SINDH FLOOD EMERGENCY REHABILITATION P&DD

GOVERNMENT OF SINDH

# ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN (ESMP)

## FOR

**Rehabilitation of Rain/Flood Affected Roads, Shaheed Benazirabad**


**Sindh Flood Emergency Rehabilitation Project (SFERP)**

**PROJECT IMPLEMENTATION UNIT**
**PIU - SFERP**

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## DOCUMENT ISSUE AND REVISION RECORD

This document and its contents have been prepared and intended solely for the information and use of the Government of Sindh, Project Implementation Unit (PIU) concerning the **SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)**

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| | |
|---|---|
| BOQ | Bill of Quantity |
| CC | Construction Contractor |
| CoI | Corridor of Impacts |
| CSC | Construction Supervisory Consultant |
| DC | Deputy Commissioner |
| ESF | Environmental & Social Framework |
| ESMF | Environmental and Social Management Framework |
| ESMP | Environmental and Social Management Plan |
| ESS | Environmental and Social Standrads |
| GFP | Grievance Focal Point |
| GRC | Grievance Redress Committee |
| GRM | Grievance Redress Mechanism |
| IEE | Initial Environmental Examination |
| PAP | Project Affected Person |
| PC-I | Pakistan Planning Commission Form – 1 Appraisal of Development Project |
| PD | Project Director |
| PDMA | Provincial Disaster Management Authority |
| PIU | Project Implementation Unit |
| PKR | Pakistani Rupee |
| SEPA | Sindh Environmental Protection Agency |
| SEQS | Sindh Environmental Quality Standards |
| SFERP | Sindh Flood Emergency Rehabilitation Project |
| WB | World Bank |
| WHO | World Health Organization |

# 1. EXECUTIVE SUMMARY

The monsoon season of 2022 brought heavy rains causing high river flood in the province. Rainfall in various districts was recorded up to 900 mm. The River Indus discharge recorded above 0.6 Million cusecs due to heavy downpours in its catchment coupled with local rains. The high flood at Kotri Barrage persisted due to hill torrent emanating from Kirthar Mountains. The two month's rains and River Indus Flood caused heavy losses to human life, livestock, crops, houses, private buildings, industries, and public infrastructures like roads, irrigation; river protective embankments (Bunds) and drainage networks, and railways.

The Sindh Flood Emergency Rehabilitation Project (SFERP) will restore/rehabilitate rural (farm to market) roads in affected districts, talukas and Union Councils (UCs) of rains & flood-affected areas. Raising the profile, adequacy of cross-drainage structures, provision of protection works (Riprap[1]), increase in the number of culverts and provision of side drains all are the factors considered to address climate and/ or flood resilience design. The improvement in pavement structural numbers is an additional benefit.

The present Environmental and Social Management Plan (ESMP) represents the environmental impacts and mitigations of Component- 1: Infrastructure Rehabilitation, Sub-component 1.2: Restoration of Roads and Allied Infrastructure in Shaheed Benazirabad District.

The Rehabilitation of 12 roads in different areas of District Shaheed Benazirabad (formely Nawabshah). Administratively, most rehabilitation, works fall in Nawabshah Taluka (2 roads) Taluka Daur (6 roads) one at Taluka Qazi Ahmad & three at Nawabshah city area.

According to Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021, the sub-project falls under category F(3) of schedule II which demands an Initial Environmental Examination (IEE) to be prepared for rehabilitation or rebuilding or reconstruction of existing roads more than one kilometre in urban areas and more than 5 km from rural areas" (except one, all roads are more than 5 km). Hence IEE will need to be prepared as per Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021. However, an ESMP has been prepared to fulfil World Bank's Environmental and Social Framework (ESF) requirements.

Rehabilitation/restoration works are limited to the existing Right of Way (RoW) hence, the proposed project will have some minor adverse environmental impacts that are reversible and site-specific with short duration. Therefore, this sub-project falls under the moderate risk category under the ESMF of the SFERP. The present Environmental and Social Management Framework (ESMF) has been prepared accordingly to meet the moderate risk level of requirements.

[1] Riprap (in North American English), also known as rip rap, rip-rap, shot rock, rock armour (in British English) or rubble, is human-placed rock or other material used to protect structures against scour and water.

Furthermore, the sub-project screening was performed through the checklist covering environmental and social issues. Surveys were conducted to fill individual checklists and a summary of environmental and social concerns noted during surveys. The rehabilitation works of proposed Project are anticipated within defined. RoW. No public infrastructure or commercial activities exist within RoW. While the indirect impacts have been evaluated at 200 meters/656 ft buffer zone of the proposed roads (100 meters/328 ft on each side from the center line). Trees will not be uprooted or need relocation due to rehabilitation works because the existing RoW will be used for the proposed rehabilitation works. No archaeological site was observed near (within 500 meters) the sub-project areas and no physical cultural resources at or near the proposed sub-project sites are observed which may likely be affected by construction activities. No graveyard is situated within the construction area. A number of the settlements were observed near the proposed rehabilitation works but outside the RoW. During the construction phase, a few socially sensitive receptors like mosques, schools, basic health unit graveyards, etc. might be indirectly impacted but this impact is temporary and reversible having a short duration with low significance (by adopting the mitigation measures). No protected forests were observed near the proposed sub-project area. As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from sub-project sites.

The proposed sub-project areas lie in northeastern Sindh, District Shaheed Benazirabad. The sub-project area is falling in Zone 2A, with Peak Ground Acceleration (PGA) varying from 0.08 to 0.16g (Pakistan Building Code of Pakistan, 2007). It is a low-damage risk zone, meaning the areas that fall under these zones have a low chance of having an earthquake.

Vehicular traffic on dirt roads causes some dust emissions and noise pollution whose effect is fairly localized. The main pollutants emitted by vehicle exhaust pipes are particulate matter, carbon monoxide, sulfur dioxide, and nitrogen oxides. These emissions generally affect the air quality in the vicinity of the roads. However, traffic on the roads in the proposed project intervention's area is low compared to the national highways or other major roads. The surface & ground water, ambient air and noise testing will be done by before the start of the construction by the contractor through a SEPA-approved lab with the consent of the Construction Supervisory Consultant (CSC).

As the population has increased in the project area, wildlife abundance and diversity have decreased to a minimum. Among the small mammal species still found are Red foxes (*Vulpes cana*) and rats are reported to have resided in the surrounding project area. Snakes and lizards also inhabit the project site. The black rat (*Rattus rattus*), also known as the ship rat, roof rat, or house rat, is a common long-tailed rodent. Among the birds, Eagle (*Aquila rapax*), Hawak (*Accipiter badius*), Kite (*Milvus migrans*), Parrot (*Psittacula krameri*), Partridge, Common crow (*Corvus splendens*) and several varieties of waterfowls are reported.

The original flora of the area consists of tropical thorn forest type vegetation, in which thorny usually hard wooded species predominate with Acacia species being particularly characteristic. However, the natural vegetation has long ago been replaced completely by crops. At present, there is generally a mixture of species found on the track. The area has been used for agricultural purposes for almost a century; the natural flora has been completely replaced by cultivated species. The dominant floral species include *Acacia modesta*, *Acacia nilotica*, *Dalbergia sissoo*, *Ziziphus nummularia* and plantations of *Eucalyptus globulus* and

Populs. The *Azadirachta indica* (Neem), *Zizyphys vulgaris* (Bir), *Tamarix orientalis* (Jujuba lai) and *Capparis aphylla* (Kirir) are among the more common trees. Mango, Date palms and the more recently introduced Banana, Guava, Orange and Chiku are the typical fruit-bearing trees.

As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from sub-project sites. No protected forests were observed near the proposed sub-project area.

No acquisition of private land is required for this sub-project. In addition, no demolition of structures will be involved and no one will be required to resettle as sub-project areas are lying in the less populated areas and the population is scattered. None of the informal settlers/squatters exist in RoW as well as no livelihood disruption has been envisaged. The rehabilitation work is done on the existing platform/RoW. No additional land is needed Indirect impacts, caused by noise, dust emissions, campsites and borrow sites could be beyond the RoW. Socio-environmental impacts may arise due to the influx of external workforce, unattended residual wastes, and occupational health and safety issues for laborers and the community, therefore ESMP has been prepared. Existing tracks will be used for the transportation of the material. The negative impact could only be anticipated during the construction phase, which will last for this very small period only. However, mitigation measures recommended in the report would need to be strictly ensured by the contractor during the construction period.

Anticipated negative impacts can be mitigated through proper inspection and maintenance of vehicles and machinery to reduce exhaust emissions, using noise suppressors or mufflers for heavy equipment & watering unpaved roads. Control of adverse impacts from construction debris/ residual wastes by proper handling, and immediate removal. Control of water pollution through proper storage and handling of oil wastes and treatment of wastewater at the active construction site. Control of solid waste through sanitary storage and frequent collection for sanitary disposal.

Occupational health and safety will be ensured through continuous inspection to prevent disease and accidents, awareness raising among labor and community, sanitation measures, communicable diseases management including COVID-19 management, monitoring and emergency response and rescue procedures, provision of adequate sanitary facilities, potable water, and garbage bins for workers.

Environmental and Social (E&S) monitoring will be carried out as per Sindh Environmental Protection Act 2014, ESMF of SFERP, Labour Management Procedures prepared for SFERP & Stakeholder Engagement Plan (SEP) to ensure that the mitigation plans are regularly and effectively implemented. It will be carried out at three levels. At the Project Implementation Unit (PIU)level, the E&S will carry out safeguard monitoring to ensure that the mitigation plans are being effectively implemented and will conduct field visits regularly. At the field level, the relevant staff of the CSC will carry out more frequent safeguard monitoring. At the third level, Construction Contractor's (CC) E & S team will implement and produce monthly, quarterly and bi-annual reports.

The overall responsibility for implementing the SFERP project as well as the present ESMP rests with the PIU, headed by the Project Director. The PIU is supported by the E&S team.

PIU has also engaged CSC, responsible for construction supervision. Appropriate clauses will be included in the construction contracts for this purpose.

A separate budget of PKRs 6,829,000/- has been allocated for the implementation (for one year of estimation) of the ESMP including the Grievance Redress Mechanism (GRM) running & general community support needs. The ESMP cost included the cost of the protective measures which will be adopted for working near the socially sensitive receptors. This has been incorporated as a provisional sum item in the ESMP bill and Bill of Quantities (BOQs). The implementation of the ESMP involves inputs from CC, CSC and PIU. The CC will be primarily responsible for ensuring the implementation of mitigation measures proposed in the ESMP, which will be part of the contract documents. Hence, the provision of environmental mitigation costs as a separate head in BOQs will be made mandatory in contract documents.

However, if the CC fails to comply with the implementation of ESMP and reporting properly, the proponent will enforce compliance with the terms of the contract, including adherence to the ESMP. For the smooth execution of ESMP implementation activities, it has been recommended that all the bills/payments related to ESMP implementation will be approved/authenticated by the CSC. ESMP implementation cost will be deducted from Interim Payment Certificates (IPC) until compliance has been done.

# 2. INTRODUCTION

Following the Flood 2022 emergency, the Federal Government of Pakistan requested the global community and development partners for assistance to respond to the flood disaster. Subsequently, the World Bank (WB) task team visited Sindh province and had a series of meetings with the provincial Govt. During the discussions held with the WB Mission, a two-pronged strategy was agreed i.e.

- Restoration/rehabilitation of rural (farm to market) roads in affected districts, talukas and Union Councils (UCs).
- Restoration of water supply, drainage and sanitation schemes in affected districts, Talukas and Union Councils.
- To provide immediate financial assistance, cash for work is proposed to rehabilitate small community structures like rural roads, watersheds, watercourse (s) to carry irrigation water to farm(s), rehabilitation of village streets and restoration of village sanitation work including removal of stagnant water in villages. The exact number to be arrived at after assessment.
- Expansion of Emergency Rescue Service (Sindh Emergency Rescue Services-1122) to nine districts i.e. Jamshoro, Dadu, Larkana, Thata, Hyderabad, Matiari Nausheroferoz, Khairpur and Ghotki. The Provincial Government has already launched Sindh Emergency Rescue 1122 in Six District Head Quarters (HQs) including Karachi, Hyderabad, Mirpurkhas, Shaheed Benazirabad, Sukkur, and Larkana.

## 2.1 Project Components

The proposed Sindh Flood Emergency Rehabilitation Project – SFERP falls into three main components.

i. Component-I. Infrastructure Rehabilitation:
ii. Component-2 Livelihoods Restoration
iii. Institutional Strengthening for Resilience and Technical Assistance
iv. Component–3 Project Management.

