Initial Environment Examination

Project Number: 40648-034
October 2016

IND: Infrastructure Development Investment Program for Tourism - Tranche 3

Sub Project : Establishment of Tourism facilities and Infrastructure Showcasing of Sikh culture – Interpretation Centres at MRS Treaty Site (Package no. PB/IDIPT/T3/07/08 (Lot 2))

Submitted by

Program Management Unit, Punjab Heritage and Tourism Board, Chandigarh

Asian Development Bank

RWS

For logging P/s.
Nilesh Kr./VV

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Infrastructure Development Investment Programme for Tourism (IDIPT)
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No. PB/IDIPT/2016/2671-77

Dated: 06/9/16

Project: Loan 3223-IND: Infrastructure Development Investment Programme for Tourism (IDIPT)-Establishment of Tourism facilities and Infrastructure Showcasing of Sikh culture-Interpretation Centres at MRS Treaty Site- Package no: PB/IDIPT/T3/07/08 (Lot 2)

Subject: Submission of Initial Environmental Examination (IEE) Report

The Initial Environmental Examination (IEE) Report for the contract Package PB/IDIPT/T3/07/08 (Lot 2) seeking ADB'S concurrence is hereby enclosed with this letter for your approval.

Project Director

CC:

1. PA to PD, IDIPT-PB
2. CGM, PHTPB
3. FCS,IDIPT-PB
4. TL, PMC, IDIPT-PB
5. TL DSC, IDIPT-PB
6. ESS,IDIPT-PB

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Initial Environmental Examination

Project Number: 40648-023
ADB loan Number: 3223-IND
October 2016

Infrastructure Development Investment Program for Tourism (IDIPT) - Punjab

Subproject – Establishment of Tourism Facilities and Infrastructure showcasing of Sikh Culture (Lot-2) - Interpretation Centre at MRS Treaty Site, Rupnagar, Punjab

(Package no: PB/IDIPT/T3/07/08)

Prepared by the Government of Punjab

ABBREVIATIONS

ADB	–	Asian Development Bank
CTE	–	Consent to Establishment
CTO	–	Consent to Operation
DSC	–	Design and Supervision Consultants
EA	–	Executing Agency
EAC	–	Expert Appraisal Committee
EARF	–	Environmental Assessment Review Framework
EIA	–	Environmental Impact Assessment
EMP	–	Environmental Management Plan
GoI	–	Government of India
GoP	–	Government of Punjab
GRC	–	Grievance Redress Committee
IDIPT	–	Infrastructure Development Investment Program for Tourism
IEE	–	Initial Environmental Examination
MC	–	Municipal Council
MOEF&CC	–	Ministry of Environment, Forest and Climate Change
NGO	–	Non-Governmental Organization
NoC	–	No Objection Certificate
O&M	–	Operations and Management
PEPSU	–	Patiala and East Punjab State Union Government
PHTPB	–	Punjab Heritage and Tourism Promotion Board
PIU	–	Project Implementation Unit
PM	–	Particulate Matters
PMC	–	Project Management Consultants
PPCB	–	Punjab Pollution Control Board
PUC	–	Pollution Under Control
PMU	–	Project Management Unit
REA	–	Rapid Environmental Assessment
SEAC	–	State Expert Appraisal Committee
SLEC	–	State Level Empowered Committee
SPM	–	Suspended Particulate Matter
SPS	–	Safeguards Policy Statement
TMP	–	Traffic Management Plan
TDS	–	Total Dissolved Solids
TSS	–	Total Suspended Solids
UNWTO	–	United Nations World Tourism Organization

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1. **Background.** The Infrastructure Development Investment Program for Tourism Financing Facility (the Facility) will develop and improve the basic urban infrastructure and services in the four participating states of Himachal Pradesh, Punjab, Uttarakhand and Tamil Nadu to support the tourism sector as a key driver for economic growth. It will focus on:

a. Strengthening connectivity to and among key tourist destinations;
b. Improving basic urban infrastructure and services, such as water supply, road and public transport, solid waste management and environmental improvement at existing and emerging tourist destinations to ensure urban amenities and safety for the visitors and to protect nature and culture-based attractions; and
c. Physical infrastructure investments will be accompanied by capacity building programs for concerned sector agencies and local communities for better management of the tourist destinations and for more active participation in the tourism-related economic activities, respectively.

2. Rupnagar (Ropar) district falls between north latitude 30°32' and 31°24' and east longitude 76°18' and 76°55'. Rupnagar (formerly known as Ropar) townthe district headquarters is 42 kilometres (km) from Chandigarh. The district comprises of 4 Tehsils[1]: Rupnagar, Anandpur Sahib, Nangal and Chamkaur Sahib, and includes 624 villages and 6 towns (Rupnagar, Chamkaur Sahib, Anandpur Sahib, Morinda, Kiratpur Sahiband Nangal). The Maharaja Ranjit Singh Treaty site (proposed site) is in Rupnagar, the site has a historical significanceas it is a venue for signing of the historic Ropar Treaty between Maharaja Ranjit Singh and British Governor General Lord William Bentinck on 26th October 1831. The treaty was signed to settle various boundary issues between them. Rupnagar is also an ancient place and there is a 21 metre high ancient mound overlaying the Shiwalik (also spelt as Sivalik or Shivalik) deposition on the left bank of the river Sutlej where it emerges into the plains. Hence to promote the local tourism, Department of Tourism (DoT) has initiated to improve the basic infrastructure facilities surrounding the MRS Treaty site.

3. **Executing and implementing agencies.** The executing agency is the Department of Tourism (DoT), Punjab. The implementing agency is the Punjab Heritage and Tourism Promotion Board (PHTPB), Punjab. Project Management Unit (PMU) is set up at Chandigarh to coordinate the overall project execution and is supported by the Project Management Consultant (PMC). Project Implementation Unit (PIU) is set up at Rupnagar and it is supported by Design Supervision Consultant (DSC). For this subproject, the Department of Cultural Affairs, Archaeology and Museums, Punjab is the asset owner of MRS Treaty site at Rupnagar.

4. **Categorization.** The proposed sub-project is classified as Environmental Category “B” as per the Safeguard Policy Statement (SPS), 2009 as no significant impacts are envisioned. Accordingly this Initial Environmental Examination (IEE) has been prepared which assesses the environmental impacts and provides appropriate mitigation and monitoring measures.

[1] A tehsil (also known as tahsil, tahasil, taluka, taluk, or taluq) is a unit of government i in the Republic of India - it is similar to a county. It usually consists of a town (possibly more towns) and the villages around the towns.

5. **Subproject Scope.**The major scope of this subproject is the Improvement of Maharaja Ranjit Singh Treaty Signing Sites where a historical treaty was signed between Maharaja Ranjit Singh and Lord William Bentinck. The proposed interventions include :

- Improvement of Maharaja Ranjit Singh Treaty Signing Sites
- Improvement of the treaty signing path
- Improvement of Maharaja Ranjit Singh Bagh (Garden)

6. **Description of the Environment.**Maharaja Ranjit Singh's treaty signing site is located in the northern side of Rupnagar town. The subproject site is known for its scenic beauty and it has been developed as a memorial park. The site is bounded from North, West and East by River Sutlej. Towards the east of the site along the banks of river Sutlej, Sadabarat nature trail and Ropar wetlands (Ramsar Site) are located which is home to migratory birds. The site can be accessed through Phagwara-Mohali Highway and an approach road connecting expressway. Except Ropar wetlands (Ramsar Site), there are no protected areas including wildlife sanctuaries, Reserved forest or Protected forests, within or adjacent to the subproject sites.

7. **Environmental Management.** An Environmental Management Plan (EMP) is included as part of this IEE, which includes (i) mitigation measures for the identified environmental impacts, which are likely to arise during the project implementation; (ii) an environmental monitoring program, and the responsible entities/ agency for implementing the mitigation measures monitoring measures and reporting mechanism; (iii) public consultation and information disclosure; and (iv) grievance redress mechanism. The EMP will be included in the civil work bidding and contract documents for effective implementation.

8. For the proposed interventions, suitable design options were considered for reducing the anticipated environmental impacts. The adopted design options are

- Design and material will be compatible to the local architectural, physical, cultural and landscaping elements;
- Preference will be given to the use of local material and labour as faras possible;
- For conservation, local construction material available in the nearby region as faras possible suiting to those in existence;
- The paints having low volatile organic compounds (VOC's) shall be used for all painting work(interior and exterior)
- Earth backfill(if any) will be done from the site excavated material; and
- Ensuring all planning and design interventions and decisions are made in consultation with the local communities and reflecting inputs from public consultation.

9. During the construction phase, impacts may arise when tourists/visitors are unable to visit the MRS treaty site due to the ongoing construction work, water pollution impacts to the River Sutlej may arise due to the run-off from the construction activities, the construction activities shall have an impact on the flora and fauna especially for the migratory birds (if the construction activities are carried out during the birds migratory season). These are common impacts of construction activities and there are well developed methods for their mitigation. Mitigation measures such as conducting construction work shall be carried out in the tourism off season and minimizing inconvenience by best construction methods/ techniques will be employed to reduce the anticipated impacts on the avifauna and tourists/ visitors. In the operational phase, all the infrastructure facilities will be operational followed by routine

maintenance, which should not affect the environment. The anticipated environmental impacts during the operation period will be much less than those of the construction period for those facilities that needs to be repaired from time to time thus affecting local areas. .

10. Mitigation measures have been developed to reduce the negative impacts. Mitigation measures will be assured by the environmental monitoring program, which is to be conducted during the subproject construction. The environmental monitoring program will ensure that all mitigation measures are implemented and will determine whether the environment is protected as intended. It will include observations on and off-site, document checks, and interviews with workers and beneficiaries. Any requirements for corrective action will be reported to the ADB.

11. The tourists/ visitors, commercial establishments (shops, hotels etc.,) surrounding the MRS Treaty site and the local people/ communities will be the major beneficiaries of the project. The proposed subproject will improve access to reliable and adequate tourism facilities and propagate the local traditions and Cultural Heritage of the state. This subproject will provide a common platform for local traditions and values; provide and improve business opportunities for local communities linked to the cultural and natural heritage tourism.

12. **Consultation, Disclosure and Grievance Redress.** The Stakeholder Consultations and Public Consultations were involved in developing the IEE through discussions; the views that were expressed were incorporated into the IEE as well as in the planning and development of the subproject. The IEE will be made available at public locations in the town and will be disclosed to a wider audience via the ADB and PHTPB websites. The consultation process will be continued and expanded during project implementation to ensure that stakeholders are fully engaged in the project and have the opportunity to participate in its development and implementation. A grievance redress mechanism is described within the IEE to ensure any public grievances are addressed quickly.

13. **Monitoring and Reporting.** The PIU and DSC will be responsible for performing environmental monitoring and they will be supervised by the PMU and PMC. The PIU with support from the DSC will submit quarterly and Semi-annual monitoring reports to the PMU. The PMU will consolidate the Semi-annual reports in assistance of PMC and will send it to ADB. ADB after approval will post the environmental monitoring reports on its website.

14. **Conclusions and Recommendations.** The proposed subproject is unlikely to cause majorenvironmental impacts. The anticipated negative impacts that are associated with design, construction and operation can be mitigated/ minimized through proper engineering design and the incorporation or application of recommended mitigation measures and procedures. Based on the findings of the IEE, it shall be concluded that there are no significant environmental impactsin implementing this subproject and accordingly the subproject is classified as Category “B” project (as per SPS, 2009) and further study or detailed. Environmental Impact Assessment (EIA) is not required.

I. INTRODUCTION

15. **Background.** The Infrastructure Development Investment Program for Tourism Financing Facility (the Facility) will develop and improve basic urban infrastructure and services in the four participating states of Himachal Pradesh, Punjab, Uttarakhand and Tamil Nadu to support the tourism sector as a key driver for economic growth. It will focus on:

(i). Strengthening connectivity to and among key tourist destinations; and
(ii). Improving basic urban infrastructure and services, such as water supply, road and public transport, solid waste management and environmental improvement, at existing and emerging tourist destinations to ensure urban amenities and safety for the visitors, and protect nature and culture-based attractions.

16. Physical infrastructure investments will be accompanied by capacity building programs for concerned sector agencies and local communities for better management of the tourist destinations and for more active participation in the tourism-related economic activities, respectively.

17. The subproject is a part of Eastern Circuit. The eastern circuit connects the pilgrimages, historical and natural tourism sites located in Patiala, Fatehgarh Sahib, Chandigarh, Rajpura, Rupnagar, Ghanouli, Kiratpur, and Nangal. The Circuit is linked to the south eastern end of the Western Pilgrimage and Ecotourism Circuit in Punjab and is the main route to access this Circuit from the south. Chandigarh is the main air, rail and road gateway for the corridor, as well as the main overnight centre for travel in and around it. (*Source: As per Punjab Tourism Development Master Plan, 2008-2023; United Nations World Tourism Organization (UNWTO)*).

18. Maharaja Ranjit Singh's Treaty Site is located towardsthe north of the Rupnagar Town and adjacent to the bank of the river Sutlej. The Rupnagar town, the areas surrounding the River Sutlej and the water bodies from Rupnagar Barrage to the Bhakhra Dam is bestowed with variety of natural, historic and cultural resources with excellent potential for attracting tourists.

19. The town was the venue for the signing of the historic Ropar Treaty between Maharaja Ranjit Singh and British Governor General Lord William Bentinck on 26thOctober 1831. The treaty was signed to settle various boundary issues between them.

20. **Executing and Implementing Agencies.** The executing agency is the Department of Tourist (DoT), Punjab. The implementing agency is the Punjab Heritage and Tourism Promotion Board (PHTPB) Punjab. Project Management Unit (PMU) is set up at Chandigarh to coordinate the overall project execution. Project Management Consultant (PMC) at Chandigarh provides assistance to PMU in the project execution. Project Implementation Unit (PIU)is set up at Rupnagar and it is supported by Design Supervision Consultant (DSC). For this subproject, the Department of Cultural Affairs, Archaeology and Museum, Govt. of Punjab is the asset owner for Maharaja Ranjit Singh Treaty site.

21. **Proposed subproject:** The major scope of this subproject is the Improvement of Maharaja Ranjit Singh Treaty Signing Site where a historical treaty was signed between Maharaja Ranjit Singh and Lord William Bentinck. The proposed interventions includes:

- Improvement of Maharaja Ranjit Singh Treaty Signing Sites
- Improvement of the treaty signing path

- Improvement of Maharaja Ranjit Singh Bagh (Garden)

22. **Categorization.** As per the Asian Development Bank's (ADB) Safeguard Policy Statement 2009 and in line with the Environment Assessment & Review Framework (EARF), the proposed sub-project is categorized as 'B' and accordingly an Initial Environmental Examination (IEE) has been prepared. The IEE was based on the review of sub-project site plans, reports, field visits, secondary data (to characterize the environment and identify potential impacts), interviews and discussions with stakeholders.

23. **Purpose of the IEE.** This report gives an account of the Initial Environmental Examination (IEE) of the subproject as per Detailed Design. The environmental impacts for this contract package are primarily related to construction activities. The proposed construction activities are selected considering the historical and cultural value of the city. There will be construction impacts associated with proposed civil and conservation works but these will be of limited intensity and of short duration. Therefore, as per the Asian Development Bank's (ADB) Environmental Assessment Guidelines (SPS 2009), the sub-project components are categorized as 'B' and accordingly an IEE has been prepared. This IEE provides mitigation measures for impacts related to location, design, construction, operation, and maintenance. The REA checklist is attached as **Annexure-1** with this report.

II. DESCRIPTION OF THE SUB PROJECT

A. Existing Condition and Need of the Subproject

24. **Location:** Maharaja Ranjit Singh's treaty signing site is located in the outskirts of Rupnagar town. Rupnagar district lies between north latitude 30°-32' and 31°-24' and east longitude 76°-18' and 76°-55'. Rupnagar (formerly known as Ropar) town, the district headquarters is 42 km from Chandigarh. The district adjoins Shahid Bhagat Singh Nagar (formerly known as Nawanshahar), Mohali and Fatehgarh Sahib Districts of Punjab. The proposed site is bounded from north, west and east by River Sutlej. The Sadabarat trail and Ropar wetland (known for bird watching) are located towards east of the subproject site. The site can be accessed through Phagwara-Mohali Highway and an approach road connecting expressway.

25. **Brief History:** The site has a historical significance being a venue for signing of the historic Ropar Treaty between Maharaja Ranjit Singh and British Governor General Lord William Bentinck on 26th October 1831. The treaty was signed to settle various boundary issues between them. Rupnagar is also an ancient place and there is a 21 metre high ancient mound overlaying the Shiwalik (also spelt as Sivalik or Shivalik) deposition on the left bank of the river Sutlej where it emerges into the plains. It has yielded a sequence of six cultural periods or phases with some breaks from the Harappan times to the present day. The excavations were carried out by Dr. Y.D. Sharma of Archaeological Survey of India. The migration of the Harappans to Rupnagar has been postulated through the lost Saraswati River to the Sutlej as both rivers once belonged to one system. Several pieces of seal, pottery, terracotta bangles, stones, glass, bone arrowheads, coins and copper materials, bricks etc. of different ages from Indus civilization period to Gupta periods were recovered from Rupnagar. Probably after desertion, a new town sprang up here around 13thcentury AD on the same site and it continues to flourish to the present day. An archaeological site museum has been set up to house some of the antiquities of Rupnagar along with the photographs displaying excavation material.

