location	Location (GPS Coordinate)	LA Eq (db)	LA max (db)	LA min (db)	Duration of reading	Weather conditions	Wind speed	Site Observations (Activity on site)
Jan	M1								
	M2								
	M3								
	M4								
	M5								
Feb	M1								
	M2								
	M3								
	M4								
	M5								
Mar	M1								
	M2								
	M3								
	M4								
	M5								
Apr	M1								
	M2								
	M3								
	M4								
	M5								
May	M1								
	M2								
	M3								
	M4								
	M5								
Jun	M1								
	M2								
	M3								
	M4								
	M5								
Jul	M1								
	M2								
	M3								
	M4								
	M5								
Aug	M1								
	M2								
	M3								
	M4								
	M5								
Sep	M1								
	M2								
	M3								
	M4								
	M5								
Oct	M1								
	M2								
	M3								
	M4								
	M5								
Nov	M1								
	M2								
	M3								
	M4								
	M5								
Dec	M1								
	M2								
	M3								
	M4								
	M5								

APPENDIX G SEZAD ENVIRONMENTAL PERMITS

The following SEZAD environmental permits are appended here

Ref:	Permit Number	Permit name	Frequency of renewal	Expiry data
1	15/TBH/2016/0088	Permit for the Construction area of IP3	Annual	09.01.18
2	25/TBH/2016/1/103	Permit for Site Accommodation and Facilities	Bi Annual	09.01.18
3	35/TBH/2016/1/0109	Permit for Extraction of Seawater	Bi Annual	09.01.18