## 2.2 The Proposed Sub–Project

The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas of the province:

Under the Flood 2022 Emergency Response following roads were identified for immediate rehabilitation. Location map is given in Figure 1.

**Table 1: List of Districts for Roads Rehabilitation under SFERP**

| Sr. No | Description | No. of Roads |
|---|---|---|
| 1 | Rehabilitation of different roads in District Hyderabad | 3 |

| Sr. No | Description | No. of Roads |
|---|---|---|
| 2 | Rehabilitation of different roads in District Matiari | 3 |
| 3 | Rehabilitation of different roads in District Tando Allah Yar | 3 |
| **4** | **Rehabilitation of different roads in District Shaheed Benazirabad** | **12** |
| 5 | Rehabilitation of different roads in District Naushahro Feroze | 14 |
| 6 | Rehabilitation of different roads in District Thatta | 16 |
| 7 | Rehabilitation of different roads in District Sujawal | 4 |
| 8 | Rehabilitation of different roads in District Badin | 3 |
| 9 | Rehabilitation of different roads in District Dadu | 6 |
| 10 | Rehabilitation of different roads in District Jamshoro | 16 |
| 11 | Rehabilitation of different roads in District Tharparkar | 2 |
| 12 | Rehabilitation of different roads in District Mirpurkhas | 3 |
| 13 | Rehabilitation of different roads in District Umerkot | 5 |
| 14 | Rehabilitation of different roads in District Sanghar | 8 |
| 15 | Rehabilitation of different roads in District Sukkur | 8 |
| 16 | Rehabilitation of different roads in District Khairpur | 19 |
| 17 | Rehabilitation of different roads in District Larkana | 13 |
| 18 | Rehabilitation of different roads in District Kamber-Shahdadkot | 14 |
| 19 | Rehabilitation of different roads in District Shikarpur | 4 |
| | **Total** | **156** |

**Sub–Project/Sub-Component, Restoration of Roads and Allied Infrastructure**

The present Environmental and Social Management Plan (ESMP)represents the environmental impacts and mitigations of Component- 1: Infrastructure Rehabilitation, Sub-component 1.2: Restoration of Roads and Allied .

The Rehabilitation of 12 roads in different areas of District Shaheed Benazirabad (formely Nawabshah). Administratively, most rehabilitation, works fall in Nawabshah Taluka (2 roads) Taluka Daur (6 roads) one at Taluka Qazi Ahmad & three at Nawabshah city area. The location map of the subcomponent is given in Figure - 2.

## 2.3 Objective of ESMP

The primary objectives of the ESMP are as follows:

- Identify the social and environmental impacts of the sub-component and related activities.
- Suggest suitable mitigation measures for identified impacts at the planning, designing, and implementation stage of the sub-projects and eliminate or reduce their adverse impacts if any.
- Propose environmental monitoring program to ensure that mitigation measures are implemented during the subprojects execution and timely corrective actions are taken where required, and
- Propose the institutional arrangements required to implement and monitor the ESMP.

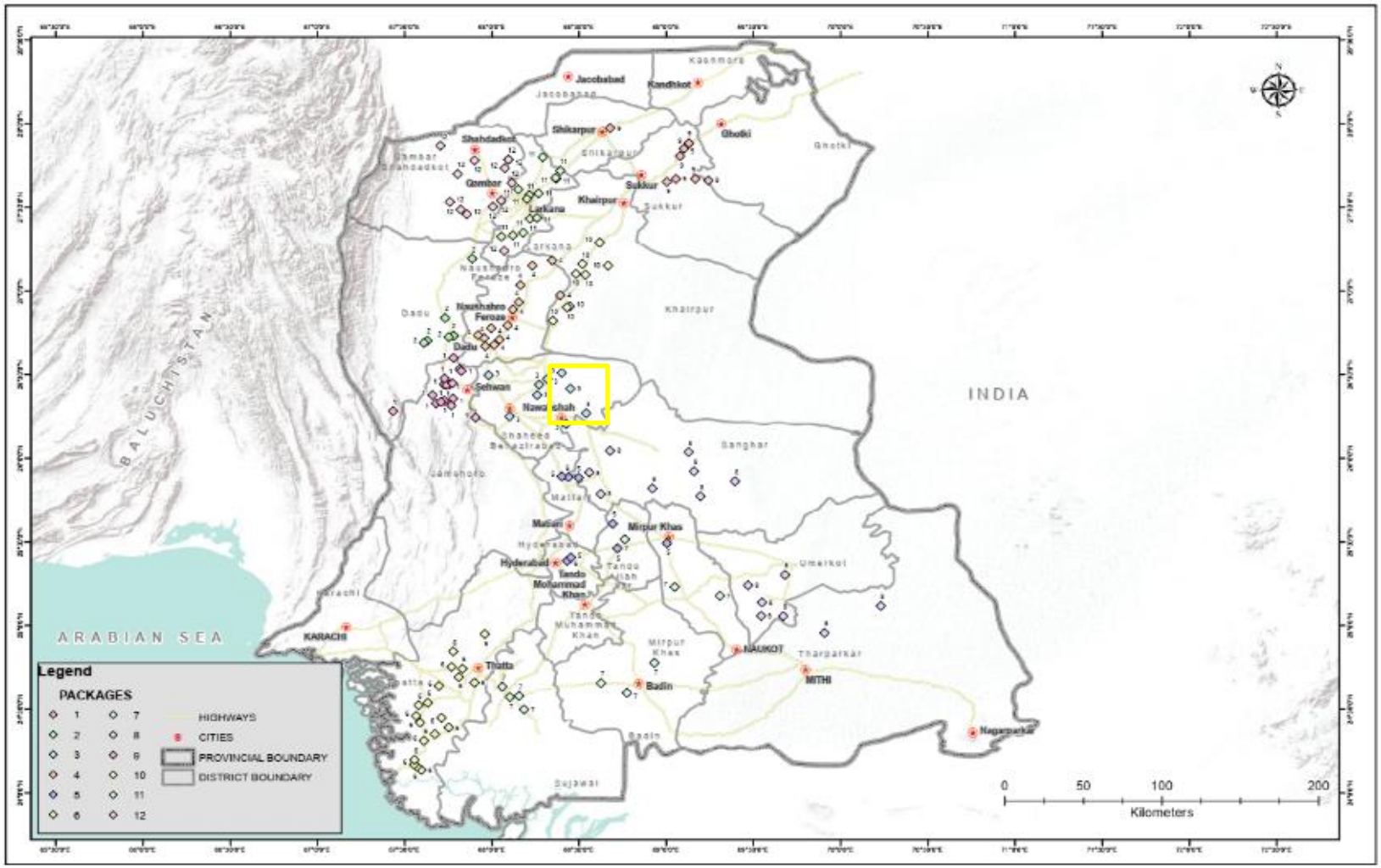



**Figure 1: Location Plan for Rehabilitation Roads-SFERP**

**According to Sindh – EPA:** According to Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021, the sub-project falls under category F(3) of schedule II which demands an Initial Environmental Examination (IEE) to be prepared for rehabilitation or rebuilding or reconstruction of existing roads more than one kilometre in urban areas and more than 5 km from rural areas". Hence IEE will need to be prepared as per Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021.

**According to Donor Agency (World Bank):** Rehabilitation/restoration works are limited to the existing Right of Way (RoW) hence the proposed project will have some minor adverse environmental impacts that are reversible and site-specific with short duration. Therefore, this sub-project falls under the moderate risk category under the ESMF of the SFERP. The present ESMP has been prepared accordingly to meet the moderate risk sub-project requirements.

## 2.4 Sub-project Screening Procedure

The sub-projects screening was performed through the checklist covering environmental and social issues. Surveys were conducted to fill individual checklists (Annexure – I) and a summary of environmental and social concerns noted during surveys is given below.

- No tree will be uprooted or need relocation due to rehabilitation works because the existing RoW will be used for the proposed construction.
- No archaeological site was observed near (within 500 meters) the project area and no physical cultural resources at or near the proposed sub-project; sites are observed that may likely be affected by construction activities.
- Indirect impacts, caused by noise, dust emissions, campsites and borrow sites could be beyond the RoW. During the construction phase, a few socially sensitive receptors like mosques, schools, basic health unit graveyards, etc. might be indirectly impacted but this impact is temporary and reversible having a short duration with low significance (by adopting the mitigation measures).
- A number of settlements were observed near the proposed rehabilitation works. None of the infrastructure and commercial activities exist within RoW No resettlement is expected due to the rehabilitation of the proposed project's sub-component.
- No protected forests were observed near the proposed sub-project area.
- The contractor will conduct the baseline environmental monitoring before the start of the civil work with the consent of the Construction Supervisory Consultant (CSC) Environmental Specialist after approval of Project Implementation Unit (PIU).

## 2.5 Project Corridor

The sub-project corridor is delineated according to two criteria: The RoW; which the Works and Services Department, Government of Sindh is legally entitled to, and the Corridor of Impact (CoI), i.e. the width of the corridor that will be impacted, directly or indirectly, by the proposed Project during the construction and operational phases.

### 2.5.1 Right of Way

The proposed sub-project corridor will have a well-defined RoW that will be the existing width of the roads (which is 12 ft as depicted in Table-2) as the proposed sub-project is rehabilitation

or restoration. Major construction works will generally remain confined within the RoW. None of the public infrastructures and commercial activities exist within RoW.

### 2.5.2 Corridor of Impact

The CoI was delineated as the area/extension in which the sub-project has a direct or indirect impact. Direct impacts of a project are defined as the relocation of houses, trees, private land, utilities and air & noise pollution impact on workers during construction. All direct impacts are confined to the RoW. Indirect impacts, caused by noise, dust emissions, campsites and borrow sites could be beyond the RoW. The direct CoI of the surface water bodies will be confined within the RoW of the proposed sub-project and will be temporary only for the construction period.

For the proposed sub-project, no impacts have been envisaged pertaining to the relocation of houses, trees, private land, and utilities. The work is done on the existing platform/right of way. No additional land is needed.

The indirect impacts have been evaluated at 200 meters/656 ft buffer zone of the proposed roads (100 meters/328 ft on each side from the center line).

# 3. DESCRIPTION OF SUB-PROJECTS

## 3.1 Locations of Sub-Project

The proposed sub-project falls in the District Shaheed Benazirabad. The proposed project is aimed at the reconstruction/rehabilitation of the following 12 No. of roads, damaged by the flood/rains with the objective to restore the road connectivity.

## 3.2 Main Activities for Rehabilitation Works

The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works.

The main activities for the rehabilitation works are as follows:

- Asphalt wearing course shall pertain to “Class-B” gradation as specified in the National Highway Authority (NHA) General Specification of 1998.
- The asphalt concrete wearing layer shall be designed with air voids in the range of 3% to 5%. Air voids greater than this range will result in increased permeability/porosity of the mix.
- For rehabilitation of the existing carriageway, care shall be taken not to scarify/excavate the underlying exposed granular material.
- The Maximum Dry Density (MDD) of Water Bound Macadam (WBM) layer shall be 100%. In the section where the sub-base is provided its density shall be 98% of MDD. WBM and Subbase shall pertain to gradation as specified in NHA General Specifications.
- Cross fall of 2% shall be maintained at Subbase formation, in case of new construction and at base course formation in case of existing carriageway.
- On both sides of the culverts backfilling should be done with Granular Backfill material over which required layers are to be laid. The compacting will be done with the plate compactor.
- Effective Drainage of the road shall be ensured through the proper cross slope of the pavement.
- The material for the Formation of Embankment shall pertain to AASHTO Class A-1-a, A-1-b, A-2-4, with MDD, CBR and Compaction as per NHA General Specifications:
- Zebra crossing and traffic calming measures including additional signage, marking and rumble strips with raised walkways and speed restrictions shall be given near socially sensitive receptors areas.
- Restoration of the campsite and Contractor’s demobilization.
- Typical cross sections for roads, culverts and causeways are given in Annexure – II.

## 3.3 Climate Resilient Measures

Raising the profile, adequacy of cross-drainage structures, provision of protection works (Riprap), increase in the number of culverts and provision of side drains all are the factors

considered to address climate and/ or flood resilience design. The improvement in Pavement Structural numbers is an additional benefit.

- The design economizes with respect to field condition surveys and the type of roads. The side drain is provided.
- Daylighting of Aggregate Base and/ or sub-base is considered for all types of roads while 0.5 m rounding is also taken for proper daylighting.
- Raising the existing profile with the formation of the embankment is taken to make the design flood resilient.
- The damaged culverts are rectified or replaced while a sufficient number of culverts are provided for proper cross-drainage.
- Vented causeways will also be provided in detailed Design, while their plan cross-sections will also be part of detailed design drawings.
- The flow from culverts and road drainage will be ensured.