26. **Existing Condition:** The proposed site (MRS treaty signing site) is located within the Maharaja Ranjit Singh Park; adjacent to the River Sutlej. **Annexure 2** shows the site photographs of the proposed subproject. The existing condition of the proposed site are as below:

- No proper entrance
- Inadequate landscaping along treaty path and its surroundings.
- Site lacks proper sitting areas.
- No basic tourist infrastructure like lighting, sitting areas and kiosk
- Inadequate lighting with absence of signage.
- Existence of shrubs along the bank of river
- Improper Interpretation of Site
- Existing surfaces of the structures has red stone cladding which has been painted over

B. Proposed Subproject Components

27. As per the Detailed Design, the subprojects components proposed for improvement of MRS Treaty site (refer **Figure 3**) are:

Sl.no	Proposed activity	Proposed intervention
1.	Improvement of Maharaja Ranjit Singh Treaty Signing Sites where a historical treaty was signed between Maharaja Ranjit Singh and Lord William Bentinck	• Provision of Sikh period historical Arches along the river • Provision of 3D flat relief work for interpretation.
2.	Improvement of the treaty signing path approximately 1000m X 5m	• Provision of Thematic Entrance gate in colonial style • Replacement of existing broken pavers • Landscaping • Provision of benches (Spheroidal Graphite Cast Iron), approximately at 10 ft interval. • Provision of dustbins on the interlocking paver path • Repairing existing stone benches
3.	Improvement of Maharaja Ranjit Singh Bagh (Garden)	• Development of Interpretation Area- Provision of Bronze metal mannequins • Improvement of Water bodies • Improvement of Bridge by adding colonial stone cladding on façade • Extension of Open Air Theatre • Improvement of Pathways by replacing the broken pavers • Providing hedges along the pathways • Provision of historic features like chhattries • Provision of Benches/ Gazebos • Improvement of Lawns and Horticulture

Figure 1: Site Plan

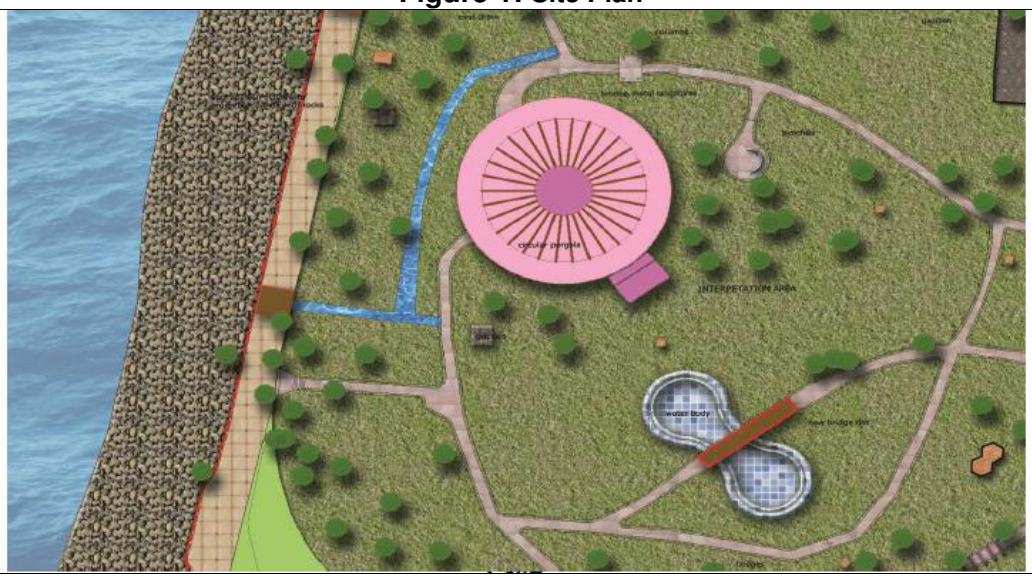

Figure 2: Development of Interpretation area

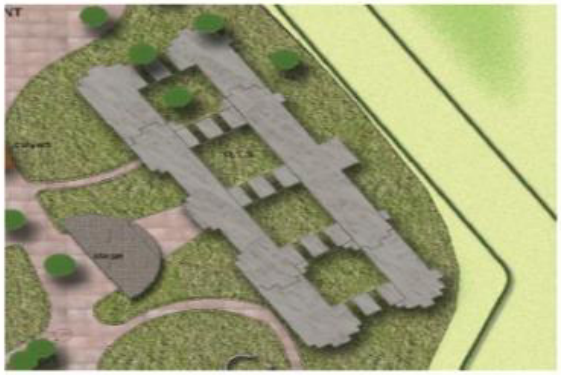

Figure 3: Extension in open air theatre

C. Implementation Schedule

28. It is estimated that the construction period will cover 18 months after the award of the contract.

III. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

A. ADB Policy

29. ADB requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for environmental assessment are described in ADB's SPS, 2009. This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, and loans involving financial intermediaries, and private sector loans.

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30. **Screening and Categorization.** The nature of the environmental assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project, the sensitivity, scale, nature and magnitude of its potential impacts, and the availability of cost-effective mitigation measures. Projects are screened for their expected environmental impact and are assigned to one of the following four categories:

- **Category A**. Projects could have significant adverse environmental impacts. An EIA is required to address significant impacts.
- **Category B**. Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An IEE is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
- **Category C**. Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.
- **Category FI**. Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all Projects will result in insignificant impacts.

As per the Asian Development Bank's (ADB) Safeguard Policy Statement 2009, the proposed sub-project is categorized as 'B' and accordingly an Initial Environmental Examination (IEE) has been prepared.

31. **Environmental Management Plan.** An EMP which addresses the potential impacts and risks identified by the environmental assessment has been prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the Project's impact and risks.

32. **Public Disclosure.** The IEE will be put up in an accessible place (e.g., local government offices, libraries, community centres, etc.), and a summary translated into Hindi/Punjabi for the project affected people and other stakeholders shall also be disclosed.

The following safeguard documents will be put up on ADB's website so that the affected people, other stakeholders, and the general public can provide meaningful inputs into the project design and implementation:

- For environmental category A projects, a draft EIA report at least 120 days before Board consideration;
- Final or updated EIA and/or IEE upon receipt; and
- Environmental monitoring reports submitted by the Project Management Unit (PMU) during project implementation upon receipt.

B. National and State Laws

33. Implementation of the subproject will be governed by the national and State of Punjab environmental acts, rules, regulations, and standards. These regulations impose restrictions on activities to minimize/mitigate likely impacts on the environment. It is the responsibility of the project executing and implementing agencies to ensure subprojects are consistent with the legal framework, whether national, state or municipal/local. Compliance is required in all stages of the subproject including design, construction, and operation and maintenance.

34. The realm of environmental regulations and mandatory requirements for the proposed sub-project is shown in **Table 1.** The Environmental Impact Assessment (EIA) notification, 2006 by the Ministry of Environment, Forest and Climate Change (MoEF&CC, GoI) specifies the mandatory environmental clearance requirements. Accordingly, projects and activities are broadly categorized in two categories[2] - Category A and Category B, based on the spatial extent of potential impacts and potential impacts on human health and; natural and man-made resources.

Table 1: Environmental Regulatory Compliance

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
Establishment of Tourism Facilities and Infrastructure Showcasing of Sikh Culture (Lot-2) - Development of Maharaja Ranjit Singh Treaty Signing Site	The Environment Protection Act, 1986 - under EIA notification, 2006 (and its subsequent amendments in 2009) provides for categorization of projects into category A and B, based on extent of impacts.	The subproject is not covered in the ambit of the EIA notification as they are not covered either under Category A or Category B of the notification. As a result, the categorization, and the subsequent environmental assessment and clearance requirements, either from the State government or the GoI is not triggered.
	ADB's Safeguard Policy Statement 2009	Categorization of subproject components into A, B or C and developing required level of environmental assessment for each component. The subproject has been Categorized as B and accordingly an IEE has been prepared
	The Wildlife Conservation Act,	Not applicable. As there are no wildlife

[2]All projects or activities included as Category 'A' in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, will require prior environmental clearance from the Central Government in the Ministry of Environment, Forest and Climate Change (MoEF&CC) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification; All projects or activities included as Category 'B' in the Schedule, including expansion and modernization of existing projects or activities as specified in sub paragraph (ii) of paragraph 2, or change in product mix as specified in sub paragraph (iii) of paragraph 2, but excluding those which fulfil the General Conditions (GC) stipulated in the Schedule, *will* require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA shall base its decision on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC) as to be constituted for in this notification. In addition, General Condition (GC) of the notification specifies that any project or activity specified in Category 'B' will be treated as Category A, if located in whole or in part within 10 km from the boundary of: (i) Protected Areas notified under the Wild Life Protection) Act, 1972, (ii) Critically Polluted areas as notified by the Central Pollution Control Board from time to time, (iii) Notified Eco-sensitive areas, (iv) inter-State boundaries and international boundaries.

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
	1972, amended in 2003 and 2006, provides for protection and management of Protected Areas.	protected areas within or in the vicinity of the subproject site
	The Forest Conservation Act, 1980 and its subsequent amendments necessitate obtaining clearance from the MoEF&CC for diversion of forest land for non-forest purposes.	Not applicable, the subproject site is not located within or in the vicinity of the forest area. Felling of trees are not envisaged in this sub-project implementation and hence tree felling/ cutting permission are not required
	Water (Prevention and control of pollution) Act, 1974 and; Air (prevention and control of pollution) Act, 1981	Consent to Establishment (CTE) and Consent to Operation (CTO) has to be obtained by the Contractor from the PPCB for setting up of diesel generators and batching plant (if any), prior to the commencement of construction works. Apart from this the CTE and CTO are also required for stone crushers and quarry sites if we are exclusively setting up for this project, otherwise it has to be ensured that the construction materials are procured from approved / licensed quarry sites and stone crushers.
	The Ancient Monuments and Archaeological Sites and Remains Act, 1958, and the rules, 1959 provide guidance for carrying out activities, including conservation, construction and reuse in and around the protected monuments.	Not applicable as these sites and monuments are not under the ambit of this Act.
	Wetland rules, 2010	The proposed interventions are planned to be developed within the existing MRS Treaty Site and the interventions are restricted only to renovation work and hence it shall be concluded that the provision given under the Wetland Rules 2010 are not applicable for this subproject.

35. The above Table indicates that the proposed subproject does not need to go through a full-scale environmental assessment process; as the scale of impacts and categorization of the subproject components will not require consent/ clearances from Competent Authorities. Therefore, any further approvals or clearances from the GoI or GoP are not envisaged. The ADB guidelines, stipulate addressing environmental concerns, if any, of a proposed activity in the initial stages of Project preparation. For this, the ADB Guidelines categorizes the proposed components into categories (A, B or C) to determine the level of environmental assessment required to address the potential impacts. This subproject has been categorized as B. Accordingly this IEE has been prepared to address the potential impacts, in line with the recommended IEE content and structure for Category B projects.

IV. DESCRIPTION OF ENVIRONMENT

A. Physical Environment

Climate

36. The climate of Rupnagar District is characterized by its general dryness (except in the south-west monsoon season), a hot summer and a bracing cold winter. The year may be divided into four seasons. The period from about middle of November to

February is the cold season. This is followed by the summer season from March to about the end of June. The south-west monsoon season commences late in June and continues up to about middle of September. The period from mid-September to the middle of November constitute the post-monsoon or transition season. The temperature ranges from a minimum of 4°C in winter to 45°C in summer. May and June are generally hottest months and December and January are the coldest months. Relative humidity is high, averaging about 70 percent during monsoon. The average annual rainfall in the district is about 775.6 mm. About 78 percent of the annual rainfall is received during the period from June to September.

Geology & Soil

37. The rock formations in the district include river terraces, gravel beds, alluvial fans and calc tufa beds of recent origin and conglomerates, sandstones and claystones of Upper Shiwalik. The Upper Shiwalik mostly comprises boulder conglomerate beds with poorly to moderately sorted sandstone beds. The conglomerate bands are usually poorly cemented and include cobbles and pebbles with some boulders of quartzite, sandstone and siltstone with stray fragments of coarse and fine grained granites, banded quartzite, limestone, trap rock, claystone, carbonaceous phyllite, schist and purple shale. Sub-recent to recent deposits include mainly gravel beds, alluvial fans, river terraces and calc tufa beds.

Surface water

38. River Sutlej is the main river which traverses through the Rupnagar District and it is supported by many tributaries. The subproject site is located around 1km (aerial distance) from the River Sutlej. The irrigation system in the district is fed by two canals namely Sirhind and Bhakra main canal. The water quality information obtained from the Central Pollution Control Board (CPCB), New Delhi has been taken to describe the pollution status/ surface water quality of the Sutlej River. The furnished information in the **Table 2** is based on a study under MINARS (Monitoring of Indian Aquatic Resources Series) conducted across India to monitor the pollution levels of all the perennial river systems.

Table 2: River Sutlej Surface Water Quality

Parameters	**1 km downstream to Rupnagar (Station Code : 1293)**	**Upstream Headwork's Rupnagar (Station Code:1019)**	**1km downstream Rupnagar (Station Code : 1380)**	**CPCBNorms for Surface Waters**
Temperature (°C)	18.7	18.5	18.8	40
Dissolved Oxygen(D.O.) (mg/l)	7.6	7.8	8.4	> 4
pH	7.7	7.5	7.9	6.5-8.5
Conductivity (pmhos/cm)	431	290	284	-
Biochemical oxygen demand (B.O.D.) (mg/l)	1.6	0.9	0.6	< 3 mg/l
Nitrate- N (mg/l)	2.8	2.2	2.3	-
Nitrite-N (mg/l)	1.33	1.15	1.2	-
Fecal Coliform (MPN/100ml)	305	83	50	< 2500
Total Coliform (MPN/100ml)	1533	483	403	< 5000

Source: MINARS, CPCB Delhi

39. From the given information, the water quality of River Sutlej at all sampling locations is observed to be good in comparison with CPCB surface water norms. However, when

compared among them, it is observed that the station code 1293 has relatively high concentration of pollutants particularly those comprising of Fecal Coliforms and Total Coliforms, which clearly indicates that the river water in this location has been polluted by the influx of sewage.

Ambient Air Quality

40. Under the IDIPT project, the ambient air quality monitoring has been conducted for the ongoing subprojects in the Ropar wetland and Chamkur Sahib. The monitoring data/ information have been taken for discussing the AAQ of Rupnagar. The monitoring has been conducted from February to March 2016 and the outcome of the analysis is shown in the**Table 3**.

Table 3: Ambient Air Quality of Rupnagar

S.No.	Parameters of air quality	Interpretation Centre, Wetland, Katli Road, Rupnagar	Existing TIC site at Chamkaur Sahib, Rupnagar	CPCB standards (sensitive areas)
1	Sulphur Dioxide (SO_2) µg/m^3	61.3	68.4	80
2	Oxides of Nitrogen (NO_2)µg/m^3	0.004	0.08	80
3	Carbon Monoxide (CO) mg/m^3	Nil	Nil	02
4	PM_{10}µg/m^3	72.6	68.4	100

41. It is observed from the analysis that all the key parameters of the air quality (sulphur di-oxide, oxides of nitrogen, carbon monoxide and PM_{10}) are well within the permissible limits set by the CPCB.

Ambient Noise Quality

42. The Ambient Noise Quality has been conducted at Chamkaur Sahib and Ropar Wetland. The monitoring has been conducted from February to March 2016 and the outcome of the analysis is shown in the **Table 4**.

Table 4: Ambient Noise Quality of Rupnagar

S.No.	Parameters of Noise quality	Interpretation Centre, Wetland, Katli Road, Rupnagar	Existing TIC site at Chamkaur Sahib, Rupnagar	CPCB standards
1	Average day time noise level dB(A)	36	46	55

43. Results show that noise levels in these areas are well within the limits as prescribed by CPCB.

B. Ecological Environment

44. **Flora.** The floral diversity consists of scattered Khair (Acacia catechu), Chhal (*Anogeisus latifolia),*Jhingan *(Lanea grandis*), Kikar *(Acacia nilotica),* Phalahi *(Acacia modesta),*Ber *(Zizyphus mauritiana),*shisham *(Dalbergia sissoo),* neem *(Azadirachta indica), mango (Mangifera indica),*dhak *(Butea monosperma)* etc., Shrubs such as garna *(Carissa spinarum),*mehnder (*Dodona viscasa),*mallah (*Zizyphus nummularia)* gandhala *(Murraya koenigii),*basuti *(Adathoda vasica), jhav(Artemesia spp),*hins *(Capparis decidua),*panwar *(Cassia tara),*phulbuti *(Lantana camara),* etc. and grasses such as *(Saccharum bengalenese).*

45. The forest strips mostly have artificially raised plantations like shisham (*Dalbergiasissoo*), eucalyptus *(Edcalyptus spp),*siris *(Albizzia lebbek),* mango *(Mangifera indica)* jaman *(Syzygium communi),*tun *(Cedrela toona),* neem *(Azadiachta indica).* Some of the mixed plantations are amaltas *(Cassia fistula)* jacranda *(Jacranda ovalifolia),*kachnar *(Bauhinca variegata),* bottle brush *(Callistemon vimnalis),* gulmohar *(Delonix regia),* amla *(Emblica officivalis)* etc. There is no endangered flora identified in the project area.

46. **Fauna.**The main animals found in these areas are Blue Bull *(Boselaphus tragocamelus),* Wild boar *(Sus scrofa),* Sambhar *(Cervas unicolor),* Jackal *(Canis aureus),* Common Mongoose *(Herpestes spp.),* Indian Porcupine *(Hystrix indica)* and Rhesus Monkey *(Macaca mulatta)*etc.

47. The common birds found in the district are:*Phalacrocorax niger* (vieillot), *Butorides striatuschloriceps* (Bonaparte), *Ardeola grayii* (sykes), *Bubulcus ibis* or*coromandus* (Boddaert), *Ardea alba modesta* (Gray), *E. garzetta* (Linnaeus), *Anastomus oscitans* (Boddaert), *C. ciconia* (Linnaeus), *C. migra* (Linnacus), *Tadorna ferruginea* (pallas), *T tadorna*(Linnaeus), *Nettapus coromandelianus* (Gmelin), *Haliaeetus leucoryphus* (Pallas), *Coturnix coromandelica* (Gmelin), *T. stagnatili* (Bechastein), *S. Pagodrum* (Gmelin), *Chrysomma sinense* (Gmelin).There is no endangered fauna identified in the project area

48. **Protected Areas.** There is protected RAMSAR site in Rupnagar called as Ropar Wetland.Total area of this Ramsar site is 1,365 ha. A human made wetland of lake and river formed by the 1952 construction of a barrage for diversion of water from the Sutlej River for drinking and irrigation supplies. The site is an important breeding place for the nationally protected Smooth Indian Otter, Hog Deer, Sambar and several reptiles. Some 35 species of fish play an important role in the food chain, and about 150 species of local and migratory birds are supported. Local fisheries are economically significant, and wheat, rice, sugar cane, and sorghum are cultivated in the surrounding area. Deforested local hills leading to siltation, and increasing industrialization causing an inflow of pollutants, are potential threats, and invasive weeds are a further cause for concern. Nature lovers, birdwatchers, swimmers and boaters visit the site in considerable numbers. This site is registered as Ramsar site no. 1161. Ropar wetland is approx. 1 km from proposed MRS treaty site.The proposed intervention does not require Wildlife Clearance from the competent authority.

C. Socio Cultural and Economic Environment

Demographic profile

49. The total population in Rupnagar district was estimated to be5,83,478, which includes the rural and urban population. The Rupnagar constitutes 30.8%tothe total population followed by Anandpur Sahib (25.7), Nurpur Bedi (16.5), Morinda (14.8%)and Chamkaur Sahib (12.2%). The following **Table 5** depicts the census information for the Rupnagar District. The total SC population in Rupnagar District was estimated to be 22.43%of the total population. Rupnagar has 28.8% of SC population which is followed by Chamkaur Sahib (18.97%), Anandpur Sahib (18.80%), Morinda (18.07%) and NurpurBedi(15.29%).

Table 5: Population Data of Rupnagar District

S.N.	Particulars	Anandpur Sahib	Chamkaur Sahib	Morinda	Nurpur Bedi	Rupnagar	Total
1	Rural Population						
	Male	70661	38100	34520	50123	70236	263640
	Female	65284	33179	29449	45960	60283	234155
	No. Of Families	24183	12165	10439	16685	22764	86236
	No. Of S.Cs	24599	24830	23643	20016	37781	130869
2	Urban Population						

	Male	7400	-	11945	-	26057	45402
	Female	6489	-	10690	-	23102	40281

Source: *Rupnagar District Statistics, Rupnagar Administration*

50. **Population density.** As per the census 2011, the population density of Rupnagar is 505 people per sq. km. In 2001, the population density was about 449 people per sq. km. In comparison with 2001 census, the population density has increased by 12.47%.

51. **Literacy rate.** Average literacy rate of Rupnagar in 2011 were 82.19% compared to 76.10% of 2001. Gender wise, male and female literacy were 87.50% and 76.42%respectively. For 2001 census, same figures stood at 82.70% and 68.70%. Total literateswere 502,731 of which male and female were 278,534 and 224,197 respectively.

52. **Sex ratio.** With regards to sex ratio in Rupnagar, it stood at 915 per 1000 male compared to 2001 census of 889 per 1000 male. The average national sex ratio in India is 940 per 1000 male. The child sex ratio is 863 girls per 1000 boys compared to a figure of 799 girls per 1000 boys of 2001 census.

53. **Employment.** Non-agricultural workers are edging over the agricultural workers. As per the census information, the Anandpur Sahib constitutes 27.26% of worker populace, followed by Rupnagar (24%), Nurpur Bedi (21.42%), Morinda (13.92%) and Chamkaur Sahib (13.4%).

Agriculture

54. The principal kharif crops are paddy, cotton, maize and sugarcane; subsidiary crops are kharif vegetables, such as ladyfinger, cauliflower, tomato, brinjal, cucurbits, kharif pulses and fruits. The principal rabi crops are wheat, gram, barley etc. Wheat, Maize, Rice and Bajra are the important cereals of the state. Wheat dominates the production among overall crop pattern, while cotton is the major cash crop produced. Groundnut, Sugarcane and Potatoes are other crops. The principal rabi oilseeds (sarson, toramira, alsi and toria), and winter vegetables such as peas, turnip, radish, carrots, lobia are also cultivated in the district.

Industrial profile

55. There are only 20 registered industries in Rupnagar out of which 18 are small scale and 2 are large scale industries. Among large scale industries the biggest one is National Fertilizers Limited, situated at NayaNangal with total capacity of 478500 Metric Tons per annum. The second large industry is Ambuja Cement at Daburji. Small scale industries are mainly agriculture based industries. Apart from this Guru Govind Singh Super Thermal Plant is also established in Rupnagar.

Physical Infrastructure Services

56. Department of Public Health and Rupnagar Municipal Council are planning and implementing drinking water supply as well as sewage disposal. Public Works department is responsible for planning, construction and operation and maintenance of road network; while internal roads are maintained by Municipal Council. Solid waste disposal and management is also responsibility of Municipal Council.

V. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

57. The assessment of environmental impacts for the proposed interventions under this package has been carried out during the following stages of the project planning and implementation:

Location impacts. Impacts associated with site selection, including impacts on environment and resettlement or livelihood related impacts on communities
Design impacts. Impacts arising from project design, including the technology used, scale of operations etc.
Construction impacts. Impacts resulting from construction activities including site clearance, earthworks, civil works, etc.
O&M impacts. Impacts associated with the operation and maintenance of the infrastructure built in the project.

58. The proposal envisages medium scale construction activity in the adjoining area of existing buildings and facilities on the site; this would result in some environmental impacts typical to limitedconstruction activity. The land for development of proposed facilities is available inside the existing premises, which is free from any encumbrances and with easy accessibility for the visitors.

- The site is located within the urbanarea. Gaining free access and movement of workers, vehicles and other construction related machinery would be an issue that will be dealt with appropriate contingency plan before commencement of construction works on site. Identity cards & vehicle permits shall be provided by the contractor for the construction vehicles used in the site.
- Other impacts related to construction activities such as generation of dust and noise, removal of construction debris and demolition wastes etc are envisaged which shall be minimized and addressed by adopting safe engineering practices and appropriate building design. Caution will be exercised in planning for safe construction and operations phase to minimize disturbance to the adjoining existing activities.
- Provision for water for construction will be made through municipal water supply or through mobile water tankers.

59. **Land Acquisition and Resettlement and cultural Impacts.** The proposed subproject interventions are planned to implement within the existing Maharaja Ranjit Singh Park, which belongs to the Department of Cultural Affairs, Archaeology and Museums, Govt of Punjab. The area adjacent to River Sutlej comes under irrigation department. Therefore for the proposed interventions, there are no land acquisition and resettlement issue. Also, as per the resettlement framework, the proposed categorization for this project is Category C for involuntary resettlement (IR) as it does not result in any physical or economic displacement due to involuntary acquisition of land, or involuntary restrictions on land use or access to the site.

60. **Design Considerations to Avoid Environmental Impacts.** The following are design considerations to avoid environmental impacts:

- Incorporation of adequate drainage provisions
- Adoption of design compatible with the natural environment and suitable selection of materials to enhance the aesthetic appeal and blend with the natural surroundings.
- Straight lines and simple geometry in the proposed landscape and architectural

features.
- Use of subtle colours and simple ornamentation in the structures.
- Natural tree species in the proposed landscape.
- Use of local stone in the proposed walkways and built structures thus maintaining a rustic architectural character.

61. The results of interventions are unobtrusive and will be integral part of the ambience of the site. The physical components have been proposed with minimalist design treatment emphasising use of local materials (wood, stone) as defined in the management plan of the area.

Assessment of Environmental Impacts

62. **Determination of Area of Influence.** The primary impact areas are (i) sites for proposed subproject components; (ii) main routes/intersections which will be traversed by construction vehicles; and (iii) quarries and borrow pits as sources of construction materials. The secondary impact areas are: (i) entire town area outside of the delineated primary impact area; and (ii) entire Rupnagar district in terms of over-all environmental improvement.

63. The implementation of the subproject components involves minor construction activities which shall have localised impacts, but shall remain for shorter duration and are expected only during construction period. .

A. Pre-construction Impacts and Mitigation Measures

64. **Consents, permits, clearances, no objection certificate (NoC), etc.** The proposed subproject site (Maharaja Ranjit Singh Park) belongs to the Department of Cultural Affairs, Archaeology and Museums and the land adjacent to the River Satluj belongs to the Irrigation Department and hence, NoC from both the departments has to be obtained before start of the construction works. Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works.

65. **Mitigation measures.** The following measures will be conducted during pre-construction phase:
- Obtain all necessary consents, permits, clearance, NoCs, etc. prior to start of civil works. NoC from the asset owners (Department of Cultural Affairs, Archaeology and Museums) have been obtained and enclosed in **Annexure 10**.
- Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NoCs, etc.

66. **Utilities.** Interruption of services (water supply, electricity, toilets etc.) will be scheduled and intermittently related to localized construction activities. To mitigate impacts, PIU/DSC will:

- Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during the construction phase.
- Require Contractor to prepare a contingency plan to include actions to be done in case of unintentional interruption of services.
- Require contractor to obtain from the PIU and/or DSC the list of affected utilities and operators;
- If relocations are necessary, Contractor along with PIU/DSC will coordinate with the providers/line agencies to relocate the utility.

67. **Sites for construction work camps and areas for stockpile, storage and disposal.** The proposed subproject site is within the premises of Maharaja Ranjit Singh Park, where there is enough vacant space to have construction work camp including labour camp. However, Contractor can choose other sites as well for having construction and labour camp for which the contractor will be required to meet the following criteria:

- Will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems etc.
- Residential areas will not be considered so as to protect the human environment (i.e., to curb accident risks, health risks due to air and water pollution and dust, and noise, and to prevent social conflicts and shortage of amenities).
- Disposal will not be allowed near sensitive areas which will cause inconvenience to the community or near to River Sutlej flowing beside the site
- The fuel and lubricants shall be stored in a place with an impervious platform/layer to avoid any soil and groundwater contamination. Any construction camp site will be finalized in consultation with DSC and PIU.

68. **Sources of construction materials.** Extraction of materials can disrupt topography / terrain of the land and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, water logging and water pollution. The contractor will be required to:

- Use quarry sites and sources permitted by government.
- Verify suitability of all material sources and obtain approval from PIU/DSC.
- If additional quarries are required after construction has started, obtain written approval from PIU/DSC.
- Submit documentation of sources of materials on monthly basis to PIU/DSC.

69. It will be the Contractor's responsibility to verify the suitability of all material sources and to obtain the approval of PIU/DSC. If additional quarries are required after construction is started, then the Contractor should obtain written approval from the PIU and DSC.

70. **Erosion control.** Most of the impacts will occur due to excavation and earth movements during construction phase. Prior to commencement of civil works, the contractor will be required to:

- Minimize the potential for erosion by balancing cuts and fills to the extent feasible.
- Minimize the amount of land disturbed as much as possible.
- Use existing roads; borrow pits and quarries when possible.
- Minimize vegetation removal.
- Stage construction to limit the exposed area at any one time

71. **Access.** Hauling of construction materials and operation of equipment on-site can cause traffic problems. Construction traffic will access the existing approach roads to reach the subproject sites and in turn can cause temporary problems, which shall be mitigated through the following mitigation measures:

- Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites.
- Schedule transport and hauling activities during non-peak hours.
- Locate entry and exit points in areas where there is low potential for traffic congestion.
- Keep the site free from all unnecessary obstructions.
- Drive vehicles in a considerate manner.
- Notify affected sensitive receptors by providing sign boards with information about

the nature and duration of construction works and contact numbers for concerns/complaints.

72. Summary of the pre-construction activities are presented in the **Table 6.** The contractor is required to update the information during detailed design phase. Sample waste/spoils management plan is attached in the **Annexure 3.**

Table 6: Summary of Pre-Construction Mitigation Measures

Parameters	Mitigation Measures
Consents, permits, clearances, no objection certificate (NOC), etc.	• Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works. NoC from the asset owners (Department of Cultural Affairs, Archaeology and Museums) have been obtained and enclosed as **Annexure 10.** • Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc.
Erosion control	• Minimize the potential for erosion by balancing cuts and fills to the extent feasible. • Minimize the amount of land disturbed as much as possible. • Use existing roads; borrow pits and quarries when possible. • Minimize vegetation removal. • Stage construction to limit the exposed area at any one time
Utilities	• Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during the construction phase. • Require contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services. • Obtain from the PIU and/or DSC the list of affected utilities and operators; • If relocations are necessary, Contractor will coordinate with the providers to relocate the utility.
Sites for construction work camps, areas for stockpile, storage and disposal	• Will not promote instability and result in destruction of property, vegetation, irrigation and drinking water supply systems etc. • Residential areas will not be considered so as to protect the human environment (i.e., to curb accident risks, health risks due to air and water pollution and dust, and noise, and to prevent social conflicts and shortages of amenities). • Disposal will not be allowed near sensitive areas which will inconvenience the community. • In the construction camps, fuel and lubricants shall be stored in a place with an impervious layer/ concrete floor to prevent any chances of soil and groundwater contamination due to the leaching of the oil and grease. Any construction camp site will be finalized in consultation with DSC and PIU.
Sources of construction materials	• Use quarry sites and sources permitted by government. • Verify suitability of all material sources and obtain approval from PIU/DSC. • If additional quarries are required after construction has started, obtain written approval from the PIU/DSC. • Submit monthly basis documentation of sources of materials to DSC.
Access	• Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites. • Schedule transport and hauling activities during non-peak hours. • Locate entry and exit points in areas where there is low potential for

Parameters	Mitigation Measures
	traffic congestion. • Keep the site free from all unnecessary obstructions. • Drive vehicles in a considerate manner. • Notify affected sensitive receptors by providing sign boards with information about the nature and duration of construction works and contact numbers for concerns/complaints.

B. Anticipated Construction Impacts and Mitigation Measures

73. The environmental impacts during the proposed construction works are generic to the construction activities and not expected to be significant. The EMP specifies the necessary mitigation measures to be strictly followed by the contractor and supervised by the DSC. Key impacts during construction are envisaged on the following aspects: (i) transportation of materials, (ii) dust generation, air and noise pollution from construction activities, (iii) handling of construction materials at site and (iv)adoption of safety measures during construction.

74. **Construction Schedule and Method.** It is estimated that the construction activities shall take 18 months for completion from the date of award of contract.The proposed infrastructures will be constructed manually according to design specifications. Demolished materials will be reused to the maximum extent possible. Materials will be brought to site by trucks or hand/push cart and will be stored on unused areas within the park premises and nearby vacant areas. There is sufficient space available in the subproject area for stockpiling of materials and to park construction equipment's. However, the Contractor should remove all construction and demolition wastes on a daily basis.

75. The proposed subproject interventions are having minimal civil work therefore there will be no major impacts on the environment but it may affect the nearby community and visitors/ tourists as it may result in disturbance and inconvenience. These impacts will be short term, site specific and can be mitigated easily by adopting mitigation measures as suggested.

76. **Impacts on Water Quality.** River Sutlej is flowing adjacent to the subproject site, therefore the risk of impacts on the water quality is high. Therefore, the Contractor will be required to:

- Schedule civil works during non-monsoon season, to the maximum extent possible.
- Ensure drainages within the construction zones are kept free of obstructions.
- Keep loose soil material and stockpiles out of drains and flow-lines.
- Avoid stockpiling of excavated and construction materials (sand, gravel, cement, etc.) unless covered by tarpaulins or plastic sheets.
- Re-use/utilize, to maximum extent possible, excavated materials.
- Do not dispose any construction material of general refuse on river side rather dispose all the construction debris and refuse at identified disposal site with prior permission from concerned local authority. PIU/DSC will identify and approve disposal sites.
- Dispose waste oil and lubricants generated during construction activities as per provisions of Hazardous Waste (Management and Handling) Rules, 1989
- Strictly prohibit open defecation by workers along river banks
- Water Quality monitoring has to be performed as per the Environmental Monitoring Program.

77. **Impacts on Air Quality.** There is potential for increased dust particularly during summer/dry season due to the construction activities including stockpiling of construction materials. Emissions from vehicles transporting workers, construction materials and debris/materials to be disposed may cause increase in air pollutants within the construction

zone. These are inherent impacts which are site-specific, low magnitude, short in duration and can be easily mitigated. The contractor will be required to:

- Conduct regular water spraying on earth piles, trenches and sand piles.
- Conduct regular visual inspection throughout the construction site to ensure that there are no excessive dust emissions.
- Maintain construction vehicles and obtain "pollution under control" (PUC) certificate from PPCB.
- Obtain CTE and CTO for crushers, diesel generators etc., if to be used in the project.
- Ambient Air Quality (AAQ) monitoring has to be performed as per the Environmental Monitoring Program.