### 3.4 Construction Material

The following construction materials are foreseen to be used in the rehabilitation works includes:

a) Embankment fill
b) Granular Subbase
c) Cement
d) Fine and coarse aggregates
e) Asphalt Concrete for Wearing Course
f) Steel Reinforcement

Natural materials such as coarse aggregate, stones, and coarse filters can be obtained from crush plants of local suppliers. Illegal crushing plants/suppliers cannot do the procurement of these materials. Only purchase by those crush plants/ suppliers having approval from the relevant department of the Sindh Government (Mines and Mineral Development Department & SEPA) and this should be part of the contract agreement with the contractor. Existing tracks will be used for the transportation of the material, and it is capable of the transportation of material.

The proposed project roads cross several watercourses and minor and major canals. The Contractor will be able to use canal water for general construction purposes with the permission of the Irrigation Department and Sindh Irrigation and Drainage Authority. The water would also be obtained from tube wells installed by the Contractors. The contractor shall be strictly bound not to use the community tube well. The contractor will dig tube well or use canal water. The contractor will conduct an Electrical resistivity-surveying test along with a pump-out test to assess the groundwater potential required for the construction activities before the tube wellbore. This condition will be included in the bid document as contractual binding

## Table 2: Details of Twelve Roads for Rehabilitation at District Shaheed Benazirabad

| S# No | Name of Road | Location/Taluka | Existing Width (ft) | Length (in Kms) | GPS Coordinates |
|---|---|---|---|---|---|
| 1 | Improvement / Rehabilitation of road from Nawabshah-Jam Sahib road @ Bhutta Water Stop to connect Nawabshah - Sanghar via village Gul Muhammad Bhutto | Nawabshah | 12 | 8.60 | 26.27'22.20"N 68.54'16.73"E<br>26.20'54.03"N 60.52'79.40"E |
| 2 | Improvement / Rehabilitation of road from Nawaz Dahri Gupchani road @ mile 5/2 to Connect Gupchani Shahdadpur road | Nawabshah | 18 | 6.00 | 26.17'86.12"N 68.46.53.48"E<br>26.18'97.04"N 68.55'40.97"E |
| 3 | Improvement / Rehabilitation of road from 60th mile Desert area @ mile 1/2 road to connect village Jamal Din Chandio via Bullo Khan Jamali | Daur | 12 | 8.00 | 26°24'58.72"N 68°26'58.58"E<br>26.44'31.02"N 68.42'25.24"E |
| 4 | Improvement / Rehabilitation of road from Daur Jamal Shah road to village Saeed Khan Mashori via Dr. Azam Khan Zardari | Daur | 12 | 8.40 | 26.25'19.50"N 68.10'26.54"E<br>26.50'53.48"N 68.10'33.40"E |
| 5 | Improvement / Rehabilitationof road from Sui Gas Head Quarter road to connect Rab Nawaz Mori, road | Daur | 12 | 7.50 | 26.51'59.64"N 68.40'46.82"E<br>26.49'92.59"N 68.41'30.079"E |
| 6 | Improvement / Rehabilitation of road from Lashari Stop road to connect Daur Jamal Shah road via Nathiyani road | Daur | 12 | 4.60 | 26.44'00.19"N 68.27'68.111"E<br>26.42'50.77"N 68.28'02.94"E |
| 7 | Improvement/Rehabilitation of road from Trimore - Sijawal Minor to Durai Mahar Road Via Lal Bux Shahani Road | Daur | 12 | 5.20 | 26°22'38.55"N 68°15'30.52"E<br>26°20'51.05"N 68°12'35.23"E |
| 8 | Improvement / Rehabilitation of road from Daur fly over Bridge to 60th mile road (Town Portion) | Daur | 18 | 3.20 | 26°28'26.29"N 68°19'0.04"E<br>26°27'6.17"N 68°19'50.99"E |
| 9 | Improvement / Rehabilitation of road from Daulatpur Pubjo road | Kazi Ahmed | 18 | 15.00 | 26°29'46"N 67°58'53"E<br>26°29'18"N 68°07'52"E |
| 10 | **Improvement / Rehabilitation Various city roads of Nawabshah**<br>(i) Civil Hospital Chowk to Taj Colony Phatak via Allah Wala Chowk Katchery road I/c link to Civil Hospital road & Police line road<br>(ii) Dual Carriageway Nawabshah to Kazi Ahmed road from Kazi Ahmed Mour to Bilawal Chowk,<br>(iii) Dual Carriageway of Nawabshah of Sanghar road from Gajrawah to Sugar Mill Phatak via Sanghar Bus Stop<br>(iv) Nawabshah Kazi Ahmed Road @ Bilawal Cricket Stadium to Keerio House | Nawabshah | 18 | 7.31 | |
| 11 | Improvement / Rehabilitation of road from Nawabshah - Varr road @ Caddet college to connect Sabzi Mandi Sarhari road | Nawabshah | 12 | 3.90 | 26°12'20.19"N 68°25'33.74"E<br>26°12'2.82"N 68°24'19.40"E |
| 12 | Improvement / Rehabilitation of road from Trimore to connect Lashari Stop Keeria Mori road via Liaque Zardari Road | Nawabshah | 12 | 3.00 | 26°29'56"N 67°58'43"E<br>26°29'48"N 68°07'32"E |

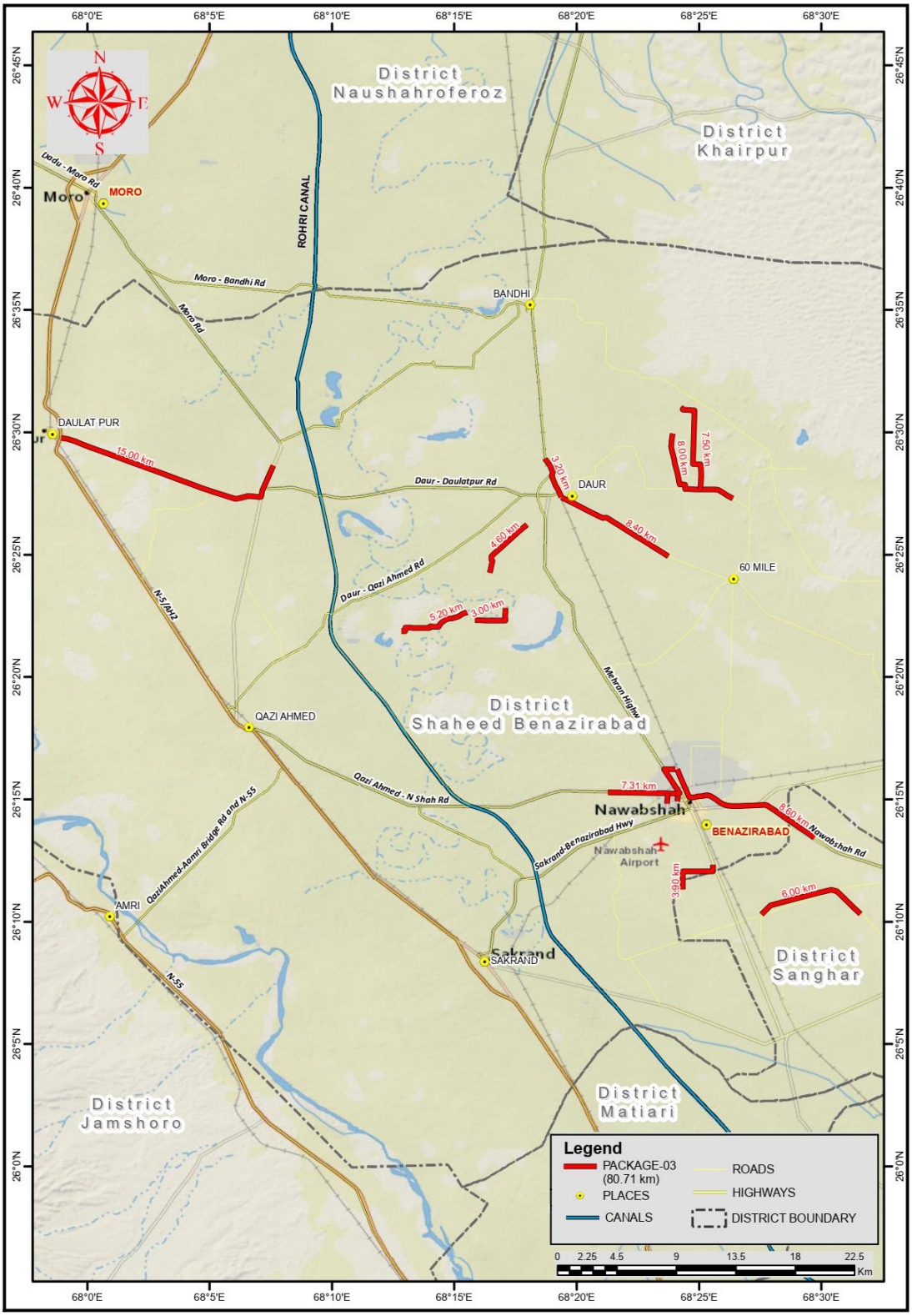



**Figure 2: Location Map of Sub-Project - Shaheed Benzirabad Roads**

### 3.4.1 Reuse/Recycling of scarified material from the road surface.

The material from the scarification removal of the existing road surface is judged by the material engineer as being not suitable for use on the project roads due to its poor quality and the small quantities involved which makes recycling uneconomic. This leaves the following options.

**Option 1**: Waste material that meets the required specifications will be used as fill when constructing or repairing the shoulders.

**Option 2:** Waste material can be used to refill borrow pits and cover as topsoil.

**Option 3:** Scarification materials can be spread on earthen link roads, and compacted with rollers, improving the road surface as well as reducing road dust.

## 3.5 Contractor's Camps

For the construction of the sub-project, camps will be established on the government land near the subproject area a minimum of 500 m away from settlements. The contractor will prepare workers' code of conduct plans and Camp layout plans and get them approved by the Resident Engineer and PIU. The camp will be established after the approval of the layout plan.

## 3.6 Manpower Requirement

The manpower required by the contractor during the execution of the sub-projects will be determined by the contractor and will be depicted in the Site Specific ESMP (SSESMP), which needs to be approved by the CSC.

During surveys & consultations, the major demand of the community was the provision of jobs during the construction phase. Sufficient labor particularly unskilled is available in the sub-project area.

The contractor will be bound through the contractor's code of conduct and contractual obligations to provide jobs to local people for unskilled labor from the communities. Only if local unskilled labor is not available in the sub-project area, then Contractor can hire from outside the project area. Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and dozers, etc.). This does not include the drivers, which will carry the stone from the quarry and other items like cement and steel from the local market. This process would be initiated with the consultation of elders of different communities in an equitable manner hence there would be no need of setting up a large-scale camp.

## 3.7 Borrow Material

The fill for the earthwork/embankment can be obtained from borrow areas where suitable soil is available. The Contractors will identify borrow areas as per their arrangement and get approval from PIU. The contractor will be bound to procure the material from authorized quarries. Before the start of the work, the contractor will get approval.

## 3.8 Machinery & Equipment

The construction work includes mainly earthworks. These works will require earth-moving types of machinery such as excavators, dumpers, graders and rollers, transit mixtures, etc.

The concrete works will involve a medium-sized batching plant and concrete placing equipment. The contractors will directly manage all equipment. The actual number of equipment required on the site will be determined by the contractor to carry out the work.

### 3.9 Construction Time

The execution works of the sub-project are proposed to be completed in the stipulated time (PIU determined to ensure project completion in 1 year) after the approval of PC-1 and the bidding process according to the procurement plan approved by the World Bank.

### 3.10 Traffic Studies

#### 3.10.1 General

A survey of the present traffic was done to analyze the current state of traffic and use the survey results as the basic data for forecasting traffic demand. In order to forecast the traffic demand, it is deemed necessary to review the recent present state traffic closely. Therefore, a survey has been conducted regarding the traffic volume, road conditions and traffic facilities, etc. The traffic volume has been collected through field surveys in the project areas.

**Table 3: Traffic Volume Survey Approach**

| Contents | Items | Description | Remark |
|---|---|---|---|
| Traffic volume survey | • By selection, type, the direction of the vehicle | 24hr Survey<br>For a total of 14 vehicle types | By the PEAS survey team. |
| Travel speed survey | • The average speed of traffic by section and direction. | The survey by actual drive. | By experts visit. |
| Reference to Literature Data | • Socio-economic index | Socio-economic index of influence, direct/ indirect | Reference to literature data. To be utilized as fundamental data of traffic demand forecast. |
| | • Land use plan and environs development plan for the neighboring area | Major geographic features and urban infrastructure<br>Traffic facility installation plan<br>Status of designation of region and zone | |
| | • Installation of traffic facilities and relevant plans | Master plans associated with the project | |

#### 3.10.2 Method of Traffic Volume Survey

- Period: 08 to 12 Jan 2023 for 4 days
- Method: On-site traffic volume survey by the consultant team
- Location: At Shaheed Benazirabad Roads
- Duration: 24 hours for project route

**Classification of vehicles for traffic survey:** Twelve different classes of vehicles have been considered in the current traffic count survey. Details of these vehicles are provided in Table 4.

**Table 4: Vehicle Classification**

| Classification | Vehicle Type | Classification | Vehicle Type |
|---|---|---|---|
| 1 | Motor Cycle | 7 | Truck (2-axles) |
| 2 | Rickshaw | 8 | Truck (3-axles) |
| 3 | Car/Jeep | 9 | Truck (4-axles) |
| 4 | Wagon/Pickup | 10 | Truck (5-axles) |
| 5 | Mini Truck | 11 | Truck (6-axles) |
| 6 | Bus | 12 | Tractor Trolley |

Result of traffic Volume Survey: Total number of vehicles counted at the proposed project location is summarized in Table 5.

**Table 5: Traffic Volume Survey Results**

| Classification | Shaheed Benazirabad | Shaheed Benazirabad | Shaheed Benazirabad | Shaheed Benazirabad |
|---|---|---|---|---|
| Survey Date | 08 (Sun) Jan, 2023 | 09 (Mon) Jan, 2023 | 10 (Tue) Jan, 2023 | 11 (Wed) Jan, 2023 |
| Traffic volume | 3,198 | 3,376 | 3,255 | 3,275 |

### 3.10.3 Analysis of Traffic Present State

**Traffic volume characteristic**

**Monthly adjustment factor**: Monthly and daily adjustment factors are used to convert the traffic volume into Average Annual Daily Traffic (AADT). Weekly and monthly adjustment factors have been adopted by National Transport Research Centre. The adopted monthly and daily adjustment factors are provided in Table 6 & 7 respectively.

**Table 6: Monthly Adjustment Factor**

| Monthly | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Factor | 0.997 | 1.093 | 0.980 | 0.971 | 1.016 | 1.001 | 0.955 | 0.994 | 1.013 | 0.975 | 1.011 | 1.001 |

Source: Traffic Factors for Pakistan III, 1992, NTRC (National Transport Research Centre)

**Table 7: Table Daily Adjustment Factors**

| Monthly | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|---|---|---|---|---|---|---|---|
| Factor | 0.9920 | 0.9928 | 0.9888 | 0.9785 | 1.0101 | 1.0318 | 1.0126 |

Source: Traffic Factors for Pakistan III, 1992, NTRC (National Transport Research Centre)

**Conversion into average annual daily traffic volume*:*** AADT (Average annual Daily Traffic) = ADT/ (Monthly Adjustment Factor* Daily Adjustment factor). AADT of various types of vehicles is provided in Table 8.

**Table 8: AADT of various types of vehicles**

| Motor Cycle/ Rikshaw | Cars / Jeep | Bus | Mini Truck | Trucks | | | | | Tractor Trolley |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 2-Axle | 3-Axle | 4-Axle | 5-Axle | 6-Axle | |
| 1505 | 1342 | 39 | 91 | 149 | 15 | 16 | 3 | 1 | 107 |

**Vehicle Type Composition:** The component rate of vehicle types is passenger car (41.06%), Hiace wagon (2.78%), motorcycle (46.05%) and truck (5.63%). These are shown in Figure 3.

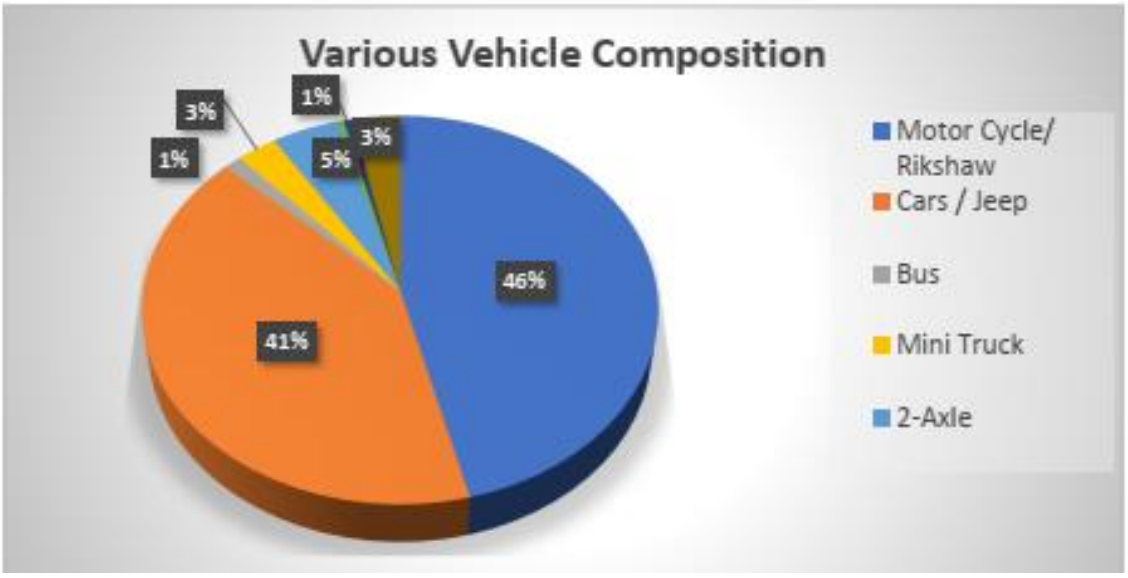



**Figure 3: Vehicle Type Composition**

# 4. ENVIRONMENTAL & SOCIAL BASELINE

## 4.1 Introduction

This section describes the existing environmental and socio-economic conditions of the sub-project area. The environmental and social baseline aims to provide a baseline against which the project impacts can be measured. Due to the emergency nature of work, the details have pertained to the important areas according to the rehabilitation works. This Section also identifies socially sensitive receptors along the RoW of the proposed roads.

## 4.2 Physical Environment

### 4.2.1 Geography

District Shaheed Benazirabad lies at 26°14′39″N 68°24′36″E. This district is bounded by District Sanghar on the east, district Khairpur on the north, district Jamshoro on the west, and District Mitiari on the south. Geography of the district is shown in Figure 4.

### 4.2.2 Soils

The soils of the proposed project area were formed in aeolian sands originally deposited in Pleistocene age, but reworked by wind subsequently during the sub-recent age in the form of transverse and longitudinal sand ridges. Two types of soil classes exist in the area, sandy soils in the desert and sand to loamy fine sand, but rarely very fine sandy loam to even clay loam in areas along the Canal.

### 4.2.3 Seismicity

The map shown in Figure – 5 indicates that all of the sub-project areas are falling in Zone 2A, with Peak Ground Acceleration (PGA) varying from 0.08 to 0.16g (Pakistan Building Code of Pakistan, 2007). It is a low-damage risk zone, meaning the areas that fall under these zones have a low chance of having an earthquake. While no site is falling in Zone 4 which is called the High Damage Risk Zone and covers areas liable to MSK VIII. Moreover, all structure designs will be reviewed by the World Bank expert**.**