78. **Noise and Vibration Impacts.** Most of the construction activities shall be done manually without involving heavy equipment's and hence the chances for noise and vibration impacts are not envisaged. Nevertheless the Contractor will be required to:

- Limit construction activities near sensitive areas and other important sites to daytime only.
- Plan activities in consultation with the PIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance.
- Minimize noise from construction equipment by using vehicle silencers and fitting jackhammers with noise-reducing mufflers.
- Require drivers that horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach.
- If specific noise complaints are received during construction, the contractor may be required to implement the following noise mitigation measures, as directed by the DSC:
    - Locate stationary construction equipment far from nearby noise-sensitive properties as possible.
    - Shut off idling equipment.
    - Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
- Notify nearby tourist/ visitors whenever extremely noisy work will be occurring.
- Follow Noise Pollution (Regulation and Control) Rules, day time ambient noise levels should not exceed 65 dB(A) in commercial areas, 55 dB(A) in residential areas, and 50 dB(A) in silence zone[3]
- Ensure vehicles comply with Government of India noise limits for vehicles. The test method to be followed shall be IS: 3028-1998
- Ambient Noise levels have to be monitored as per the Environmental Monitoring Program.

79. **Impacts on Flora and Fauna.** As per the detail design, tree-cutting is not required. However, due to the presence of the Ropar Wetland (which is a home for the migratory birds during the winter season) in the vicinity of the subproject site (located at an aerial distance I km), The Contractor will be required to:

- Conduct site induction and environmental awareness among all workers.
- Limit activities within the work area.
- Strictly instruct workers not to harm any bird coming in the influence zone
- Do not make excessive noise during bird season to disturb them

[3] Day time shall mean from 6.00 am to 10.00 pm. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by PPCB. Mixed categories of areas may be declared as one of the above mentioned categories by PPCB.

- Strictly prohibit poaching of birds or fishing in the nearby river
- Do not remove or harm existing vegetation except required under proposed contract
- Strictly instruct workers not to cut trees for fuel wood.
- Replant trees in the area using minimum ratio of 2 trees for every 1 tree cut, if any.
- Replacement species must be approved by District Forest Department.

80. **Impacts on Physical and Cultural Resources.** There may be inconvenience to tourists/ visitors, businesses and other road users due to construction activities. This potential impact is site-specific, short-term and can be mitigated. The Contractor will be required to:

- Ensure no damage to structures/properties/facilities near construction zone.
- Provide walkways and metal sheets where required to maintain access of people.
- Provide sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints.
- Implement good housekeeping. Remove wastes immediately. Prohibit stockpiling of materials that may obstruct/slow down pedestrians and/or vehicle movement.
- Ensure workers will not use nearby/adjacent areas as toilet facility.
- Coordinate with DSC for transportation routes and schedule. Schedule transport and hauling activities during non-peak hours. Communicate road detours via visible boards, advertising, pamphlets, etc.
- Ensure heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites.
- Provide instructions on event of chance finds for archaeological and/or ethno-botanical resources. Works must be stopped immediately until such time chance finds are cleared by experts.

81. **Impact due to Waste Generation.** Demolished structures will be reused to the maximum extent possible. Construction activities will produce excavated soils, construction debris and solid wastes (such as removed concrete, wood, packaging materials, empty containers, oils, lubricants, and other similar items). These impacts are negative but short-term and reversible by mitigation measures. The Contractor will need to adopt the following mitigation measures:

- Prepare and implement a waste management plan.
- Coordinate with Municipal Authorities for beneficial uses of demolished materials or immediately dispose to designated areas.
- Recover used oil and lubricants and reuse or remove from the sites.
- Avoid stockpiling and remove immediately all demolished materials, excess construction materials and solid waste (removed concrete, wood, packaging materials, empty containers, oils, lubricants, and other similar items).
- Prohibit disposal of any material or wastes (including human waste) into drainage, nallah or watercourse.

82. **Impacts on Occupational Health and Safety.** During the construction work, labourers need to be aware of occupational hazards which can arise from the proposed work. Overall, the contractor should comply with IFC EHS Guidelines on Occupational Health and Safety (this can be downloaded fromhttp://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES). The contractor will be required to:

- Disallow worker exposure to noise level greater than 85 dBA for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.
- Develop comprehensive site-specific health and safety (H&S) plan. The overall

objective is to provide guidance to contractors on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project.

- Include in H&S plan measures such as: (i) type of hazards during excavation works; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents.
- Provide H&S orientation training to all new workers to ensure that they are apprised of the rules of work at the site, personal protective protection, and preventing injury to fellow workers.
- Ensure that first-aid facility is available at site. Equipped first-aid stations shall be easily accessible throughout the site as well as at construction camps.
- Provide medical insurance coverage for workers.
- Secure construction zone from unauthorized intrusion and accident risks.
- Provide supplies of potable drinking water.
- Provide clean eating areas where workers are not exposed to hazardous or noxious substances.
- Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted.
- Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas.
- Ensure moving equipment is outfitted with audible back-up alarms.
- Mark and provide sign boards in the construction zone, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate.

83. **Impacts on Socio-Economic Activities**. Manpower will be required during the 18months construction phase. This can help generate contractual employment and increase in local revenue. As per detail design, land acquisition and closure of roads are not required. However, construction activities may impede access of road users. The potential impacts are negative and moderate but short-term and temporary. The contractor will need to adopt the following mitigation measures:

- Provide sign boards for visitors to inform nature and duration of construction works and contact numbers for concerns/complaints.
- Employ at least 50% of the labor force, or to the maximum extent, local persons within the 20-km immediate area if manpower is available.

84. **Table 7** provides summary of mitigation measures to be considered by the contractor during construction phase.

Table 7: Summary of Mitigation Measures during Construction Phase

Potential Impact	Mitigation Measures
Impacts on water quality	• Schedule civil works during non-monsoon season, to the maximum extent possible. • Ensure drainages within the construction zones are kept free of obstructions. • Keep loose soil material and stockpiles out of drains and flow-lines. • Avoid stockpiling of excavated and construction materials (sand, gravel, cement, etc.) unless covered by tarpaulins or plastic sheets. • Re-use/utilize, to maximum extent possible, excavated materials. • Do not dispose any construction material of general refuse on river side rather dispose all the construction debris and refuse at identified disposal site with prior permission from concerned local authority. PIU/DSC will identify and approve

Potential Impact	Mitigation Measures
	disposal sites. • Dispose waste oil and lubricants generated during construction activities as per provisions of Hazardous Waste (Management and Handling) Rules, 1989. • Strictly prohibit open defecation by workers along river banks as there is drinking water source near the site • Water Quality monitoring has to be performed as per the Environmental Monitoring Program.
Impacts on air quality	• Conduct regular water spraying on earth piles, trenches and sand piles. • Conduct regular visual inspection throughout the construction site to ensure that there are no excessive dust emissions. • Maintain construction vehicles and obtain "pollution under control (PUC)" certificate from PPCB. • Obtain CTE and CTO for hot mix plants, crushers, diesel generators, etc., if to be used in the project. • Ambient Air Quality (AAQ) monitoring has to be performed as per the Environmental Monitoring Program.
Noise and vibrations impacts	• Limit construction activities to daytime only. • Plan activities in consultation with the PIU/DSC so that activities that generate noise are conducted during periods of the day which will result in least disturbance. • Minimize noise from construction equipment by using vehicle silencers and fitting jackhammers with noise-reducing mufflers. • Avoid loud random noise from sirens, air compression, etc. • Require drivers that horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach. • If specific noise complaints are received during construction, the contractor may be required to implement the following noise mitigation measures, as directed by the DSC: o locate stationary construction equipment as far from nearby noise-sensitive properties as possible; o shut off idling equipment; o reschedule construction operations to avoid periods of noise annoyance identified in the complaint; and/or o Notify nearby residents whenever extremely noisy work will be occurring. • Follow Noise Pollution (Regulation and Control) Rules, day time ambient noise levels should not exceed 65 dB(A) in commercial areas, 55 dB(A) in residential areas, and 50 dB(A) in silence zone.4 • Ensure vehicles comply with Government of India noise limits for vehicles. The test method to be followed shall be IS: 3028-1998. • Ambient Noise levels have to be monitored as per the Environmental Monitoring Program.
Impacts on flora and fauna	• Conduct site induction and environmental awareness among all workers. • Limit activities within the work area. • Strictly instruct workers not to harm any bird coming in the influence zone • Do not make excessive noise during bird season to disturb them • Strictly prohibit poaching of birds • Do not remove or harm existing vegetation except required under proposed contract • Strictly instruct workers not to cut trees for fuel wood. • Replant trees in the area using minimum ratio of 2 trees for every 1 tree cut, if any. Replacement species must be approved by District Forest Department.
Impacts on	• Ensure no damage to structures/properties near construction zone.

[4] Day time shall mean from 6.00 am to 10.00 pm. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by PPCB. Mixed categories of areas may be declared as one of the above mentioned categories by PPCB.

Potential Impact	Mitigation Measures
physical resources	• Provide walkways and metal sheets where required to maintain access of people and vehicles. • Provide sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints. • Implement good housekeeping. Remove wastes immediately. Prohibit stockpiling of materials that may obstruct/slow down pedestrians and/or vehicle movement. • Ensure workers will not use nearby/adjacent areas as toilet facility. • Coordinate with PIU/DSC for transportation routes and schedule. Schedule transport and hauling activities during non-peak hours. Communicate road detours via visible boards, advertising, pamphlets, etc. • Ensure heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites. • Provide instructions on event of chance finds for archaeological and/or ethno-botanical resources. Works must be stopped immediately until such time chance finds are cleared by experts.
Impacts on waste generation	• Prepare and implement a waste management plan. Manage solid waste according to the following hierarchy: reuse, recycling and disposal. Include in waste management plan designated/approved disposal areas. • Coordinate with Municipal Authorities for beneficial uses of demolished materials/silts/sediments or immediately dispose to designated areas. • Recover used oil and lubricants and reuse; or remove from the sites. • Avoid stockpiling and remove immediately all demolished materials, excess construction materials, and solid waste (removed concrete, wood, packaging materials, empty containers, oils, lubricants, and other similar items). • Prohibit disposal of any material or wastes (including human waste) into drainage, nallah, or watercourse.
Impacts on occupational health and safety	• Comply with IFC EHS Guidelines on Occupational Health and Safety • Disallow worker exposure to noise level greater than 85 dBA for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively. • Develop comprehensive site-specific health and safety (H&S) plan. The overall objective is to provide guidance to contractors on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project. • Include in H&S plan measures such as: (i) type of hazards during excavation works; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents. • Provide H&S orientation training to all new workers to ensure that they are apprised of the rules of work at the site, personal protective protection, and preventing injury to fellow workers. • Ensure that adequate first-aid facilities are available at site. Equipped first-aid stations shall be easily accessible throughout the site as well as at construction camps. • Provide medical insurance coverage for workers. • Secure construction zone from unauthorized intrusion and accident risks. • Provide supplies of potable drinking water. • Provide clean eating areas where workers are not exposed to hazardous or noxious substances. • Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted. • Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas. • Ensure moving equipment is outfitted with audible back-up alarms.

Potential Impact	Mitigation Measures
	• Mark and provide sign boards in the construction zone, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate.
Impacts on socio-economic activities	• Provide sign boards for visitors to inform nature and duration of construction works and contact numbers for concerns/complaints. • Employ at least 50% of the labor force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available.

85. The anticipated construction impacts are associated with the conservation/ restoration works. The potential impacts that are associated with construction activities can be mitigated through recommended mitigation measures and procedures.

C. Post-Construction Impacts and Mitigation Measures

86. Site clean-up is necessary after construction activities. The contractor will be required to:

- Backfill any excavation and trenches, preferably with excess excavation material generated during the construction phase.
- Use removed topsoil to reclaim disturbed areas.
- Stabilize all areas of disturbed vegetation using weed-free native shrubs, grasses and trees.
- Restore access roads, staging areas and temporary work areas.
- Remove all tools, equipment, barricades, signs, surplus materials, debris and rubbish. Demolish buildings/structures not required for O&M. Dispose in designated disposal sites.
- Monitor success of re-vegetation and tree re-planting. Replace all plants determined to be in an unhealthy condition.
- Request in writing from PIU/DSC that construction zones have been restored.

D. Anticipated Operations and Maintenance (O&M) Impacts and Mitigation Measures

87. Impacts on environmental conditions associated with the O&M of the subproject components pertain to impacts related to increased tourists in the areas resulting to increased vehicular movement along the roads, increased demands for services and increased solid waste generation. These impacts can be mitigated by:

- Increased vehicular movement along the roads - speed restrictions, provision of appropriate road signage and well located rest points for pedestrians shall minimize impacts on safety of the people
- Increase demands for services – addressed through the subproject design
- Increase solid waste generation – Municipal Council to put in place solid waste management programs.

VI. INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

A. ADB Disclosure Policy

88. Public consultation was undertaken as per ADB SPS requirements. All the five principles of information dissemination, information solicitation, integration, coordination and engagement into dialogue were incorporated during the task. A framework of different

environmental impacts likely from the project was prepared based on opinions of all those consulted, especially at the micro level, by setting up dialogues with the local people and other stakeholders, from whom information on site facts and prevailing conditions were collected.

89. As per ADB safeguard requirement, public consultation is to be carried out before and after impact identification. Public consultation was therefore carried out twice, once at the time of start of work with the key stakeholders particularly with wildlife authorities and NGOs, and secondly to discuss mitigating measures and get concurrence of stakeholders.

B. Process for Consultation followed

90. During the project preparation, stakeholders consultations have been held with the Department of Tourism, line agencies, District Municipal Administration, local community representatives and tourism officers and regarding issues pertaining to the selection of subprojects and identification of key issues including addressing the current gaps in provision of basic services and improvement of tourist infrastructure. Records of the consultations are provided in **Annexure-5**. Public consultations were conducted at the site using formal and informal approach. The outcome of the consultation has been recorded and enclosed in **Annexure 11**.

C. Plan for Continued Public Participation

91. To ensure continued public participation and stakeholder engagement during the project design and implementation is proposed. A grievance redress cell has been set up within the PIU/DSC at field office and PMU, Chandigarh office. To ensure an effective disclosure of the project proposal to the stakeholders and the community living in the vicinity of the sub-project location, information regarding grievance redress mechanism shall be published in local newspapers. This information is also made available on PHTPB's website.

92. The Executing Agency (EA) will submit to ADB the following documents for disclosure on ADB's website: (i) the final IEE; (ii) a new or updated IEE and corrective action plan prepared during project implementation, if any; and (iii) the environmental monitoring reports.

93. For the benefit of the community, relevant information in the IEE (Executive Summary) will be translated in Hindi/Punjabi and made available at: (i) Office of the PMU; and, (ii) Office of PIU, Rupnagar; (iii) Office of the District Commissioner, Rupnagar District (iv) District/Public libraries of the Chandigarh/Rupnagar towns. These copies will be made available free of cost to any person and accessible to citizens as a means to disclose the document and at the same time creating wider public awareness. On demand, the person seeking information can obtain a hard copy of the complete IEE document at the cost of photocopy from the office of the PMU/PIU, on a written request and payment for the same to the Project Director. Electronic version of the IEE will be placed in the official website of the PHTPB and the website of ADB after approval of the documents by Government and ADB. The PMU will issue notification on the disclosure mechanism in local newspapers, ahead of the initiation of implementation of the project, providing information on the project, as well as the start date and expected completion dates etc. The notice will be issued by the PMU in local newspapers one month ahead of the implementation works.

VII. GRIEVANCE REDRESS MECHANISM

94. The affected person/aggrieved party can give their grievance verbally or in written to the local grievances committee. Grievances of affected person will first be brought to the attention of the PIU who can resolve the issue at site level. If the matter is not solved within 7 days period by the PIU, it will be brought to the Grievance Redress Committee constituted for the purpose in PIU. This GRC shall discuss the issue in its monthly meeting and resolve the issues within one month of time after receiving the grievance. If the matter is not resolved by GRC at PIU level within stipulated time, it shall be referred to GRC at PMU level

by Executive Engineer of PIU.

95. GRC at PMU shall discuss the issue and try to resolve it and inform the PIU accordingly. If the matter is not resolved by the GRC at PMU level within one month of time, the aggrieved person/party can bring the matter to The Court of Law. The PIU shall keep records of all grievances received including contact details of complainant, date of receiving the complaint, nature of grievance, agreed corrective actions and the date these were affected and final outcome. The grievance redress process is shown below.

A. Composition and Functions of GRC

96. Local Grievance Committee (LGC). In this LGC shall work with NGO, SHG, Line Agency, representative of Gram Panchayat, Special invitee.

97. **First Level Grievance Redress Committee (GRC) at PIU.** In each PIU there shall be one GRC, which will include Project Manager (PIU), District Tourist Officer of Department of Tourism of Govt. of Punjab, Community Development Officer of PIU, nominated representative of District Magistrate and other concerned nominated representatives. The committee shall be headed by Project Manager (PIU). PIU can associate NGO as per his decision. The committee will meet at least once in every month. Agenda of meeting shall be circulated to all the members and affected persons/aggrieved party along with venue, date and time; informed in written at least 7 days in advance of meeting. The matters shall remain with GRC at PIU level for 15 days and if grievance is not resolved within this time period, the matter shall be referred to GRC at PMU.

98. **Second Level Grievance Redress Committee (GRC) at PMU.** There shall be one GRC in PMU. The matters not resolved by the GRC at PIU level within 15 days shall come under GRC at PMU. GRC at PMU will include Community Development Expert of PMU, Safeguard Specialist of PMU and Additional Project Director (APD) of PMU. The Committee shall be headed by APD of PMU. This committee shall look into the matters, which are referred to and not resolved by GRC at PIU level. GRC at PMU will resolve the issue within one month.

99. **Third Level Grievance Redress Committee (GRC) at SLEC.** If the matter is not resolved by the GRC at PMU level within one month of time, the aggrieved person/party can bring the matter to The Executive Committee/State Level Empowered Committee (SLEC).

B. Approach to GRC.

100. Affected person/aggrieved party can approach to GRC for redress of his/their grievances through any of the following modes:

- Through Grievance Redress Form: Aggrieved person/party can give their grievance in Grievance Redress Form available at PIU and PMU. Sample Grievance Redress Form is attached as **Annexure 6**
- Web based: A separate corner will be developed at the program website so that public / community/ affected person can register their complaint in the online column.
- Telecom based: A toll free no. Will be issued by the PMU/ PIU so that general public can register their complaint through telephone / mobile phone to the PIU/PMU office.

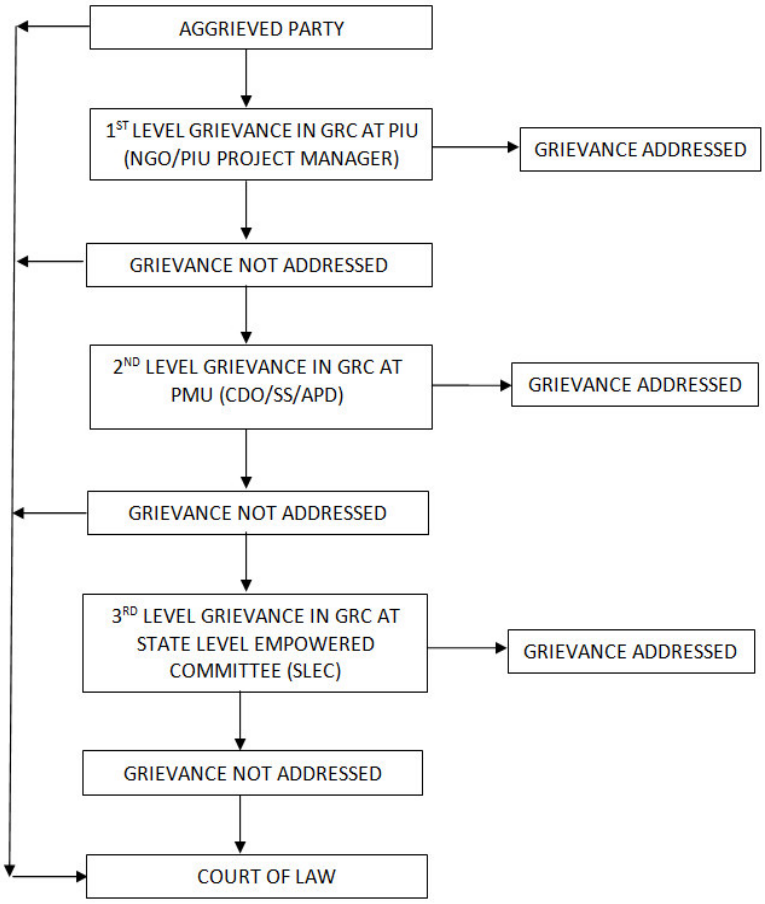


Figure 4: Grievance Redress Mechanism in IDIPT, Punjab

Note: LGC -NGO, SHG, Line Agency, Representative of Gram Panchayat, Special invitee GRC – PM, CDO, Engineer, DFO, DTO, SDM GRC in Environment and Social Management Cell (ESMC) –PMU (APD, SS, CDS, FS), PMC (EE, CDE)

VIII. ENVIRONMENTAL MANAGEMENT PLAN

101. The purpose of the environmental management plan (EMP) is to ensure that the activities are undertaken in a responsible, non-detrimental manner with the objectives of: (i) providing a proactive, feasible, and practical working tool to enable the measurement and monitoring of environmental performance on-site; (ii) guiding and controlling the implementation of findings and recommendations of the environmental assessment conducted for the project; (iii) detailing specific actions deemed necessary to assist in mitigating the environmental impact of the project; and (iv) ensuring that safety recommendations are complied with.

102. A copy of the EMP must be kept on work sites at all times. This EMP will be included in the bid documents under appropriate contract clauses and will be further reviewed and updated during implementation.. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

103. The Contractor will be required to (i) establish an operational system for managing environmental impacts (ii) carry out all of the monitoring and mitigation measures set forth in the EMP; and (iii) implement any corrective or preventative actions set out in safeguards monitoring reports that PMU and PIU will prepare from time to time to monitor implementation of this IEE and EMP. The contractor shall allocate a budget for compliance

with these EMP measures, requirements and actions.

A. Responsibilities for EMP Implementation:

104. The following agencies will be responsible for EMP Implementation:

- Department of Tourism, Govt. of Punjab is the Executing Agency (EA) responsible for overall management, coordination, and execution of all activities funded under the loan;
- Punjab Heritage and Tourism Promotion board (PHTPB) including PIUs, will be the Implementing Agency (IA) responsible for coordinating procurement and construction of the project. PIU through its Project Management Unit (PMU) at Chandigarh will be implementing the project;
- The Project Management Consultant (PMC) assists PMU in managing the project including procurement and assures technical quality of design and construction;
- The Design and Supervision Consultant (DSC) will prepare the DPR of the project and will carry out construction supervision during project implementation. Their responsibility will also include EMP implementation/supervision;
- A Project Implementation Unit (PIU) is established in Rupnagar. This PIU will look into progress and coordination of day to day construction works with the assistance of DSC; and
- The contractor will be responsible for execution of all construction works. The contractor will work under the guidance of the PIU, Rupnagar and DSC. The environmental related mitigation measures will also be implemented by the contractor.

105. The contractor's conformity with contract procedures and specifications during construction will be carefully monitored by the PIU. Safeguard Specialists are deputed in DSC, PMC and PMU, who will monitor the environmental performance of contractors (refer **Figure 5**). Terms of References of Safeguards Specialists are given in boxes below

Box 1: Terms of Reference of Safeguards Specialist – PMU
• Review the IEE document and ensure adequacy under Safeguard Policy Statement, 2009 and identify any areas for improvement. • Ensure that the project design and specification adequately reflect the IEE, co-ordinate the obtaining of requisite environmental clearances for the project • Monitor construction activities to ensure that identified and appropriate control measures are effective and in compliance with the IEE and advise PIU for compliance with statutory requirements. • Develop training programme for the PMU/PIUs staff, the contractors and others involved in the project implementation, in collaboration with the Environmental Specialist of the PMC and DSC • Review and approve the Contractor's Implementation Plan for the environmental measures, as per IEE. • Liaise with the Contractors and Consultants on the implementation of the Environmental management measures proposed in the IEE • Liaise with the various Government agencies on environmental and other regulatory matters • Continuously interact with the NGOs and Community groups to be involved in the project • Establish dialogue with the affected communities and ensure that the environmental concerns and suggestions are incorporated and implemented in the project. • Review the environmental performance of the project through an assessment of the

Box 1: Terms of Reference of Safeguards Specialist – PMU
periodic environmental monitoring reports submitted by the DSC; provide a summary of the same to the Project Director, and initiate necessary follow-up actions • Provide support and assistance to the Government Agencies and the Asian Development Bank to supervise the implementation of the IEE during the construction as well as operation stage of the project • Document the good practices in the project on incorporation and integration of environmental issues into engineering design and on implementing measures in the construction, and dissemination of the same

Box 2: Terms of Reference of Safeguards Specialist (Environment) of DSC
• To prepare the IEE document and ensure adequacy under ADB SPS, 2009. • Interact on a regular basis with the sector specialists of the DSC and integrate environmentally sound practices into the detailed design of project components. • Advise PMU/PIU for compliance with statutory clearances. • Work out the site specific mitigation measures for components as required and integrate the same into contractual provisions. • Develop, organise and deliver environmental training programmes and workshops for the staff of the PIU and Contractors and in accordance to the Capacity Building Programme as specified in the IEE. • Preparation of Activity Plans as identified in IEE (these include Site Management Plans, Waste Management Plans, Sludge Management and Disposal Plans, Occupational Safety Plans etc). • Supervise the implementation of the Environmental provisions by the Contractors. • Review and approve site specific environmental enhancement/mitigation designs worked out by the Contractor. Hold regular consultation meetings with the Environmental specialist of the PMU • Review the Contractors' Environmental Implementation Plans to ensure compliance with the IEE. • Develop good practice construction guidelines to assist the contractors in implementing the provisions of IEE. • Prepare and submit regular environmental monitoring and implementation progress reports. • Assist Environmental Specialist of the PMU to prepare good practice dissemination notes based on the experience gained from site supervision.

Box 3: Terms of Reference of Safeguards Specialist (Environment) of PMC
• Support and advice the PMU and Consultant team in finalizing the IEE reports as per the ADB safeguard requirement • Best Environmental Practices for responding to environmental issues involved with implementation of the projects on a sustainable basis • Assistance and advice on institutional strengthening and capacity building at the PMU and PIU levels in regards to environmental practices. • Ensure that baseline surveys, environmental monitoring plans and programs, initial environmental examinations (IEE) as may be required are carried out. • Preparation of ADB procedure compliant environmental safeguard actions including impact assessment if any during the design stage • Oversight of implementation of environmental standards and safeguards as part of project implementation • Participate in preparation of Master Plan for additional sites and contribute to the environmental safeguards to the plan and sub components • Preparation of performance monitoring reports

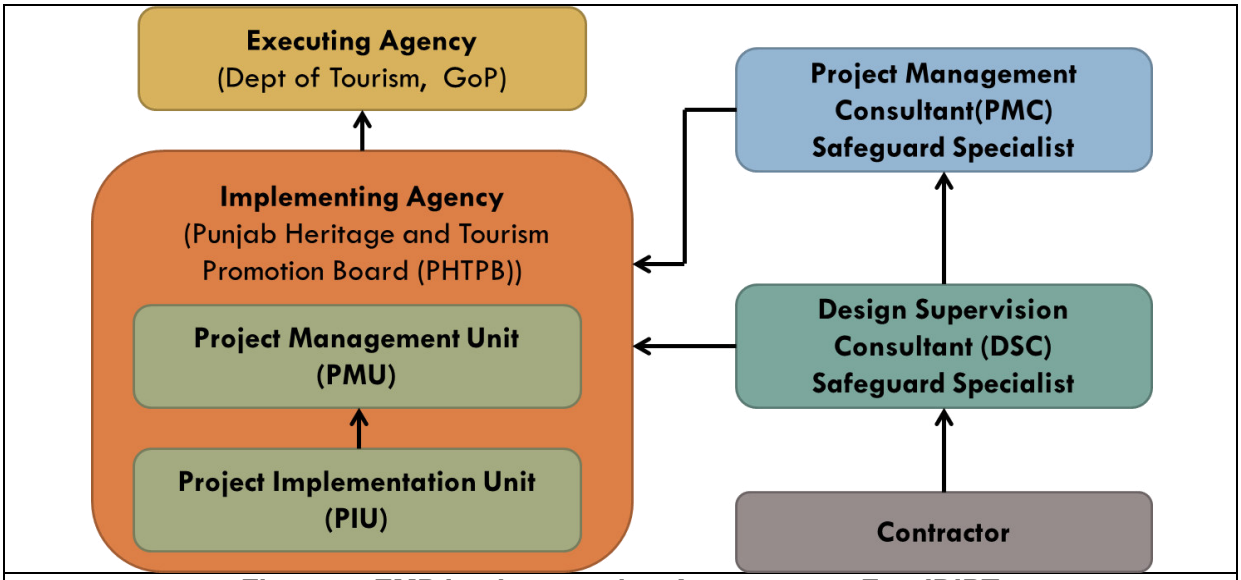


Figure 5: EMP Implementation Arrangement For IDIPT

106. **Responsibility for updating IEE during detailed design.** DSC will be responsible for preparation of IEE and updating it time to time, when required during detailed design and implementation phase.

107. **Responsibility for monitoring.** During construction, DSC's Environmental Specialist and the designated representative engineer of the PIU will monitor the contractor's environmental performance on day to day basis while PMC expert will randomly monitor the performance for corrective measures if required. During the operation phase, monitoring will be the responsibility of the Municipal Authority and Department of Tourism.

108. **Responsibility for Reporting.** PIU in coordination with DSC will submit quarterly and semi-annually monitoring report to PMU. On the basis of it PMU will submit to ADB semi-annual monitoring reports on implementation of the EMP and will permit ADB to field environmental review missions which will review in detail the environmental aspects of the project. Any major accidents having serious environmental consequences will be reported immediately. PMC environmental expert will help in preparation and finalization of quarterly, semi-annual and annual progress reports. The sample environmental monitoring template, summary monitoring table and sample environmental site inspection report format is attached as **Annexure 7 to 9**.

B. EMP Tables

109. **Table 8** to **Table 10** shows the potential adverse environmental impacts, proposed mitigation measures, responsible parties, and cost of implementation. This EMP will be included in the bid documents and will be further reviewed and updated during implementation.

Table 8: Pre-Construction EMP Table

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds
Consents, permits, clearances, no objection certificate (NOC), etc.(If applicable)	• Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works.(NoC from the asset owner (Department of Cultural Affairs, Archaeology and Museums) have been obtained and enclosed in **Annexure 10**)	• Consents, permits, clearance, NOCs, etc.	PMU	DSC and PIU	As per the conditions of the Consents, permits, clearance and NOCs	PMU
	• Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc.	• Records and communications	PMU	DSC and PMU	Acknowledge upon receipt Send report as specified in CTE, permits, etc.	PMU
	• Include in detailed design drawings and documents all conditions and provisions if necessary	• Detailed design documents and drawings	Contractor	PIU and DSC supported by PMU and PMC	Once during detailed design	Contractor
Establishment of baseline environmental conditions prior to start of civil works	• Conduct documentation of location of components, areas for construction zone (camps, staging, storage, stockpiling, etc.) and surroundings (within direct impact zones), locations of environmental monitoring Include photos and GPS coordinates	• Baseline environmental profile including ambient air, noise, water quality as per the standards	Contractor	PIU and DSC supported by PMU and PMC	Once before start of the construction work	PMU
Utilities	• Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during the construction phase. • Require contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services.	• List and maps showing utilities to be shifted • Contingency plan for services disruption	• DSC to prepare preliminary list and maps of utilities to be shifted • During detailed design phase, contractor to	PIU and DSC supported by PMU and PMC	Once during detailed design by DSC	DSC – preliminary design stage Contractor – implementation stage

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds
	• Obtain from the PIU and/or DSC the list of affected utilities and operators; • If relocations are necessary, contractor will coordinate with the providers to relocate the utility.		• prepare list and operators of utilities to be shifted; • contingency plan			
Sites for construction work camps, areas for stockpile, storage and disposal	• Will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems, etc. • Residential areas will not be considered so as to protect the human environment (i.e., to curb accident risks, health risks due to air and water pollution and dust, and noise, and to prevent social conflicts, shortages of amenities, and crime). • Disposal will not be allowed near sensitive areas which will inconvenience the community. • The construction camp, storage of fuel and lubricants should be avoided at sensitive zones. The construction camp site should be finalized in consultation with DSC and PIU.	• List of pre-approved sites for construction work camps, areas for stockpile, storage and disposal • Waste management plan	• DSC to prepare list of potential sites • DSC to inspect sites proposed by contractor if not included in pre-approved sites	PIU and DSC	Once during detailed design by DSC	Contractor
Sources of construction materials	• Use quarry sites and sources permitted by government. • Verify suitability of all material sources and obtain approval from PIU. • If additional quarries are required after construction has started, obtain written approval from PIU. • Submit to DSC on a monthly basis documentation of sources of materials.	• Permits issued to quarries/sources of materials	Contractor DSC to verify sources (including permits) if additional is requested by contractor	PIU and DSC	As per the condition of the permits / clearance issued	Contractor

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds
Access	• Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites. • Schedule transport and hauling activities during non-peak hours. • Locate entry and exit points in areas where there is low potential for traffic congestion. • Keep the site free from all unnecessary obstructions. • Drive vehicles in a considerate manner. • Notify affected sensitive receptors by providing sign boards with information about the nature and duration of construction works and contact numbers for concerns/complaints.	• Contingency plan for construction vehicle management	Contractor	PIU and DSC	Once during detailed design by DSC	Contractor
Occupational health and safety	• Comply with IFC EHS Guidelines on Occupational Health and Safety • Develop comprehensive site-specific health and safety (H&S) plan. The overall objective is to provide guidance to contractors on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project. • Include in H&S plan measures such as: (i) type of hazards in the construction site; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site	• Health and safety (H&S) plan	Contractor	PIU and DSC supported by PMU and PMC	As per the provisions given in the H&S Plan	Contractor

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds
	personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents. • Provide medical insurance coverage for workers.					
Public consultations	• Continue information dissemination, consultations, and involvement/participation of stakeholders during project implementation.	• Disclosure records • Consultations	PIU and DSC	PIU and DSC	• During updating of IEE Report • Prior to start of construction,	PIU Contractor to allocate funds to support