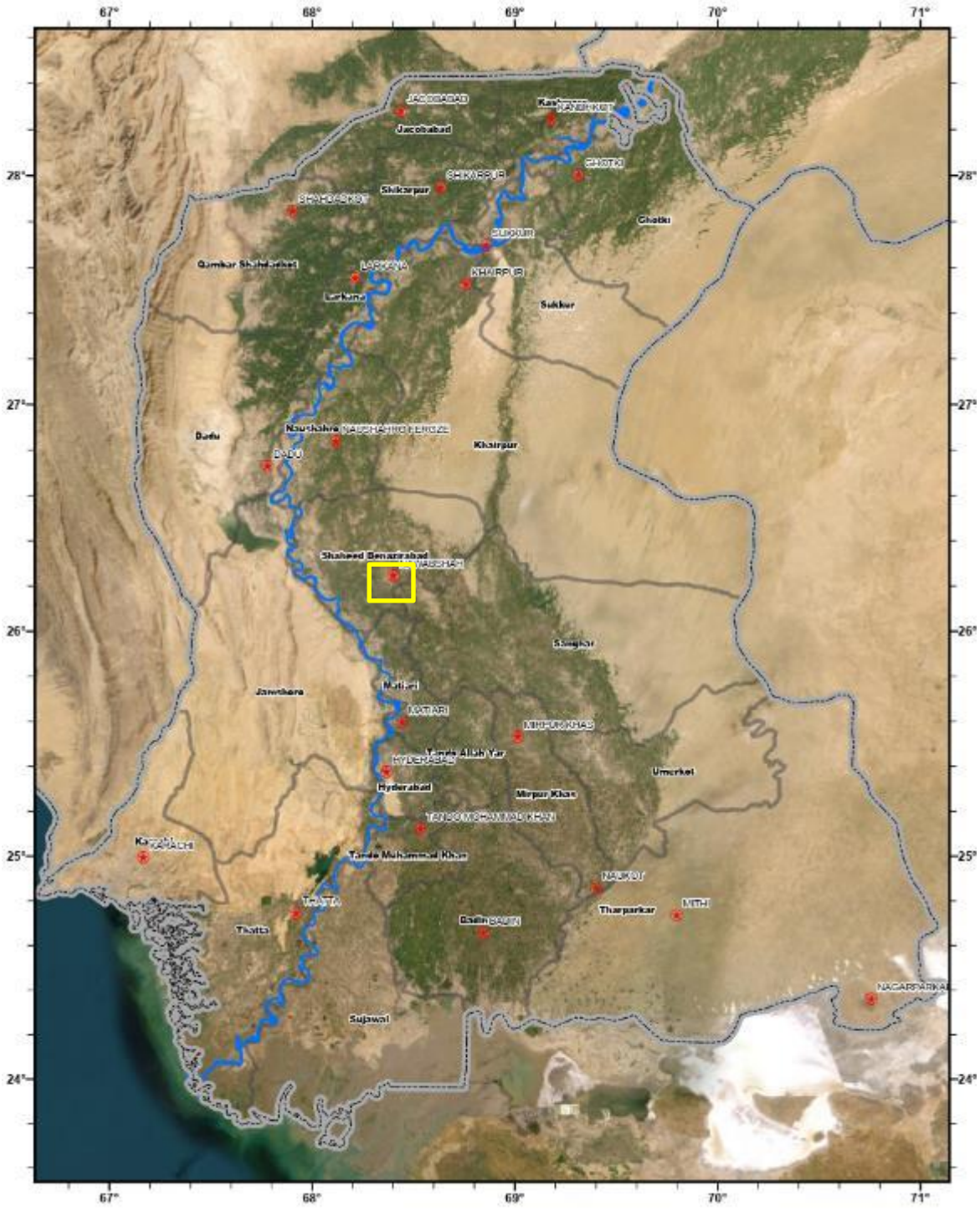



**Figure 4: Geographic Map of Sub Project Area**

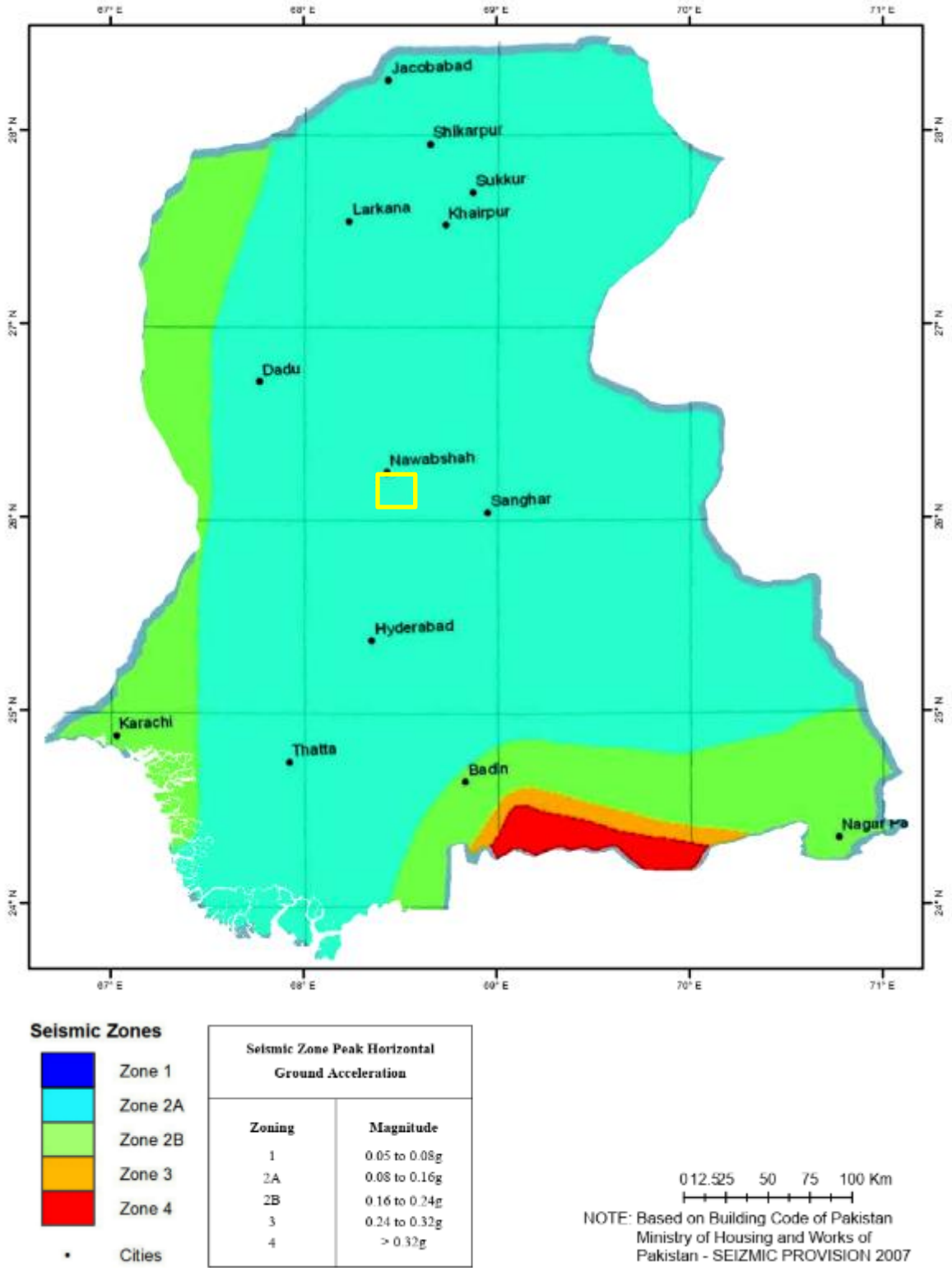



**Figure 5: Seismic Zone Map of the Sub-Project Area**

### 4.2.4 Climate

The climate of Sindh is arid and hot. According to the classification made by United Nations Educational, Scientific and Cultural Organization (UNESCO), the region has been divided into three zones: Coastal- South of Thatta; Southern- from Thatta through Hyderabad to Nawabshah (Shaheed Benazirabad); and Northern-from Nawabshah (Shaheed Benazirabad) to Jacobabad. The project generally falls in arid zone with its climate as subtropical continental characterized by hot summer and mild winter.

### 4.2.5 Rainfall

The last summer monsoon of 2022 with extraordinary torrential rains and subsequent occurrence of the flood left unprecedented damage to road infrastructures. Rainfall in the Study Area is sporadic and unreliable. However, most rain falls in the months of July to September and at this time large storms can occur, where daily rainfall may exceed the annual average as happened in 2022. Temperatures frequently rise above 46 °C (115 °F) between May and August, and the minimum average temperature of 2 °C (36 °F) occurs during December and January. Table 9 shows the Monthly Rainfall and Temperature for Shaheed Benazirabad.

**Table 9: Rainfall (mm) and Temperature (°C)**

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rainfall | 2.7 | 2.5 | 1.4 | 4.3 | 2.1 | 8.9 | 46.6 | 83.4 | 40 | 2.9 | 3.5 | 0.2 |
| Maximum Temp | 27.2 | 30.9 | 37.8 | 43.8 | 46.7 | 45.4 | 42.5 | 40.7 | 40.7 | 34.4 | 28.9 | 38.2 |
| Minimum Temp | 14.3 | 17.2 | 23.3 | 29.0 | 31.7 | 32.1 | 31.5 | 30.2 | 29.1 | 27.8 | 22.9 | 16.8 |
| **Source: District Profile of Shaheed Benazirabad** | | | | | | | | | | | | |

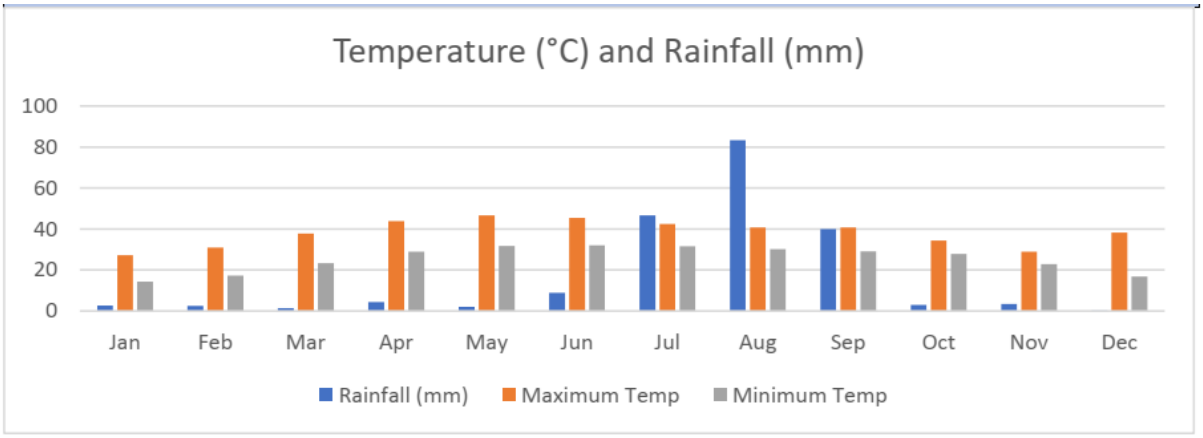



**Figure 6: Mean Monthly Max. & Min. Temperature & Rainfall at Shaheed Benazirabad.**

## 4.3 Water Resources and Quality

### i. Surface Hydrology

The Indus River is the major source of surface water in the province. The only perennial surface water channel in the area is the Rohri Canal. The Canal is one of the fourteen main

canal systems in Sindh with the largest Cultivated Command Area (CCA). It originates from Sukkur Barrage.

### ii. Groundwater

Groundwater is found to be marginally sweet and is available in ample quantity in areas along the Canal. The water table also varies with the discharge in the canal and the amount of precipitation in the area. In periods of high discharge in the Canal, the water level in areas adjacent to the canal rises so does the water level along the canal. Precipitation being low in the area does not significantly affect the water table. Water quality in areas along the Canal is generally sweet. During the field survey in the subproject area it has been confirmed that the water is extracted through hand pumps; the water table in the area varies from 50 ft to 120 ft depending upon the location and elevation of the settlement.

### iii. Surface and Groundwater Analysis

Due to emergency nature of the works the baseline environmental monitoring will be done by the contractor before the start of the civil works as per the approval of the CSC Environmentalist. Sampling from different locations in the sub-project area will be done by Third-party instrumental environmental laboratory which is certified by SEPA as per SEQS 2016. The selection of locations for monitoring will be done with due consideration to Socially sensitive receptors.

### 4.3.1 Air Quality & Noise Level

The sub-project areas are located in a sparsely populated rural area with no industrial or commercial activity. Vehicular traffic on dirt roads causes some dust emissions whose effect is fairly localized. However, traffic on the roads in the sub-project area is low compared to the national highways or other major roads. The ambient air quality tests & noise levels will also be monitored before the start of the civil work by the contractor after the approval of the CSC Environmentalist. Rational for the baseline environmental monitoring has been given in Table 10.

**Table 10: Rationale for the Baseline Environmental Monitoring**

| Sr. No | Monitoring Parameters | No. of samples | Rationale |
|---|---|---|---|
| 1 | Ambient Air | 5 | One from the proposed camp area, one each from roads no 1, 3, 4, 6 |
| 2 | Drinking Water/Ground Water | 4 | one from the camp area and the other from roads no. 1, 3, 5, 6, and 7 due to the presence of settlements near to subproject area |
| 3 | Waste/Surface Water | 3 | Construction near water body/one each from roads no 1, 2, 5 |
| 4 | Noise | 12 | 2 from each road/nearby Socially sensitive receptor |

## 4.4 Biological Environment

The sub-project area falls in rural and semi-urban localities and has a limited diverse habitat, which supports a few varieties of faunal and floral species. The following broad categories have been identified for this report focusing on the sub-project areas.

### 4.4.1 Fauna of the Sub-Project Area

As the population has increased in the sub-project area, wildlife abundance and diversity have decreased to a minimum. Among the small mammal species still found are Red foxes (*Vulpes cana*), and rats are reported to have resided in the surrounding sub-project area. Snakes and lizards also inhabit. The black rat (*Rattus rattus*), also known as the ship rat, roof rat, or house rat, is a common long-tailed rodent. Among the avifauna, Eagle (*Aquila rapax*), Hawak (*Accipiter badius*), Kite (*Milvus migrans*), Parrot (*Psittacula krameri*), Partridge, Common crow (*Corvus splendens*) and several varieties of waterfowls are reported.

### 4.4.2 Flora of Sub-Project Area

The proposed project is located in Shaheed Benazirabad, which is part of the lower Indus valley. As the climate of the track is arid and subtropical, the original flora of the area consists of tropical thorn forest type vegetation, in which thorny usually hard wooded species predominate with Acacia species being particularly characteristic. However, the natural vegetation has long ago been replaced completely by crops. At present, there is generally a mixture of species found on the track. The area has been used for agricultural purposes for almost a century; the natural flora has been completely replaced by cultivated species. The dominant floral species include *Acacia modesta, Acacia nilotica, Dalbergia sissoo, Ziziphus nummularia* and plantations of *Eucalyptus globulus* and Populs. The *Azadirachta indica* (Neem), *Zizyphys vulgaris* (Bir), *Tamarix orientalis* (Jujuba lai) and *Capparis aphylla* (Kirir) are among the more common trees. Mango, Date palms and the more recently introduced Banana, Guava, Orange and Chiku are the typical fruit-bearing trees.

### 4.4.3 Endemic and Endangered Species

As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from sub-project sites. No protected forests were observed near the proposed sub-project area (refer to Figure – 7[2]). Pai reserved forest is about 30 km away south of the sub-project area. Furthermore, the Riverine forests of Nawabshah and Hyderabad divisions grow up in narrow belts along the banks of the Indus.

## 4.5 Socially Sensitive Receptors along the ROW

In order to identify potentially Socially Sensitive Receptors like religious structures, graveyards, Basic Health Units (BHU), hospitals, schools, etc. A survey of the Project impact area was undertaken. Socially sensitive receptors were identified through direct observation and by interviewing those living within the sub-project area. The indirect impacts on the receptors have been evaluated at 200 meters/656 ft buffer zone of the proposed roads (100 meters/328 ft on each side from the center line of the road). Most of the structures were located near towns and settlements in rural areas and away from RoW.

Mosques, shrines and graveyards are of historical, cultural and religious importance for the people. A detailed inventory of the sites showing the approximate location of the receptors within CoI has been provided in Table 11. All of the receptors are out of the RoW. By applying

[2] https://wwf.org.pk/foreverindus/ie_protectedareas.php

a careful design strategy all potential impacts were avoided. However, care will need to be taken during construction activity.