Table 9: EMP Table during Construction Phase

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
Impacts on water quality	• Schedule construction activities during non-monsoon season, to the maximum extent possible.	Work schedule	Contractor	PIU and DSC PIU and DSC to submit EMP monitoring report to PMU	• As per Environmental monitoring Program • Daily inspection by contractor supervisor and/or environment specialist • Weekly visual inspection by DSC (more frequent during monsoon season and if	Contractor on his own expense
	• Ensure drainages within the construction zones are kept free of obstructions.	Visual inspection				
	• Keep loose soil material and stockpiles out of drains and flow-lines.	Visual inspection				
	• Avoid stockpiling of excavated and construction materials (sand, gravel, cement, etc.) unless covered by tarpaulins or plastic sheets.	Visual inspection				
	• Re-use/utilize, to maximum extent possible, excavated materials.	condition in waste management plan				
	• Dispose any residuals at identified disposal site (PIU/DSC will identify	condition in waste management plan				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	approved sites).				corrective action is required) • Random inspection by PMU, PIU, PMC and/or DSC	
	• Dispose waste oil and lubricants generated as per provisions of Hazardous Waste (Management and Handling) Rules, 1989.	condition in waste management plan				
	• Inspect all vehicles daily for fluid leaks before leaving the vehicle staging area, and repair any leaks before the vehicle resumes operation.	Vehicle inspection report				
	• Do not dispose any construction material of general refuse on river side rather dispose all the construction debris and refuse at identified disposal site with prior permission from concerned local authority. PIU/DSC will identify and approve disposal sites.	condition in waste management plan				
	• Strictly prohibit open defecation by workers near river banks	H&S plan				
	• Water Quality monitoring has to be performed as per the Environmental Monitoring Program.	As per CPCB standards for surface water				
Impacts on air quality	• Conduct regular water spraying on stockpiles.	• Visual inspection • No complaints from sensitive receptors • Records	Contractor	PIU and DSC	• As per Environmental monitoring Program • Daily inspection by contractor supervisor and/or environment specialist • Weekly visual inspection by	Contractor
	• Conduct regular visual inspection in the construction zones to ensure no excessive dust emissions.	Visual inspection				
	• Maintain construction vehicles and obtain “pollution under control” certificate from PPCB.	PUC certificates				
	• Ambient Air Quality monitoring has to	Particulate matter				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	be performed as per the Environmental Monitoring Program.	(PM_{10} & $PM_{2.5}$), SOx, NOx, CO			DSC (more frequent during dry season and if corrective action is required) • Random inspection by PMU, PIU, PMC and/or DSC	
	• Obtain CTE and CTO for crushers, diesel generators etc., if to be used in the project.	CTE and CTO				
Noise and vibrations impacts	• Limit construction activities to the daytime only. • Plan activities in consultation with PIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance.	Work schedule	Contractor	PIU and DSC	• As per Environmental monitoring Program • Daily inspection by contractor supervisor and/or environment specialist • Weekly visual inspection by DSC (more frequent during noise-generating activities and if corrective action is required) • Random inspection by PMU, PIU, PMC and/or	Contractor
	• Minimize noise from construction equipment by using vehicle silencers and fitting jackhammers with noise-reducing mufflers.	As per the parameters mentioned for noise in the Environmental Monitoring Report				
	• Unnecessary use of sound horns should be prohibited. It shall be used only to warn road users or animals when they approach near the vehicle	feedback from receptors within direct and direct impact zone				
	• Ambient Noise levels have to be monitored as per the Environmental Monitoring Program.	Day time dB(A)				
	• If specific noise complaints are	• Conducting				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	received during construction, the contractor may be required to implement one or more of the following noise mitigation measures, as directed by the project manager: • Locate stationary construction equipment as far from nearby noise-sensitive properties, such as the hospital, as possible. • Shut off idling equipment. • Reschedule construction operations to avoid periods of noise annoyance identified in the complaint. • Notify nearby residents whenever extremely noisy work will be occurring.	noise monitoring at the site to cross verify the noise levels.			DSC	
Impacts on flora and fauna	• Conduct site induction and environmental awareness. • Strictly instruct workers not to cut trees for fuel wood • Do not harm existing vegetation in the area except indicated in site plan	• IEE baseline information for flora and fauna for the subproject area	Contractor	PIU and DSC	• daily inspection by contractor supervisor and/or environment specialist • weekly visual inspection by DSC (more frequent if corrective action is required) • random inspection by PMU, PIU, PMC and/or DSC	Contractor
	• Limit activities within the work area. • Strictly instruct workers not to harm any bird coming in the influence zone • Do not make excessive noise during bird season to disturb them • Strictly prohibit poaching of birds and animals in the vicinity of work sites	• Barricades along excavation works • Sign boards for awareness among workers • Training records				
	• Replant trees in the area using minimum ratio of 2 new trees for every 1 tree cut. Replacement species must be approved by district Forest Department.	• Number and species approved by Punjab State Forest				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
		Department				
Impacts on physical cultural resources	• Ensure no damage to structures/properties adjacent to construction zone.	• Visual inspection • any impact should be addressed by project resettlement plan	Contractor In coordination with PIU and DSC for any structures within the construction zone	PIU and DSC	• daily inspection by contractor supervisor and/or environment specialist • weekly visual inspection by DSC (more frequent if corrective action is required) • random inspection by PMU, PIU, PMC and/or DSC	Contractor
	• Provide sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints.	• photo-documentation				
	• Implement good housekeeping. Remove wastes immediately.	• Visual inspection • No stockpiled/ stored wastes				
	• Ensure workers will not use nearby/adjacent areas as toilet facility.	• Sanitation facilities for use of workers				
	• Coordinate with PIU/DSC for transportation routes and schedule. Schedule transport and hauling activities during non-peak hours. Communicate road detours via visible boards, advertising, pamphlets, etc. • Ensure heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites.	• Approved routes in traffic management plan				
	• Provide instructions on event of chance finds for archaeological and/or ethno-botanical resources. Works must be stopped immediately until such time chance finds are cleared by experts.	Condition in chance find protocol				
Impact due	• Prepare and implement a waste	Condition in waste	Contractor	PIU and DSC	• daily inspection	Contractor

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
to waste generation	management plan. Manage solid waste according to the following hierarchy: reuse, recycling and disposal. Include in waste management plan designated/approved disposal areas. • Coordinate with PIU/DSC for beneficial uses of excavated soils or immediately dispose to designated areas. • Recover used oil and lubricants and reuse; or remove from the site. • Avoid stockpiling and remove immediately all excavated soils, excess construction materials, and solid waste (remove concrete, wood, packaging materials, empty containers, oils, lubricants, and other similar items). • Prohibit disposal of any material or wastes (including human waste) into drainage, nallah, or watercourse.	management plan			by contractor supervisor and/or environment specialist • weekly visual inspection by DSC (more frequent if corrective action is required) • random inspection by PMU, PIU, PMC and/or DSC	
Impacts on occupational health and safety	• Comply with IFC EHS Guidelines on Occupational Health and Safety	• Visual inspection	Contractor	PIU and DSC	• daily inspection by contractor supervisor and/or environment specialist • weekly visual inspection by DSC (more frequent if corrective action is	Contractor
	• Disallow worker exposure to noise level greater than 85 dBA for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.	• Visual inspection • Work schedule • Noise level monitoring in work area				
	• Provide H&S orientation training to all new workers to ensure that they are apprised of the rules of work at the site, personal protective equipment, and preventing injury to fellow	• Condition in H&S plan				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	workers.				required)	
	• Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site as well as at construction camps.	• Visible first aid equipment and medical supplies • Condition in H&S plan			• random inspection by PMU, PIU, PMC and/or DSC	
	• Provide medical insurance coverage for workers.	As per the health insurance policy				
	• Secure construction zone from unauthorized intrusion and accident risks.	• Area secured • Trenches barricaded				
	• Provide potable drinking water.	• Supply of water				
	• Provide clean eating areas where workers are not exposed to hazardous or noxious substances.	• Workers area				
	• Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted.	• Condition in H&S plan				
	• Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas.	• Visual inspection • Condition in H&S plan				
	• Ensure moving equipment is outfitted with audible back-up alarms.	• Construction vehicles • Condition in H&S plan				
	• Mark and provide sign boards in the construction zone, and areas for storage and disposal. Signage shall	• Visible and understandable sign boards in				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate.	construction zone • H&S plan includes appropriate signs for each hazard present				
Impacts on socio-economic activities	• Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.	Visible and understandable sign boards in construction zone	Contractor	PIU and DSC	• daily inspection by contractor supervisor • weekly visual inspection by DSC (more frequent if corrective action is required) • random inspection by PMU, PIU, PMC	Contractor
	• Employ at least 50% of the labor force, or to the maximum extent, local persons within the 20-km immediate area if manpower is available.	Employment records				

Table 10: EMP Table during Post-Construction Phase

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
Solid waste (debris, excavated soils, etc.)	• Backfill any excavation and trenches, preferably with excess excavation material generated during the construction phase. • Use removed topsoil to reclaim disturbed areas. • Re-establish the original grade and drainage pattern to the extent	Pre-existing condition Construction zone has been restored	Contractor	PIU and DSC PIU and DSC to submit EMP monitoring report to PMU	• visual inspection by contractor supervisor and/or environment specialist	Contractor

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	practicable. • Stabilize all areas of disturbed vegetation using weed-free native shrubs, grasses, and trees. • Restore access roads, staging areas, and temporary work areas. • Remove all tools, equipment, barricades, signs, surplus materials, debris, and rubbish. Demolish buildings/structures not required for O&M. Dispose in designated disposal sites. • Monitor success of re-vegetation and tree re-planting. Request in writing from PIU/DSC that construction zones have been restored.					

C. Summary of Site and Activity-Specific Plans as per EMP

110. **Table 11** summarizes site and activity-specific plans to be prepared as per EMP tables.

Table 11: Site- and Activity-Specific Plans/Programs as per EMP

To be Prepared During	Specific Plan/Program	Purpose	Responsible for Preparation	Responsible for Implementation
Detailed Design Phase	Environmental monitoring program as per detailed design	Indicate sampling locations, methodology and parameters	DSC	Contractor under the supervision of the DSC
Detailed Design Phase	List and maps showing utilities to be shifted	Utilities shifting	PIU/DSC during preliminary stage Contractor as per detailed design	Contractor under the supervision of the DSC
Detailed Design Phase	Contingency plan	Mitigate impacts due to interruption of services during utilities shifting	Contractor	Contractor under the supervision of the DSC
Detailed Design Phase	Chance find protocol	Address archaeological or historical finds	PIU and DSC	Contractor under the supervision of the DSC
Detailed Design Phase	List of pre-approved sites	Location/s for work camps, areas for stockpile, storage and disposal	PIU and DSC	Contractor under the supervision of the DSC
Detailed Design Phase	Waste management plan	Mitigate impacts due to waste generation	Contractor	Contractor under the supervision of the DSC
Detailed Design Phase	Traffic management plan	Mitigate impacts due to transport of materials and pipe laying works	Contractor	Contractor under the supervision of the DSC
Detailed Design Phase	H&S plan	Occupational health and safety	Contractor to prepare or follow the EMP in IEE	Contractor under the supervision of the DSC

IX. ENVIRONMENTAL MONITORING PROGRAM

111. Through integration of mitigation measures in project design, the anticipated impacts are mostly insignificant, temporary in nature and can be avoided or mitigated by following proposed mitigation measures given in the EMP. **Table 12** provides the indicative environmental monitoring program which includes relevant environmental parameters, with a description of the sampling stations, frequency of monitoring, applicable standards, and responsibility. This will be updated during detailed design to ensure EMP and monitoring program is commensurate to the impacts of the subproject.

Table 12: Indicative Environmental Monitoring Program

Sl.no	Field	Phase	Parameters	Location	Frequency	Responsibility
1.	Air quality	Pre-construction (before commencement of	Particulate matter (PM_{10}&$PM_{2.5}$),	At 2 locations (i) 120° from	24 hours (Once before start of the	PIU

Sl.no	Field	Phase	Parameters	Location	Frequency	Responsibility
		civil works)	SOx, NOx, CO	the construction siteand (ii) Periphery of the Maharaja Ranjit Singh Park	construction)	
		Construction	Particulate matter (PM_{10}& $PM_{2.5}$), SOx, NOx, CO	At 2 locations (i) 120° from the construction site and (ii) Periphery of the Maharaja Ranjit Singh Park	24 hours (Three seasons except monsoon season)	Contractor
2.	Noise	Pre-construction (before commencement of civil works)	Day time dB(A)	At two locations (similar to air quality locations)	Once before construction	PIU
		Construction	Day time dB(A)	At two locations (similar to air quality locations)	Three seasons except monsoon season	Contractor
3	Surface Water Quality	Pre-construction(before commencement of civil works)	As per CPCB standards for surface water	2 samples in the River Sutlej adjacent to the Maharaja Ranjit Singh Park	Once before construction	PIU
		Construction	As per CPCB standards for surface water	2 samples in the River Sutlej adjacent to the Maharaja Ranjit Singh Park	Six monthly (except monsoon season)	Contractor

X. CAPACITY BUILDING

112. The Environmental Specialist of the DSC will provide the basic training required for environmental awareness followed by specific aspects of Infrastructure Improvement Projects along with Environmental implications for projects. Specific modules customized for the available skill set will be devised after assessing the capabilities of the members of the Training Programme and the requirements of the project. The entire training would cover basic principles of environmental assessment and management; mitigation plans and programmes, implementation techniques, monitoring methods and tools. The proposed training program along with the frequency of sessions is presented in
113.

114.

115. Table 13 below. This training program is intended for the entire destination and is not just specific to this package.

Table 13: Training Modules for Environmental Management (common for entire project)

Programme	Description	Participants	Form of Training	Duration/ Location	Training Conducting Agency
A. Pre-Construction Stage					
Sensitization Workshop	Introduction to Environment: Basic Concept of environment Environmental Regulations and Statutory requirements as per Government of India and ADB	Tourism / Forest / Roads / Culture Department Officials, Project Director (PD) and Environmental Specialist (ES) of the PMU/PIU	Workshop	½ Working Day	Safeguard Specialist of the PMC
Session I					
Module I	Introduction to Environment: Basic Concept of environment Safeguards Regulations and Statutory requirements as per Government of India and ADB Guidelines on cultural resources, Environmental considerations in planning, design and implementing projects	PMU/PIU (including the ES) and Engineering staff of the implementing agencies	Lecture	1Working Day	Safeguards Specialist of the PMC
Module II	Environmental components impacted in construction and operation stages Activities causing pollution during construction and operation stages Environmental Management Environmental Provisions Implementation Arrangements Methodology of Assessment Good engineering practices to be integrated into contract documents	PMU/PIU (including the ES) and Engineering staff of Tourism dept.	Workshop	¼ Working Day	Safeguards Specialist of the PMC

Programme	Description	Participants	Form of Training	Duration/ Location	Training Conducting Agency
Module III	Environmental considerations in planning, designing and implementing heritage buildings and conservation projects	PMU/PIU (including the ES) and Engineering staff of Tourism dept.	Lecture / Interactive Sessions and site visits	2 working days	Safeguards specialist of the PMC with support from the International Conservation specialist of the PMC
Module IV	Improved Co-ordination with other Departments: Statutory Permissions – Procedural Requirements Co-operation & Co-ordination with other Departments.	PMU/PIU (including the ES) and Engineering staff of Tourism dept.	Lecture / Interactive Sessions	1Working Day	Safeguards Specialist of the PMC
B. Construction Stage					
Session II					
Module V	Role during Construction Roles and Responsibilities of officials/ contractors/ consultants towards protection of environment Implementation Arrangements Monitoring mechanisms	Engineers and staff of line depts. of GoP, and PMU/PIU (including the ES)	Lecture / Interactive Sessions	½ Working Day	Safeguards Specialist of the PMC
Module VI	Monitoring and Reporting System	Engineers and staff of implementing agencies , and PMU/PIU (including the ES)	Lecture / Interactive Sessions	½ Working Day	Safeguards Specialist of the PMC

XI. EMP IMPLEMENTATION COST

116. As part of good engineering practices in the project, there have been several measures as safety, signage, dust suppression, procurement of personal protective equipment, provision of drains, etc. and the costs for which will be included in the design costs of specific subprojects. Therefore, these items of costs have not been included in the IEE budget. Only those items not covered under budgets for construction are considered in the IEE budget.

117. From the construction activities point of view, it is relatively a minor construction project and hence it is not expected to cause significant air, water and noise pollution. However as per the environmental monitoring plan suggested for this subproject area, provisions had been given in the EMP budget for conducting ambient air, noise quality and water quality monitoring.

118. The costs of water sprinkling for dust suppression and providing personal protective equipment's to construction workers shall borne by contractor as part of conditions of contract. In addition the sources of funds for Mitigation measures during construction stage including monitoring during construction stage are also to be borne by the contractor. These are deemed to be included as part of the contract price amount quoted by the contractor for

the works. The costs of components for monitoring in operation stage and the capacity building costs are to be funded by the PMU. The EMP cost is given in the **Table 14** below.