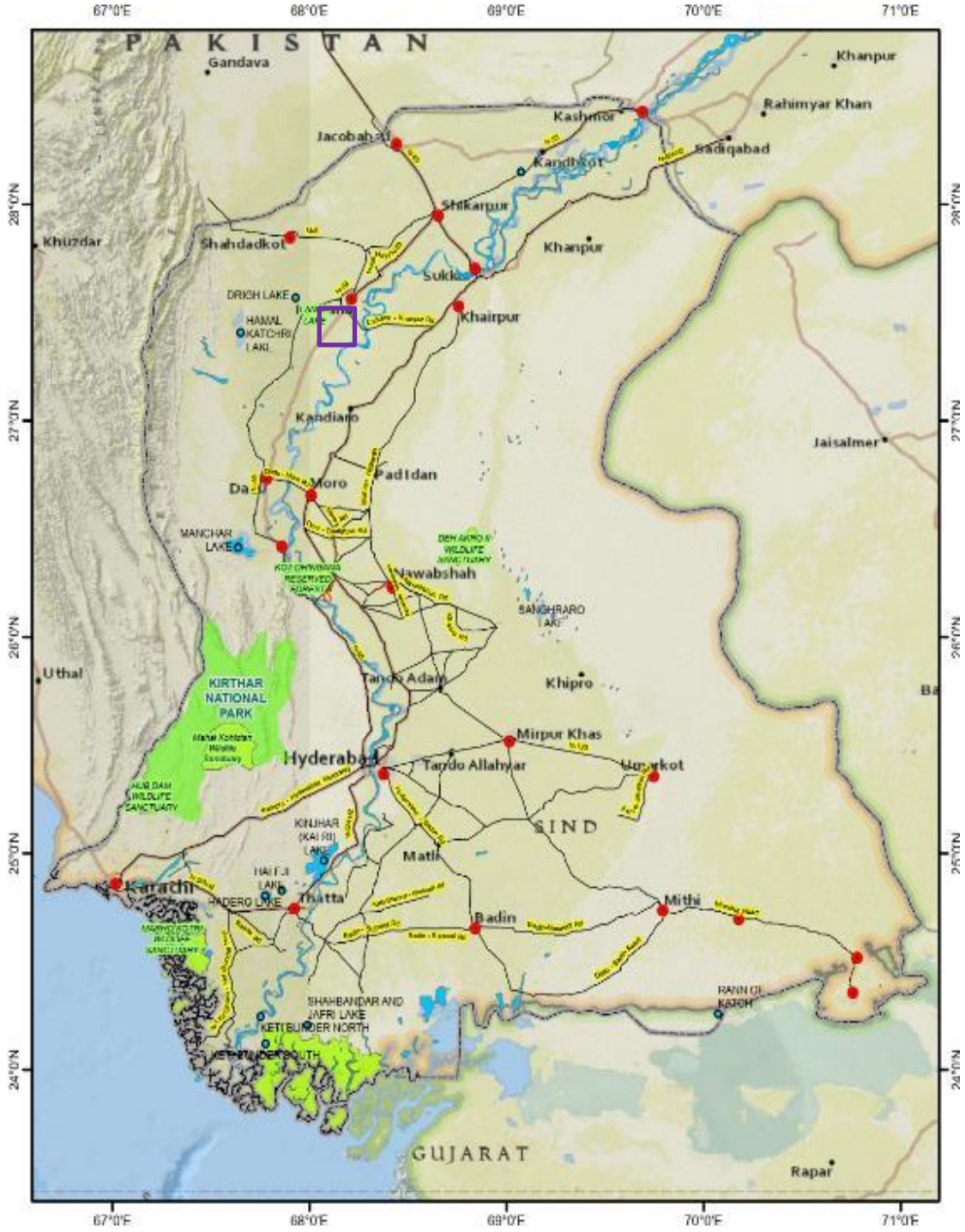


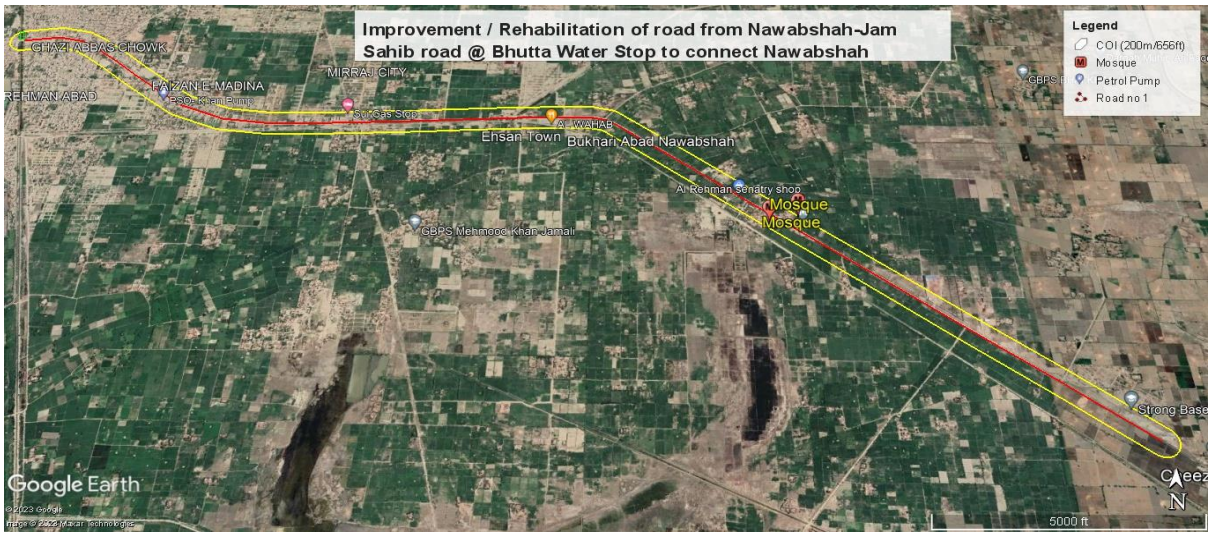

**Figure 7: Locations of Protected Area with respect to Sub-Project**

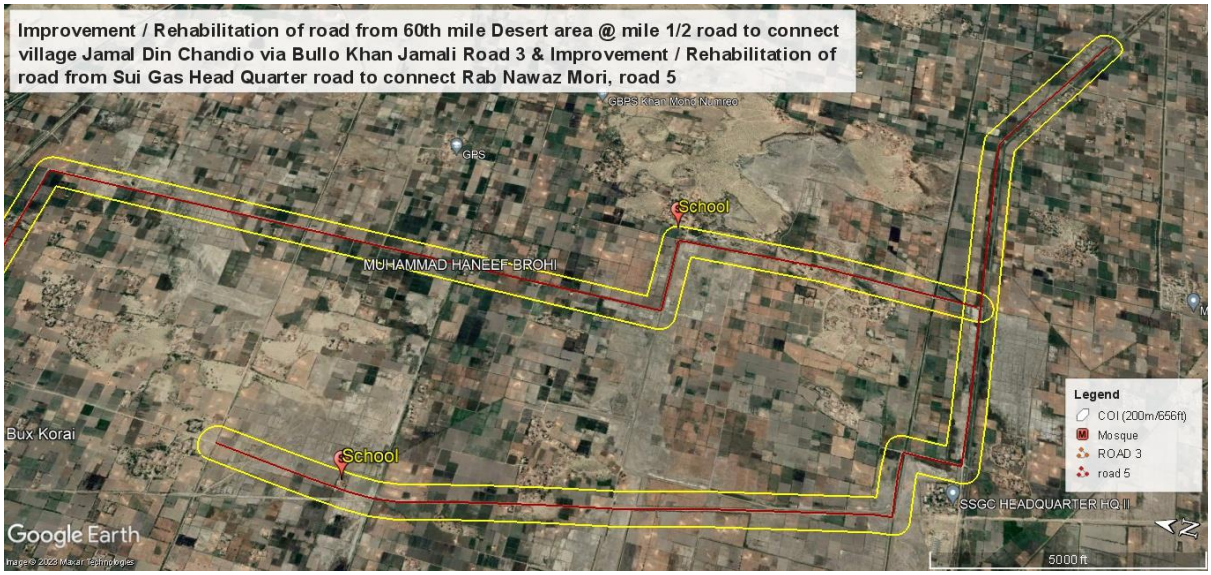
## Table 11: Socially Sensitive Receptors along the Proposed Roads

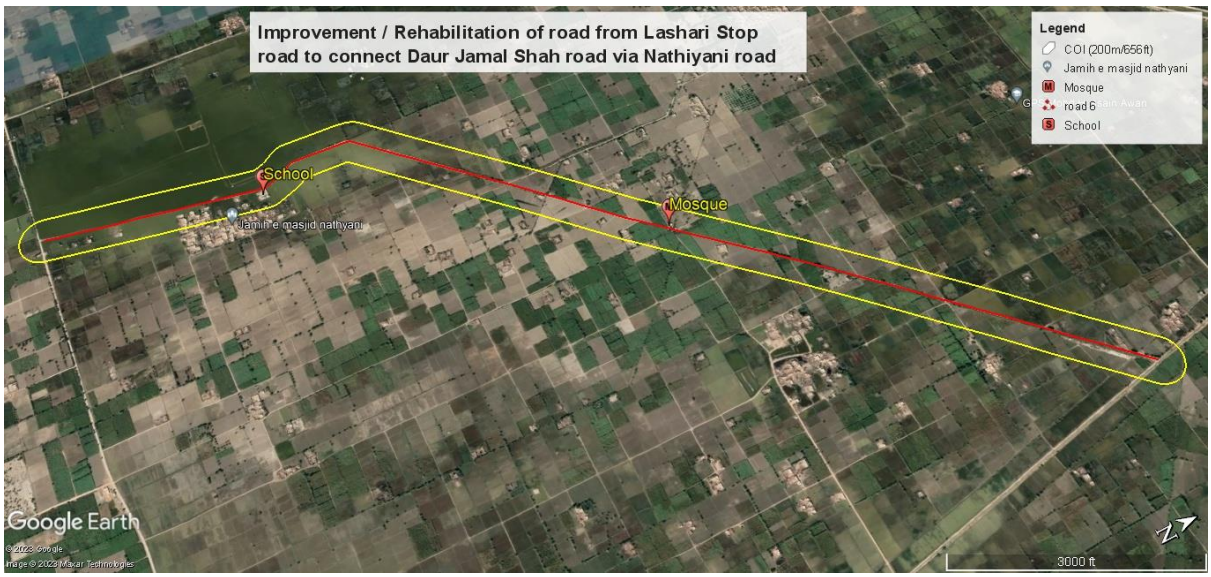
| Sr. No | Name of Road | Existing Width/ ROW (ft) | Proposed length for rehabilita-tion/restoration (in Kms) | Socially Sensitive receptor * | Distance (ft) from the center line** | Side of Road (North /South) |
|---|---|---|---|---|---|---|
| 1 | Improvement / Rehabilitation of road from Nawab-shah-Jam Sahib road @ Bhutta Water Stop to con-nect Nawabshah | 12 | 8.60 | Mosque<br>Mosque | 85<br>238 | N<br>S |
| 2 | Improvement / Rehabilitation of road from Nawaz Dahri Gupchani road @ mile 5/2 to Connect Gup-chani Shahdadpur road | 18 | | None of the socially sensitive receptors found in the buffer zone | | |
| 3 | Improvement / Rehabilitation of road from 60th mile Desert area @ mile 1/2 road to connect village Jamal Din Chandio via Bullo Khan Jamali | 12 | 8.00 | School | 175 | N |
| 4 | Improvement / Rehabilitation of road from Daur Jamal Shah road to village Saeed Khan Mashori via Dr. Azam Khan Zardari | 12 | 8.40 | None of the socially sensitive receptors found in the buffer zone | | |
| 5 | Improvement / Rehabilitation of road from Sui Gas Head Quarter road to connect Rab Nawaz Mori, road | 12 | 7.50 | School | 210 | N |
| 6 | Improvement / Rehabilitation of road from Lashari Stop road to connect Daur Jamal Shah road via Nathiyani road | 12 | 4.60 | School<br>Mosque | 220<br>70 | N<br>S |
| 7 | Improvement/Rehabilitation of road from Trimore - Sijawal Minor to Durai Mahar Road Via Lal Bux Sha-hani Road | 12 | 5.20 | None of the socially sensitive receptors found in the buffer zone | | |

*Category (Mosque, School, BHU, Hospital, Graveyard, Mazar, Mandir, etc.)

**The indirect impacts on Socially sensitive receptors have been evaluated at 200 meters/656 ft buffer zone of the proposed roads (100 meters/328 ft on each side from the center line).


Improvement / Rehabilitation of road from Nawabshah-Jam Sahib road @ Bhutta Water Stop to connect Nawabshah
Legend
COI (200m/656ft)
Mosque
Petrol Pump
Road no 1
GHAZI ABBAS CHOWK
FAIZAN E MADINA
MIRRAJ CITY
Ehsan Town
A. WAHAB
Bukhari Abad Nawabshah
A Rehman Sendry shop
Mosque
Mosque
GBPS Mehmood Khan Jamali
Strong Base
Google Earth
5000 ft
N


Improvement / Rehabilitation of road from 60th mile Desert area @ mile 1/2 road to connect village Jamal Din Chandio via Bullo Khan Jamali Road 3 & Improvement / Rehabilitation of road from Sui Gas Head Quarter road to connect Rab Nawaz Mori, road 5
GBPS Khan Mohd Nomeo
GPS
School
MUHAMMAD HANEEF BROHI
Bux Korai
School
SSGC HEADQUARTER HQ II
Legend
COI (200m/656ft)
Mosque
ROAD 3
road 5
Google Earth
5000 ft


Improvement / Rehabilitation of road from Lashari Stop road to connect Daur Jamal Shah road via Nathiyani road
Legend
COI (200m/656ft)
Jamih e masjid nathyani
Mosque
road 6
School
School
Mosque
Jamih e masjid nathyani
Google Earth
3000 ft

## 4.6 Socio-Economic Environment

### 4.6.1 Demography

The sub-project area is located in the Shaheed Benazirabad district. Demographic details has been depicted in Table 12[3]. The majority religion is Islam, with 95.82% of the population. Hinduism (including those from Scheduled Castes) is practiced by 3.86% of the population.