Table 14: Indicative EMP Budget

S.N.	Particulars	Stages	Unit	Total number	Rate (INR)	Cost (INR)	Source of fund
A. Monitoring Measures							
1	Ambient Air Quality	Pre - Construction	Per sample	2	10,000	20,000.00	PMU
2	Noise Monitoring	Pre - Construction	Per sample	2	4,000	8,000.00	PMU
3	Water Quality	Pre - Construction	Per sample	2	10,000	20,000.00	PMU
4	Ambient Air Quality	Construction	Per sample	10	10,000	100,000.00	Contractor budget
5	Noise Monitoring	Construction	Per sample	10	4,000	40,000.00	Contractor budget
6	Water Quality	Construction	Per sample	6	10,000	60,000.00	Contractor budget
				Sub- Total (A)		**2,48,000.00**	
B.	**Capacity Building – Training** cost (includes cost estimates for the entire circuit, and not included in the package costs)						
1	Sensitization Workshop	Pre-Construction	L.S			1,50,000.00	PMU
2	Training Session I	Construction	L.S			1,50,000 .00	PMU
3	Training Session II	Construction	L.S			1,50,000 .00	PMU
					Sub -Total (B)	**4,50,000.00**	
					Total (A+B) INR	**6,98,000.00**	

XII. FINDINGS AND RECOMMENDATIONS

119. The proposed components as part of the package are in line with the subproject selection criteria for the program. The subproject conforms to GoI and ADB regulations, policies and standards including all necessary government permits and clearances/ NoC's.

120. The specific management measures laid down in the IEE will effectively address any adverse environmental impacts due to the sub-project. The effective implementation of the measures proposed will be ensured through the building up of capacity towards environmental management within the PMU supplemented with the technical expertise of a Safeguards Specialist as part of the DSC Consultants. Further, the environmental monitoring plans provide adequate opportunity towards course correction to address any residual impacts during construction or operation stages.

XIII. CONCLUSIONS

121. The IEE carried out for the sub-project shows that the proposed interventions/ components will result in net environmental benefits and that any likely environmental impact can be addressed through proper location, planning and design of the proposed sub-project; control of construction activity and mitigation measures. The EMP provides for mitigation of all identified impacts and the Contract clauses for the environmental provisions will be part of the civil works contracts. Further, the proposed designs have been consulted with the stakeholders and no significant issues requiring redress in terms of environmental

safeguards are known to exist at present.

122. Based on the findings of the IEE, there are no significant negative environmental impacts and the classification of the subproject as Category “B” is confirmed. No study or detailed Environmental Impact Assessment (EIA) needs to be undertaken to comply with ADB’s SPS (2009).

Annexure 1

Rapid Environmental Assessment (REA) Checklist

URBAN DEVELOPMENT

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES), for endorsement by Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Subproject:
Establishment of Tourism Facilities and Infrastructure Showcasing of Sikh Culture (Lot-1), Development of Maharaja Ranjit Singh Treaty Signing Site

Country/Project Title: India/Infrastructure development Investment program (IDIPT-Punjab)
Sector Division: Urban Development.

Screening Questions	Yes	No	Remarks
A. Project Siting It is Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site	✓		Proposed site of Maharaja Ranjit Singh Treaty site is historical and cultural heritage sites
▪ Protected Area	✓		Ropar wetland (RAMSAR site) is located within 1km radius from the subproject site
▪ Wetland	✓		Subproject site is within 1 km of Ropar wetland which is a Ramsar site
▪ Mangrove		✓	Not applicable
▪ Estuarine		✓	Not applicable
▪ Buffer zone of protected area		✓	Not applicable
▪ Special area for protecting biodiversity	✓		Ropar wetland (RAMSAR site) is a protected biodiversity, which is located within 1km radius from the subproject site
B. Potential Environmental Impacts Will the Project cause...			
▪ Encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		✓	The subproject site belongs to Government of Punjab and its free from encroachments
▪ Encroachment on precious ecology (e.g. sensitive or protected areas)?		✓	No, the protected area (Ropar Wetland) is 1km from the subproject area
▪ Alteration of surface water hydrology of		✓	Thought the River Sutlej traverse

Screening Questions	Yes	No	Remarks
waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?			adjacent to subproject site, the proposed construction activities shall not have any impact on the surface water hydrology of the river
▪ Deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?		✓	Thought the River Sutlej traverse adjacent to subproject site, the proposed construction activities shall not have any impact on the surface water quality
▪ Increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing?		✓	No such works are proposed
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?		✓	Not envisaged
▪ Noise and vibration due to blasting and other civil works?		✓	blasting operations are not required
▪ Dislocation or involuntary resettlement of people?		✓	Not envisaged
▪ Dislocation and compulsory resettlement of people living in right-of- way?		✓	Not envisaged
▪ Disproportionate impacts on the poor, women and children indigenous peoples or other vulnerable groups?		✓	No such impacts may arise
▪ Other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?		✓	No such impacts may arise
▪ Hazardous driving condition where construction interferes with pre-existing roads?		✓	No such impacts may arise
▪ Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?		✓	No, appropriate waste management measures that needs to be adopted during the project construction has been suggested in the EMP
▪ Creation of temporary breeding habitats for disease such as those transmitted by mosquitoes and rodents?		✓	No such impacts may arise
▪ Accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials?		✓	Not envisaged
▪ Increase noise and air pollution resulting from traffic volume?		✓	Not envisaged
▪ Increase risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?		✓	Not envisaged
▪ Social conflicts if workers from other region of countries are hired?		✓	No such impacts may arise. it is proposed to engage local labourers for the construction work
▪ Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation		✓	No such impacts may arise as the labour requirement is minimal

Screening Questions	Yes	No	Remarks
systems)?			
▪ Risks to community health and safety due to the transport, storage, and use and /or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		✓	No such materials are required which may create community health and safety risks
▪ Community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where the failure could result in injury to the community throughout project construction, operation and decommissioning.		✓	Not envisaged

PRELIMINARY CLIMATE RISK SCREENING CHECKLIST FOR SAMPLE SUBPROJECT TOWNS

Screening Questions		Score	Remarks[5]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?	1	Site is on the banks of River Sutlej and may affected by floods
	Will the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	Not required, the proposed subproject is restricted only to renovation work and hence considering hydro meteorology parameters are not required in the design
Materials and Maintenance	Will weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity, and hydro-meteorological parameters) affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	No such issue may affect the project
	Will weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?	0	No such issue may affect the project
Performance of project outputs	Will weather/climate conditions and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	No problem will envisaged in future which likely affect the performance of project output

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

[5]If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): Medium

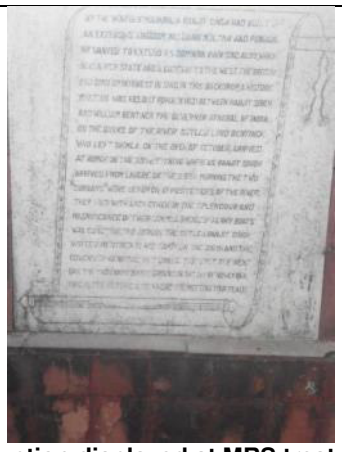
Other Comments: The proposed subproject activity involves renovation works which includes fixing of furniture's, pathway flooring works, lighting, sitting arrangement, cafeteria, landscaping etc., hence the anticipated environmental impacts is very marginal and the construction activities does not impose any threat to the existing climatic conditions.

Prepared by: Department of Tourism

Annexure 2

Photo Illustration

Maharaja Ranjit Singh (MRS) Treaty signing site



Encryption displayed at MRS treaty site

River Sutlej flow beside MRS treaty site

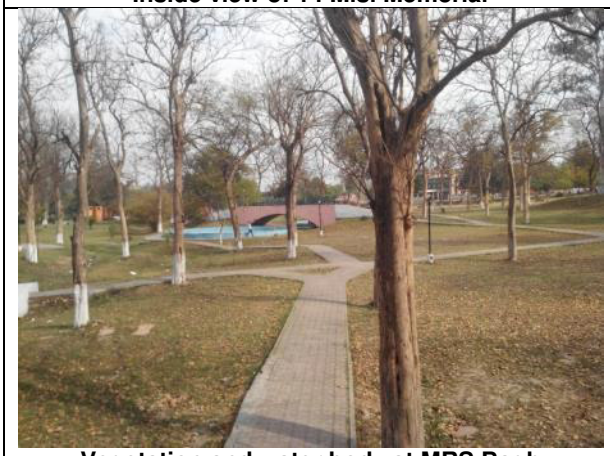
Pathway to MRS treaty site

Maharaja Ranjit Singh Bagh

14 Misl Memorial at MRS Bagh

Inside view of 14 Misl Memorial

Plantations along pathway to MRS Treaty site



Vegetation and water body at MRS Bagh

Barrage at river Sutlej near site

Annexure 3

Sample Outline of Spoil Management Plan (SMP)

1.0 Purpose and application:

SMP is to describe how the project will manage the spoil generated and reuse related to design and construction works. This is an integral part of EMP. The objective of SMP is to reuse of spoil from works in accordance with the spoil management hierarchy outlined in this document.

2.0 Objectives of SMP:

The objectives of SMP are:

- To minimize spoil generation where possible
- Maximize beneficial reuse of spoil from construction works in accordance with spoil management hierarchy
- Mange onsite spoil handling to minimize environmental impacts on resident and other receivers
- Minimize any further site contamination of land, water, soil
- Manage the transportation of spoil with consideration of traffic impacts and transport related emissions

3.0 Structure of SMP:

Section 1: Introduction of SMP
Section 2: Legal and other requirements
Section 3: Roles and responsibilities
Section 4: Identification and assessment of spoil aspects and impacts
Section 5: Spoil volumes, characteristics and minimization
Section 6: Spoil reuses opportunities, identification and assessment
Section 7: On site spoil management approach
Section 8: Spoil transportation methodology
Section 9: Monitoring, Reporting, Review, and Improvements

4.0 Aspects and Potential Impacts

The key aspects of potential impacts in relation to SMP are listed in table below

Aspects	Potential Impacts
Air Quality	Potential for high winds generating airborne dust from the stock piles
Sedimentation	Potential for sediment laden site runoff from spoil stockpiles and potential for spillage of spoil from truck on roads
Surface and Groundwater	Contamination of water (surface and ground water)
Noise	Associated with spoil handling and haulage and storage
Traffic	Impacts associated with spoil haulage
Land Use	Potential for spoil to be transported to a receivable site that doesn't have permission for storage/disposal
Design specifications	Limitations on opportunities to minimize spoil generation
Sustainability	Limited sites for storage, reuse opportunities

5.0 Spoil volumes, characteristics and minimization

5.1 Spoil volume calculations: Estimate the volumes of spoils produced from each of the construction sites.

5.2 Characterization of spoil: Based on the type of spoil; characterization is done (sand stone, mud mix materials, reusable materials

5.3 Adopt Spoil Reduce, Reuse Opportunities

An overview of the assessment methodology to be used is mentioned below.

- Consideration of likely spoil characteristics
- Identification of possible reuse sites
- Screening of possible reuse opportunities

5.4 Identification of possible safe disposal sites for spoil: Those spoils which can't be reuse shall be properly disposed in designated areas, such disposal areas should be identified in project locations. Such disposal areas should be safe from environmental aspects and there should be any legal and resettlement related issues. Such areas need to be identified and prior cliental approval should be obtained to use it as spoil disposal area. The local administration must be consulted and if required permission should be obtained from them.

5.5 Storage and stock piling

5.6 Transportation and haulage route

6.0Based on the above, the contractor will prepare a SMP as an integral part of EMP and submit it to the PIU/DSC for their review and approval.

Annexure 4

Sample Traffic Management Plan (TMP)

A. Principles

1. One of the prime objectives of this TMP is to ensure the safety of all the road users along the work zone, and to address the following issues:

- the safety of pedestrians, bicyclists, and motorists travelling through the construction zone;
- protection of work crews from hazards associated with moving traffic;
- mitigation of the adverse impact on road capacity and delays to the road users;
- maintenance of access to adjoining properties
- Avoid hazards in addressing issues that may delay the project

B. Operating Policies for TMP

2. The following principles will help promote safe and efficient movement for all road users (motorists, bicyclists, and pedestrians, including persons with disabilities) through and around work zones while reasonably protecting workers and equipment.

- Make traffic safety and temporary traffic control an integral and high-priority element of every project from planning through design, construction, and maintenance.
- Inhibit traffic movement as little as possible.
- Provide clear and positive guidance to drivers, bicyclists, and pedestrians as they approach and travel through the temporary traffic control zone.
- Inspect traffic control elements routinely, both day and night, and make modifications when necessary.
- Pay increased attention to roadside safety in the vicinity of temporary traffic control zones.
- Train all persons that select, place, and maintain temporary traffic control devices.
- Keep the public well informed.
- Make appropriate accommodation for abutting property owners, residents, businesses, emergency services, railroads, commercial vehicles, and transit operations.

C. Analyze the impact due to street closure, if required

3. Apart from the capacity analysis, a final decision to close a particular street and divert the traffic should involve the following steps:

- approval from the PIU, local administration to use the local streets as detours;
- consultation with businesses, community members, traffic police, PWD, etc, regarding the mitigation measures necessary at the detours where the road is diverted during the construction;
- determining of the maximum number of days allowed for road closure, and incorporation of such provisions into the contract documents;
- determining if additional traffic control or temporary improvements are needed along the detour route;
- considering how access will be provided to the worksite;
- contacting emergency service, school officials, and transit authorities to determine if there are impacts to their operations; and developing a notification program to the public so that the closure is not a surprise. As part of this program, the public should be advised of alternate routes that commuters can take or will have to take as result of the traffic diversion.

4. If full road-closure of certain streets within the area is not feasible due to inadequate capacity of the Detour Street or public opposition, the full closure can be restricted to weekends with the construction commencing on Saturday night and ending on Monday morning prior to the morning peak period.

Figure A1: Policy Steps for the TMP

Review	• Review construction schedule and methods
Traffic Re-Circulation	• Identify initial traffic recirculation and control policy
Traffic Diversions	• Identify routes for traffic diversions • Analyse adverse impact & mitigation at the detours
Full Road Colsures	• Begin community consultation for consensus • Finalise or determine alternate detours
Temporary parking	• Identify temporary parking (on and off -street) • Discuss with CMC, owner, community for use
Police Coordination	• Coordinate with theTraffic Police to enforce traffic and diversions.
Install control devices	• Install traffic control devices (traffic cones, signs, lightings, etc)
Awareness	• Conduct campaigns, publicity, and notify public about street closure.
Public Redress	• Develop a mechanism to address public grievances regarding disruptons (traffic, utilities, and diversions)

D. Public awareness and notifications

5. As per discussions in the previous sections, there will be travel delays during the constructions, as is the case with most construction projects, albeit on a reduced scale if utilities and traffic management are properly coordinated. There are additional grounds for travel delays in the area, as most of the streets lack sufficient capacity to accommodate additional traffic from diverted traffic as a result of street closures to accommodate the works.

6. The awareness campaign and the prior notification for the public will be a continuous activity which the project will carry out to compensate for the above delays and minimize public claims as result of these problems. These activities will take place sufficiently in advance of the time when the roadblocks or traffic diversions take place at the particular streets. The reason for this is to allow sufficient time for the public and residents to understand the changes to their travel plans. The project will notify the public about the roadblocks and traffic diversion through public notices, ward level meetings and city level meeting with the elected representatives.

7. The PIU will also conduct an awareness campaign to educate the public about the following issues:

(i) traffic control devices in place at the work zones (signs, traffic cones, barriers, etc.);
(ii) defensive driving behaviour along the work zones; and
(iii) reduced speeds enforced at the work zones and traffic diversions.

8. It may be necessary to conduct the awareness programs/campaigns on road safety during construction.

9. The campaign will cater to all types of target groups i.e. children, adults, and drivers. Therefore, these campaigns will be conducted in schools and community centers. In addition, the project will publish a brochure for public information. These brochures will be widely circulated around the area and will also be available at the PIU, and the contractor's site office. The text of the brochure should be concise to be effective, with a lot of graphics. It will serve the following purpose:

(i) explain why the brochure was prepared, along with a brief description of the project;
(ii) advise the public to expect the unexpected;
(iii) educate the public about the various traffic control devices and safety measures adopted at the work zones;
(iv) educate the public about the safe road user behaviour to emulate at the work zones;
(v) tell the public how to stay informed or where to inquire about road safety issues at the work zones (name, telephone, mobile number of the contact person; and
(vi) indicate the office hours of relevant offices.

E. Vehicle Maintenance and Safety

10. A vehicle maintenance and safety program shall be implemented by the construction contractor. The contractor should ensure that all the vehicles are in proper running condition and it comply with roadworthy and meet certification standards of GoI. All vehicles to be used at STWSSP shall be in perfect condition meeting pollution standards of GoI. The vehicle operator requires a pre state of shift checklist. Additional safety precautions will include the requirement for:

- Driver will follow the special code of conduct and road safety rules of Government of India.
- Drivers to ensure that all loads are covered and secured drivers to ensure operation equipment can't leak materials hauled.
- Vehicles will be cleaned and maintained in designed places.

F. Install traffic control devices at the work zones and traffic diversion routes

10. The purpose of installing traffic control devices at the work zones is to delineate these areas to warn, inform, and direct the road users about a hazard ahead, and to protect them as well as the workers. As proper delineation is a key to achieve the above objective, it is important to install good traffic signs at the work zones. The following traffic control devices are used in work zones:

- Signs
- Pavement Markings
- Channelizing Devices
- Arrow Panels
- Warning Lights

11. Procedures for installing traffic control devices at any work zone vary, depending on road configuration, location of the work, construction activity, duration, traffic speed and volume, and pedestrian traffic. Work will take place along major roads, and the minor internal roads. As such, the traffic volume and road geometry vary. The main roads carry considerable traffic; internal roads in the new city areas are wide but in old city roads very narrow and carry considerable traffic. However, regardless of where the construction takes place, all the work zones should be cordoned off, and traffic shifted away at least with traffic cones, barricades, and temporary signs (temporary “STOP” and “GO”).