The population represents different cast groups include, Bhatti, Lashari, Wassan, and Zardari. Religious and social harmony is prevailing in the area people maintain their social relations and participate in each other's social and religious events, the area is deprived of high poverty and low literacy rate. The main livelihood of the people is related to agriculture and livestock rearing followed by daily wage earners.

**Table 12: Demography of the Subproject Areas**

| Factor | Shaheed Benazirabad |
|---|---|
| Area: km$^2$ | 11,260 |
| Population (Persons)<br><br>Male<br>Female | 1,613,506<br>(Daur 477,993, Nawabshah 413,402)<br>55.14%<br>36.71% |
| Sex ratio (M:F) | 106.87:100 |
| Population Density<br>Urban Population<br>Rural Population | 358.71 per km$^2$<br>489,810<br>1,123,696 |
| Avg Household size | 5.38 people |
| Literacy ratio 10+<br>Male<br>Female | 46.86%:<br>59.42%<br>33.85% |

### 4.6.2 Population Density of Sub-Project Area's Tehsil

Subproject area falls under four tehsils named; Nawabshah & Daur. The population density of these talukas is given in following Table 13[4] and depicted in Figure 8 also. The sub-project area falls in a rural setup as all these roads which are under rehabilitation are farm-to-market roads with short lengths.

**Table 13: Population Density of Sub-Project Area's Tehsil**

| Sr. No | Name of Roads | Taluka | Population Density | Rural Population % |
|---|---|---|---|---|
| 1 | Improvement / Rehabilitation of road from Nawabshah-Jam Sahib road @ Bhutta Water Stop to connect Nawabshah - Sanghar via village Gul Muhammad Bhutto | Nawabshah | 950/Km$^2$ | 22 |
| 2 | Improvement / Rehabilitation of road from Nawaz Dahri Gupchani road @ mile 5/2 to Connect Gupchani Shahdadpur road | | | |

[3] District-wise Tables - Census 2017 Final Results". *pbs.gov.pk*. Pakistan Bureau of Statistics. 2017.

[4] https://www.citypopulation.de/en/pakistan/distr/admin/815__shaheed_benazir_abad/

| Sr. No | Name of Roads | Taluka | Population Density | Rural Population % |
|---|---|---|---|---|
| 3 | Improvement / Rehabilitation of road from 60th mile Desert area @ mile 1/2 road to connect village Jamal Din Chandio via Bullo Khan Jamali | Daur | 216/Km$^2$ | 80 |
| 4 | Improvement / Rehabilitation of road from Daur Jamal Shah road to village Saeed Khan Mashori via Dr. Azam Khan Zardari | | | |
| 5 | Improvement / Rehabilitationof road from Sui Gas Head Quarter road to connect Rab Nawaz Mori, road | | | |
| 6 | Improvement / Rehabilitation of road from Lashari Stop road to connect Daur Jamal Shah road via Nathiyani road | | | |
| 7 | Improvement/Rehabilitation of road from Trimore - Sijawal Minor to Durai Mahar Road Via Lal Bux Shahani Road | | | |

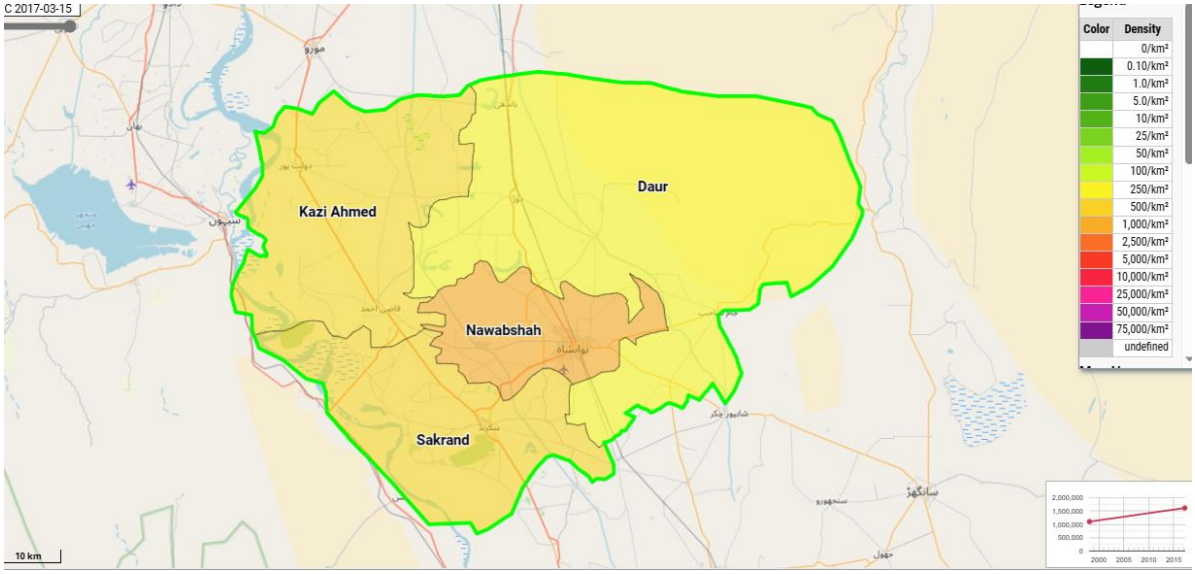



**Figure 8: Population Density Map of Shaheed Benazirabad**

### 4.6.3 Languages

Sindhi is the dominant language spoken in the sub-project areas, as 100% of the population speaks Sindhi. Moreover, people of the area also speak Balochi, and Sraiki, Languages. National Language Urdu is spoken and understood by the majority of the people in the sub-project area.

### 4.6.4 Health Facilities

According to the community, different communicable and non-communicable diseases are prevalent in the subproject area. These diseases include. typhoid, malaria, eye problems, diarrhea and other ailments. Due to long distances to health facilities in main cities, women with complications die during the delivery cases. In the sub-project area, there is a lack of health facilities like BHU dispensaries, midwifery centers and medical stores in the immediate vicinity. The seriously ill patients are taken to Gambat, and Larkana.

### 4.6.5 Housing

The project area consists of a rural population living comparatively in isolation. The majority of the population lives in small settlements. Some of the houses usually have a boundary wall enclosing enough space for cattle and storage. The study area consists of various types of housing patterns such as Paka (cemented), Semi-Paka, Kacha (roofs of grasses with mud plaster). It was observed that all the people were living in self-owned houses.

### 4.6.6 Occupations, Sources of Livelihood and Income Levels

Within the study area of sub-projects, canal irrigated & rain-fed agriculture, as well as livestock, are the main sources of income for the people. Shaheed Benazirabad's main crops include cotton, sugarcane, oil seeds and vegetables.

In the absence of alternative livelihoods like industrial-based employment opportunities, people depend on traditional livelihood sources like agriculture and livestock. However, a good number of youth from the subproject area also work in big cities as private sector employees and daily wage labor.

Mostly, livestock feeds on the grazing of crop residues. Women besides performing household chores also contribute to livestock rearing and work on handicrafts to complement family income generation.

Average livestock head per household is 8 in the sub-project areas, whereas landholding is very low i.e. Less than 3 acres. Some families also earn their living from small businesses like shops and daily wages, tailoring and other errands.

The lowest family monthly income was recorded as PKR 30,000 while the maximum family income was recorded as 40,000 in the subproject area. This low income shows the high level of constraints families face to meet their day-to-day needs in these high inflation times.

### 4.6.7 Telecommunication

During the survey, the community reported that there is no landline facility available in the sub-project area. Mobile phone coverage is better in the sub-project areas.

### 4.6.8 Energy Sources

Most of the sub-project areas are without electricity. The area people collect firewood from the surrounding area and some people purchase firewood from the nearby town. The cost of firewood is Rs 600 per 40 kg. Moreover, the use of both solar systems and diesel for irrigation purposes was also witnessed in some villages of sub-project areas. Diesel is mostly used at nighttime.

### 4.6.9 Housing

The majority of the population in subproject area resides in small settlements of 30 to 200 houses. The walls of these houses are usually made from brick and cement/mortar. It was noted that the majority of the families were living in self-owned houses. These spacious houses usually have a boundary wall enclosing enough space for cattle and storage.

### 4.6.10 Potable Water Supply

Invariably, groundwater is used for all domestic purposes, in the project area no community water supply schemes are laid in these settlements. Population relies upon their private sources, with the majority using hand pumps for tapping groundwater. Most of the houses have their own hand pumps, generally, located in the courtyards of their houses. The groundwater is not palatable owing to its quality it is brackish in taste.

### 4.6.11 Sanitation

The sewerage /drainage system in the area is not satisfactory. Most of the people discharge their wastewater into open drains and few have got pit latrines and septic tanks system inside their houses. It is also a common practice to dispose of solid waste in nearby open land.

### 4.6.12 Social Cohesion and Conflict

The tribal system is strong in the subproject area. Social organization in all the villages is strongly based on a tribal system, where almost every tribe has a tribal leader. The tribe leaders are mostly landlords and politically influential. All families belonging to the same tribes have strong interactions with one another but mostly remain separate from other tribes. The marriages are usually arranged within the same tribe.

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# 5. STAKEHOLDER CONSULTATION AND INFORMATION DISCLOSURE

This section describes the consultations undertaken with the stakeholders in the sub-project areas to explain about the project components and activities and to seek their views and opinions on the sub-project. The consultations were held with communities/households located in the sub-project interventions who are also the beneficiary of the sub-project. They include households and owners of commercial entities bearing positive and negative impacts of the sub-project. Institutional consultation with the relevant government agencies is also made part of this section, delineating information disclosure of environmental social safeguards measures.

## 5.1 Need of Consultation

The ESF of the World Bank under Environmental and Social Standard (ESS)-10 requires stakeholder engagement and information disclosure for the project. ESS-10 requires identifying and engaging stakeholders, especially the ones affected by the project activities. It advises building and maintaining a constructive relationship in order to increase their interest and support for the project and to provide the stakeholders with enough opportunity to record their concerns so that their apprehensions are satisfactorily addressed.

The ESF necessities that an ESMP is prepared through a process of consultation with all concerned stakeholders and publicly disclosed. The process helps to minimize adverse environmental and social impacts and reduces the expected conflicts at the design and implementation stages, minimizes the risk of sub-project delays at the construction stage, and enables making the subproject more economical and socially acceptable. Moreover, public consultations create a sense of ownership among the stakeholders regarding the sub-project and disclosure further ensures transparency in sub-project activities.

## 5.2 Identification of Stakeholders

There are two types of stakeholders, i.e. project-affected parties and other interested parties. Project-affected parties are groups of individuals who are affected or likely to be affected by the project. The Other Interested Parties for the sub-project are the representatives of Government Departments/agencies involved in the planning, design, implementation and operation of the sub-project, including various provincial government departments such as City/District Administration, Environment Protection Agency Revenue Department, Works & Services Department, etc.

## 5.3 Engagement approach

For the community-level consultations, three days before the consultations (verbal communication), representatives of all the segments of the community were invited to the consultations. The invitation purpose, date and time of the consultations were shared with the stakeholders.

## 5.4 Stakeholder Consultation

The social and environmental staff of consultants held consultation meetings with the local community residents of the sub-project area in February 2023.

The field team comprising the Environment and Social Safeguard Consultants visited the nearby communities of the sub-project to get the views of the people of the sub-project, who are going to be affected and beneficiaries. They appreciated the client for taking up the initiative of rehabilitation and restoration of rural roads and allied structures. According to the community, the rehabilitation works would enhance the communication means and transportation which will benefit the sub-project area.

The social and environmental team carried out a public consultation with the households and local people. Participants of public consultation meetings were briefed on salient features of the ESMP prepared for the sub-project. The team assured households that all the concerns raised by them would be addressed. Measures have been made part of ESMP to minimize project-related impacts during construction. Mitigation measures will be adopted to control noise and air pollution. Participants were apprised that their concerns and suggestions have been incorporated into the ESMP. In case of any complaint/grievance from the households, a well-defined Grievance Redress Mechanism (GRM) is devised in ESMP. Participants were also briefed on the GRM.