12. The work zone should take into consideration the space required for a buffer zone between the workers and the traffic (lateral and longitudinal) and the transition space required for delineation, as applicable. For the works, a 30 cm clearance between the traffic and the temporary STOP and GO signs should be provided. In addition, at least 60 cm is necessary to install the temporary traffic signs and cones.

13. Traffic police should regulate traffic away from the work zone and enforce the traffic diversion result from full street closure in certain areas during construction. Flaggers/ personnel should be equipped with reflective jackets at all times and have traffic control batons (preferably the LED type) for regulating the traffic during night time.

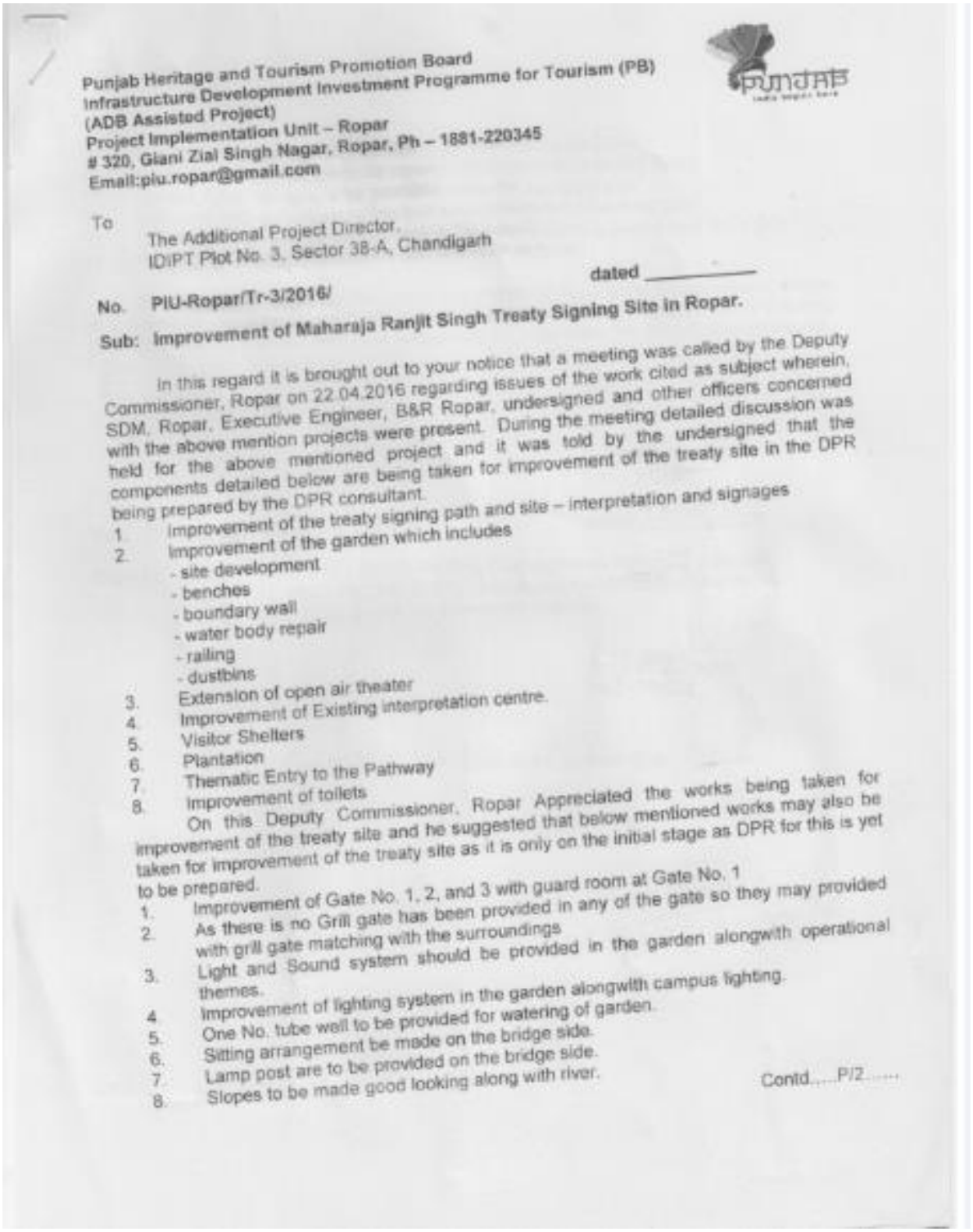
14 In addition to the delineation devices, all the construction workers should wear fluorescent safety vests and helmets in order to be visible to the motorists at all times. There should be provision for lighting beacons and illumination for night constructions.

15. The PIU and contractor will coordinate with the local administration and traffic police regarding the traffic signs, detour, and any other matters related to traffic. The contractor will prepare the traffic management plan in detail and submit it along with the EMP for the final approval.

Annexure 5

Stakeholder Consultations

Meeting with Deputy Commissioner, Rupnagar during Preliminary Design



Punjab Heritage and Tourism Promotion Board
Infrastructure Development Investment Programme for Tourism (PB)
(ADB Assisted Project)
Project Implementation Unit – Ropar
320, Giani Zial Singh Nagar, Ropar, Ph – 1881-220345
Email:piu.ropar@gmail.com

To
The Additional Project Director,
IDIPT Plot No. 3, Sector 38-A, Chandigarh

No. PIU-Ropar/Tr-3/2016/ dated _____

Sub: Improvement of Maharaja Ranjit Singh Treaty Signing Site in Ropar.

In this regard it is brought out to your notice that a meeting was called by the Deputy Commissioner, Ropar on 22.04.2016 regarding issues of the work cited as subject wherein, SDM, Ropar, Executive Engineer, B&R Ropar, undersigned and other officers concerned with the above mention projects were present. During the meeting detailed discussion was held for the above mentioned project and it was told by the undersigned that the components detailed below are being taken for improvement of the treaty site in the DPR being prepared by the DPR consultant.

1. Improvement of the treaty signing path and site – interpretation and signages
2. Improvement of the garden which includes
   - site development
   - benches
   - boundary wall
   - water body repair
   - railing
   - dustbins
3. Extension of open air theater
4. Improvement of Existing interpretation centre.
5. Visitor Shelters
6. Plantation
7. Thematic Entry to the Pathway
8. Improvement of toilets

On this Deputy Commissioner, Ropar Appreciated the works being taken for improvement of the treaty site and he suggested that below mentioned works may also be taken for improvement of the treaty site as it is only on the initial stage as DPR for this is yet to be prepared.

1. Improvement of Gate No. 1, 2, and 3 with guard room at Gate No. 1
2. As there is no Grill gate has been provided in any of the gate so they may provided with grill gate matching with the surroundings
3. Light and Sound system should be provided in the garden alongwith operational themes.
4. Improvement of lighting system in the garden alongwith campus lighting.
5. One No. tube well to be provided for watering of garden.
6. Sitting arrangement be made on the bridge side.
7. Lamp post are to be provided on the bridge side.
8. Slopes to be made good looking along with river.

Contd.....P/2.....

9. Two No. rooms alongwith toilet are to be instructed near gates.
10. Green Room + Toilet are to be constructed beyond the existing stage.
11. Antique Type railing is to be provided along the boundary wall.
12. Boundary wall or Antique railing is to be provided along the river side.
13. Fish Aquarium is to be constructed in the already existing ponds near main gate.
14. Red stone flooring is to be provided wherever required.

It is therefore, requested that points suggested by the Deputy Commissioner, Ropar may please be considered and DPR consultant may be asked to prepared the DPR taking into consideration above mentioned suggestion as suggested by Deputy Commissioner, Ropar.

Submitted please.

Project Manager,
PIU – Ropar

No. PIU-Ropar/Tr-3/2016/ 218/612 **dated** 23/04/2016

Copy to:
1. CGM, PMU, IDIPT, PHTPB, Chandigarh for information please.
2. TL, PMC, PHTPB, IDIPT, Chandigarh for information please.
3. DTL, DSC, Ropar, for information please.

Project Manager,
PIU – Ropar

Recd today 27.04.16.
M/s GMK Infrasolutions LLP.
As discussed, for consideration & further req. pl.
27.04.16
(Project Coordinator)

Annexure6

Sample Grievance Redress Form

(To be available in Local Language and English)

The _____Project welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback. Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date		**Place of registration**			
Contact Information/Personal Details					
Name		**Gender**	* Male * Female	**Age**	
Home Address					
Place					
Phone no.					
E-mail					
Complaint/Suggestion/Comment/Question Please provide the details (who, what, where and how) of your grievance below: If included as attachment/note/letter, please tick here:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of Official registering grievance)	
Mode of communication: Note/Letter E-mail Verbal/Telephonic	
Reviewed by: (Names/Positions of Official(s) reviewing grievance)	
Action Taken:	
Whether Action Taken Disclosed:	Yes No
Means of Disclosure:	

Annexure 7

Sample Quarterly Environmental Monitoring Report Template

This template must be included as an Annex in the EIA/IEE that will be prepared for the project. It can be adapted to the specific project as necessary.

INTRODUCTION

- Overall project description and objectives
- Description of sub-projects
- Environmental category of the sub-projects
- Details of site personnel and/or consultants responsible for environmental monitoring
- Overall project and sub-project progress and status

No.	Sub-Project Name	Status of Sub-Project				List of Works	Progress of Works
		Design	Pre-Construction	Construction	Operational		
		☐	☐	☐	☐		
		☐	☐	☐	☐		
		☐	☐	☐	☐		

COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS

No.	Sub-Project Name	Statutory Environmental Requirements	Status of Compliance	Action Required

COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required

COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

- Provide the monitoring results as per the parameters outlined in the EMP. Append supporting documents where applicable, including Environmental Site Inspection Reports.
- There should be Reporting on the following items which can be incorporated in the checklist of routine Environmental Site Inspection Report followed with a summary in the semi-annual Report send to ADB. Visual assessment and review of relevant site documentation during routine site inspection needs to note and record the following:
- What are the dust suppression techniques followed for site and if any dust was noted to escape the site boundaries;
- If muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads;
- adequacy of type of erosion and sediment control measures installed on site, condition of erosion and sediment control measures including if these were intact following heavy rain;

- Are their designated areas for concrete works, and refuelling;
- Are their spill kits on site and if there are site procedure for handling emergencies;
- Is there any chemical stored on site and what is the storage condition?
- Is there any dewatering activities if yes, where is the water being discharged;
- How are the stockpiles being managed;
- How is solid and liquid waste being handled on site;
- Review of the complaint management system;
- Checking if there are any activities being under taken out of working hours and how that is being managed.

Annexure 8

Summary Monitoring Table

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Design Phase						
Pre-Construction Phase						
Construction Phase						
Operational Phase						

Overall Compliance with CEMP/EMP

No.	Sub-Project Name	EMP/CEMP Part of Contract Documents (Y/N)	CEMP/EMP Being Implemented (Y/N)	Status of Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed & Additional Measures Required

APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

- Brief description on the approach and methodology used for environmental monitoring of each sub-project

MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS (AMBIENT AIR, WATER QUALITY AND NOISE LEVELS)

- Brief discussion on the basis for monitoring
- Indicate type and location of environmental parameters to be monitored
- Indicate the method of monitoring and equipment to be used
- Provide monitoring results and an analysis of results in relation to baseline data and statutory requirements

As a minimum the results should be presented as per the tables below.

Air Quality Results

Site No.	Date of Testing	Site Location	Parameters (Government Standards)		
			PM10 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)

Site No.	Date of Testing	Site Location	Parameters (Monitoring Results)		
			PM10 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)

Water Quality Results

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity (µS/cm)	BOD (mg/L)	TSS (mg/L	TN (mg/L)	TP (mg/L)

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity (µS/cm)	BOD (mg/L)	TSS (mg/L	TN (mg/L)	TP (mg/L)

Noise Quality Results

Site No.	Date of Testing	Site Location	LA_{eq} (dBA) (Government Standard)	
			Day Time	Night Time

Site No.	Date of Testing	Site Location	LA_{eq} (dBA) (Government Standard)	
			Day Time	Night Time

SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

- Summary of follow up time-bound actions to be taken within a set timeframe.

Annexes

- Photos
- Summary of consultations
- Copies of environmental clearances and permits
- Sample of environmental site inspection Report
- Other

Annexure 9

SAMPLE ENVIRONMENTAL SITE INSPECTION REPORT

Project Name
Contract Number

NAME: _____ DATE: _____
TITLE: _____ DMA: _____
LOCATION:_____ GROUP: _____

WEATHER CONDITION:
_____

INITIAL SITE CONDITION:
_____

CONCLUDING SITE CONDITION:

Satisfactory _____ Unsatisfactory_____ Incident_____ Resolved _____ Unresolved _____

INCIDENT:
Nature of incident:
_____

Intervention Steps:
_____

Incident Issues

Resolution

Project Activity Stage	Survey	
	Design	
	Implementation	
	Pre-Commissioning	
	Guarantee Period	

Inspection

Emissions	Waste Minimization
Air Quality	Reuse and Recycling
Noise pollution	Dust and Litter Control
Hazardous Substances	Trees and Vegetation

Site Restored to Original Condition Yes No

Signature
_____

_____ _____
Name **Position**

Annexure 10

No Objection Certificate from Competent Authority

Department of Cultural Affairs, Archaeology & Museum, Punjab
Plot No. 3, Sector 38-A, Chandigarh.

DCAM/ACRH/No. 7200 Dated: 16-12-13

Subject:- **No Objection Certificate and undertaking for the Interpretation centre at Maharaja Ranjit Singh is treaty site. Development of treaty site, approach road/Track to the top of (Maharaja Ranjit Singh artillery position) Distt. Saheed Bhagat Singh Nagar (Nawanshar) by PHTPB.**

It is certified that there is no objection if the proposed project Interpretation centre Maharaja Ranjit Singh is treaty site. Development of treaty site, approach road/Track to the top of hill (Maharaja Ranjit Singh artillery position) Distt. Saheed Bhagat Singh Nagar (Nawanshar) is executed by PHTPB of the Tourism Department (Punjab) as per the guide lines of Govt. of India and ADB loan funded project under IDIPT at village Aasro, Tehsil Balachaur, Distt. Saheed Bhagat Singh Nagar (Nawanshar). This site contains a total area of 63 Kanal 2 marle protected vide notification No. 10/28/06-4 TC/1806 dated 09-07-2008. The conservation should be done as per archaeological principals. The Department of Cultural Affairs undertakes that:-

1. There is no encroachment and no resettlement/ displacement/rehabilitation of people involved in the above Proposed Project area/building/land.
2. The proposed project is not partially/f lly part of any other project funded under any other scheme/programme of the State/Central Govt. or any external funding.
3. The assets created as a result of the execution of above stated project will be taken over for operation and maintenance by Department of Cultural Affairs, Archaeology & Museums, Punjab.

A management plan of the monument/building may please be made.

Place: Director

NoC from Department of Cultural Affairs, Archaeology and Museums, Punjab

Annexure 11

Public Consultation

1. The report was prepared in consultation with the stakeholders. Consultations have been made with the, District Administration, Department of Tourism; Public Works department and local community, etc., issues pertaining to conservation and restoration of Maharaja Ranjit Singh Treaty Site.

2. There is no physical or economic, temporary or permanent, IR impacts are envisaged. No person or community is being adversely affected by this sub-project. No land or asset acquisition is necessitated in this sub-project. So people and communities will not be physically or economically displaced due to the sub-project interventions. No common property resource (CPR) will be affected. Poor, indigenous and other ethnic groups are not being adversely impacted.

3. During the project preparation, consultations have been held by the PMU safeguards team with the Department of Tourism, Punjab Heritage and Tourism Promotion Board, Department of PWD, B&R and also with tourists on issues pertaining to the implementation of the proposed subprojects. The key issues highlighted during the discussion include the project detail, and required improvements at treaty site. The table reflects the consultations done and issues discussed.

4. During consultation with local people, visitors of Maharaja Ranjit Singh Park it was expressed that this sub-project is important and very much needed and all are pleased to know about the proposed sub-project related to landscaping along the bank of river, beautification of the treaty site, cleanliness at site by putting dustbins, benches for resting, and plantation.

5. The consultation has been held with the PIU and DSC concerned by Social Safeguards Specialist, DSC on 6th April 2016, and 18th May 2016. The proposed site is the new site and no on-going construction work is underway.

Site Visit and Consultation Photographs

Sl. No.	Date of Site Visit	Location	Participants & No.	Issues Discussed
1.	9th August 2016	Ropar	Visitors at MRS Treaty site, DSC and PIU social safeguard team	Proposed intervention, participants perception potential benefits and, suggestions
2.	18th May 2016	Ropar	Experts from DSC and PIU, visitors at treaty site	Perception about upcoming sub-project, potential benefits etc.
3.	22nd April 2016	Ropar	SDM, Ropar, Executive Engineer, B&R Roapr Project Manager, PIU, and other officers concerned with the project	Proposed works under sub-projects. DC, Ropar suggested new works to be included in DPR for overall development of treaty site. Proposed works are mentioned on page 6-7 of the report.
4.	6th April 2016	Ropar	Experts from DSC and PIU	Site visit to all locations mentioned under sub-project (70%) to ensure site is free from any temporary or permanent social impact, have consultations etc.
5.	7th May 2013	Ropar	SDO from Anantpur Sahib, Chamkaur Sahib and Ropar, DC Ropar, PM, PIU, PWD and other concerned	Site visit to identify and assess the requirement for sub-project activities/component

Source: DSC Team

Photographs of Public Consultations

	
Interaction with Visitors at Treaty Site	**Site Visit with PWD officials**

Source: DSC Team