**Table 14: Details of Community Consultations**

| Name of Sub Project | Name of Settlement/ Village | Date of Consultation | No. of Participants |
|---|---|---|---|
| Road No 1 | Bukhariabad | 05-02-2023 | 18 |
| Road No 2 | Meer Qurban Khan | 05-02-2023 | 12 |
| Road No 3, 5 | M Khan Brohi | 05-02-2023 | 15 |
| Road No 4 | Daur | 06-02-2023 | 12 |
| Road No 6 | Natyani | 06-02-2023 | 10 |
| Road No 7 | Zardariabad | 06-02-2023 | 12 |
| **Total** | | | **79** |

## 5.5 Community Consultations with Females of the Sub-Project Areas

During the survey, consultations with women were also conducted by female resource persons. The details of the sub-project were described and explained using simple language. During the meetings, the women were encouraged to ask questions and share their views and concerns related to the project, which were noted accordingly.

They were informed that the successful completion of the sub-projects will boost the living standard of the inhabitants through enhanced means of communication/traveling. They were happy and told that these sub-projects are most important for their better livelihood and also help them during rainy seasons. They also told that these sub-projects will leave positive impacts on women and their livestock by developing climate-resilient roads and enhanced means of transportation. Moreover, they do not express any concerns regarding these sub-projects.

**Table 15: List of villages visited during the women's consultation**

| Sr. No | Name of the Sub-Project | Name of Village | Date of consultation | No of Participants |
|---|---|---|---|---|
| 1 | Road No 1 | Bukhariabad | 05-02-2023 | 8 |
| 2 | Road No 2 | Meer Qurban Khan | 05-02-2023 | 6 |
| 3 | Road No 3, 5 | M Khan Brohi | 05-02-2023 | 10 |
| 4 | Road No 4 | Daur | 06-02-2023 | 8 |
| 5 | Road No 6 | Natyani | 06-02-2023 | 10 |
| 6 | Road No 7 | Zardariabad | 06-02-2023 | 6 |
| | | | **Total** | **48** |

They applauded the efforts of the Department and SFERP. They were also informed that continuous liaison with the local community will be maintained to update them about the status of sub-project implementation. Their complaints, if any will be redressed through the GRM. It will provide the local community with a chance to address their concerns during construction activities. During public consultation/ interviews, the people of the sub-project areas were fully involved and they came up with a positive conclusion: Some comments/ observations with actions/ responses from the community (male and female) are as follows.

**Table 16: Summary of concerns raised by the community during consultations**

| Comments /Observations | Action /Response |
|---|---|
| Overall the participants appreciated the project and foresee it as a positive sign of development. Participants raised a concern regarding temporary restrictions to access by-passers will occur due to construction activities. They suggested undertaking construction activities at a quicker pace. | The team briefed that the contract will be bound to provide a schedule of work and that will be communicated to local people. The contract will also work in patches to reduce the risk of restrictions on access. Participants were also briefed on GRM regarding the enumeration of any concerns. |
| The Participants informed that most of the rehabilitation work undergoes in rural areas and a number of socially sensitive receptors exist along the roads. Noise become a big issue, that alters the social behavior of the local communities. | All vehicles, equipment and machinery used for construction will be regularly monitored to the emission levels that conform with SEQS.<br>Vehicles and equipment used will be fitted as applicable, with silencers and properly maintained. In urban settlements, construction activities will be restricted to being carried out between 9 a.m. and 5 p.m. |
| Teachers and students of the educational institutions expected that all international and national traffic rules will be abided by in this subproject like “No Traffic Horn in front of Hospitals, Schools”, Reduce speed Limit” etc. | Engineering control measures have been included in the design of the rehabilitation of the roads like zebra crossing and traffic calming measures including additional signage, marking and rumble strips with raised walkways and speed restrictions shall be given near socially sensitive receptors. |
| Participants from the sub-project villages, during the consultation strongly demanded that unskilled labour should be hired from the local area, as there is an availability of unemployed young men. | Participants were told that local community people would be preferred for employment and this will be monitored during the construction phase by the social specialist of CSC & PIU. |

| **Consultation outcomes from Female participants** | |
|---|---|
| Livestock movement could be disturbed by the increase in traffic and noise from machinery during project construction.<br><br>Restriction of livestock grazing and accidental killings of livestock | Techniques to reduce the noise will be employed. Traffic routes will be planned to avoid disturbance to livestock as well as the community.<br><br>Vehicles speed will be controlled to avoid accidents |
| The privacy of women may be affected due to the project. Women currently collect fuel wood, tend to livestock, etc. and the family is concerned about their safety. However, with the increase of outsiders, this freedom of movement for women will be reduced. | The field team briefed that the contractor will be bound to provide a schedule of work that will be communicated to local people. The chances for outsider labour will be minimized by adopting a proactive approach like hiring local labour etc. The camp area will be 500 meters away from the settlement<br>Cultural emersion and sensitization training will be a part of the induction program for new employees.<br>Moreover, the specific clause would be made part of the contract/ bidding document as below:<br><br>Furthermore, the contractor has to abide by Labour Code of Conduct as well as mitigation measures regarding Gender Based Violence (GBV)/Sexual & Exploit Abuse (SEA) as mentioned in the ESMP. |
| Participants were of the view that proper dissemination of information about the sub-project may be ensured | Participants were briefed about the sub-project in detail during field focus group discussions, interviews, and consultation while preparing ESMP. The interaction between the project and the community would be an ongoing process throughout the project and will be guided by the Stakeholder Engagement Plan (SEP). Project GRM will be available at site level in case of any complaints. |

**Figure 9: Consultations Photolog**

Consultation with residents of Bukhariabad

Consultation at M Khan Brohi

Consultation with residents of Meer Qurban Khan

Consultation with residents of Zardariabad

Consultation with the officer of Wildlife & Forest

Tehsil Mmunicipal Officer, TMA Daur

## 5.6 Institutional Consultation

The Environment and Social team conducted a consultation with relevant government departments in Shaheed Benazirabad in February 2023. The team briefed the officers of government agencies regarding the salient features of the sub-project. It was informed that the "Detailed Design of the Sub-Project, under PIU-SFERP being implemented by the W & S Department and funded by the World Bank. They were informed that the project intends to improve the roads which are affected by rain/flood water. The primary goal of the project is to meet the present and future requirements. It was also briefed that the project will bring positive impacts on the lives of the local population through improved mobility.

**Table 17: Details of Consultations with Line Departments**

| Sr. No | Designation- Department | Representatives of Department |
|---|---|---|
| **1.** | Deputy Director, Social Welfare | Mr. Wajid Ali Memon |
| **2.** | Deputy Director, Irrigation Department | Mr. Muhammad Hashim Solangi |
| **3.** | PS to Deputy Commissioner District Administrator | Mr. Muhammad Rafique |
| **4.** | Taluka Health Officer | Mr. Imtiaz Halepoto |
| **5.** | Deputy Director, Regional Incharge SEPA, Karachi | Mr. Gul Amer |
| **6.** | XEN, Irrigation Department | Mr. Sohail Hameed Baloch |
| **7.** | XEN Highway Department | Mr. Hameed Shaikh |

Generally, the officials were of the view, that the construction of the proposed project will have a positive impact on the people living in the sub-project areas. During the meeting, the officials extended their full cooperation for the proposed project and their views were in favor of the project.

**Table 18: Summary of Concerns Raised by Institutional Stakeholders**

| ***Comments/Observations*** | ***Actions Responses*** |
|---|---|
| The majority of the stakeholders expressed their positive views related to the rehabilitation of flood-affected roads. | In general, the participants approved of the project and believed that there is a dire need for this kind of project as the recent floods had badly damaged these roads. |
| The stakeholders proposed that the construction of the proposed project would lead to improvement in overall socioeconomic conditions in the sub-project areas. | Noted |
| The stakeholders recommended that the construction camp must be outside the settlements minimum 500 away from the fence to avoid social issues | A single camp has been proposed for about 500 meters away from the settlement furthermore camp activities will be kept confined within the boundary area, and activities will not be allowed during Juma prayer and other festive times/days. |
| The stakeholders advised that care must be given to protect fauna and flora during the construction phase. | The plantation would be undertaken with the preference of local species no exotic species will be promoted. The fruit plants will be provided to locals to plant in their adobe only. |
| The Stakeholder suggested that Emergency Preparedness and Response training should be given. | The duration of this training will be one day at three different times and will be free of cost. The training will guide the labor and staff in emergency preparedness and response to the emergency at construction sites. |
| The representative of the irrigation Department stated that irrigation channels must be protected during the construction | The campsite would be confined to the minimum area and away from areas of the water body. |

| ***Comments/Observations*** | ***Actions Responses*** |
|---|---|
| stage from contaminations. There is a risk of disposal of waste construction material or other waste material in a water channel passing near the subproject area. | Permanent as well as seasonal water channels should be protected from any type of contamination during construction work. Monitoring of the water bodies will strictly comply with SEQS. |
| The Stakeholder shows their concern regarding the impacts during the construction stage on waste management and land acquisition | Social and environmental teams briefed about the mitigation measures that will adopt to control dust, noise, health and safety issues. There are no issues regarding land acquisition due to rehabilitation work at the existing RoW. If the issues occur, then these matters will be dealt with by the Revenue Department.<br>The contractor shall dispose of the hazardous waste through EPA-certified contractors. |
| The privacy of women may be affected due to the project. Women currently collect fuel wood, tend to livestock, etc. and the family is not concerned about their safety. However, with the increase of outsiders, this freedom of movement for women will be reduced. | This impact intensity and probability will be low due to the hiring of local labour. Cultural immersion and sensitization training will be a part of the induction program for new employees. Moreover, a specific clause would be made part of the contract/bidding document as “No interaction of labour with women and children during the construction phase in the sub-project area.” All contractor employees will sign a Labor Code of Conduct which clearly outlines what is unacceptable unethical behavior and the consequences for it. |

## 5.7 Information Disclosure

As a disclosure requirement, the environmental and social management framework (ESMF) will be uploaded on the Provincial Disaster Management Authority (PDMA) & project website, while an executive summary of ESMP of the reported sub-projects will be translated into Sindhi after approval from the World Bank will also be uploaded on the website. In addition to this ESMP document will be made available at the campsite/s.

## 5.8 Future Consultation Plan

The stakeholder consultation is a continuous process and should be carried out throughout the life of the sub-project. The consultations carried out during the present ESMP stage and reported are essentially among the initial steps in this process. During the subsequent project phases as well, the participation of the project stakeholders needs to be ensured as per SEP of SFERP. Supervision Consultants along with PIU staff will ensure time-to-time consultation with locals to get their feedback on project activities and their related complaints.

# 6. ENVIRONMENTAL & SOCIAL IMPACTS AND MITIGATIONS

The reconnaissance field visit was carried out to assess the social and environmental impacts of the activities to be undertaken for the construction of rehabilitation works. A screening checklist showing rapid assessment of potential environmental and social impacts, mitigation measures and residual impacts after mitigation reveals that the project activities will not cause significant disturbance and inconvenience to the local community and natural environment of the area rather than provide the safe and steady mode of communication by improved roads after the flood. All the impacts that have been identified during the reconnaissance are associated with the construction phase and minor to moderate in severity, and can easily be mitigated through planning or adopting appropriate management measures. The minor impacts can be resolved through the best management practices. Social impacts such as getting borrow pit area, hiring laborers and setting up of labour camp will be mitigated according to applicable policies and procedures.

The social impacts associated with the rehabilitation works will be managed by proper guidance and strict monitoring of subproject activities. The Labour is expected to be recruited entirely from local areas, which will enhance economic opportunity for them.

## 6.1 Major Social & Environmental Impacts and Mitigations

It is evident from the screening checklist that the sub-project is very beneficial concerning the adjoining area. As regards the adjoining area, the people of this area will be the main beneficiaries. The following sections give in detail the possible environmental impacts and their mitigations.

During the construction stage of proposed rehabilitation works, the surrounding area will face some undesirable effects. Many impacts are temporary and may occur during construction. Some of them are described below.

## 6.2 Topsoil Erosion

### 6.2.1 Description

Excavation will expose bare soils that may erode. This will include sites such as; borrow pits, quarries, road embankments, culverts, bridge abutments and road diversions.

Runoff from rainfall can lead to erosion of the road surface or ditch bottoms. Drainage channels leading from the roads to nearby watercourses are receptors of soil and rock eroded from the unsealed surfaces of these roads.

### 6.2.2 Mitigation Measures for Erosion

Excavation of earth fill will be limited to an appropriate depth of 20cm. Priority will be given to getting the earth fill material from the licensed contractors, where the use of agricultural land is unavoidable private land will not be taken until a prior written agreement (with local tradition) and documentation of relevant details of compensation (on prevailing market rates) is signed between the owner/s and relevant authorities. Furthermore, the top 15cm of topsoil will be stripped and stored and then replaced after the removal of borrowed material. Where deep

ditching is carried out, the top half-meter layer will be stripped and stockpiled. The ditch will be filled initially with debris/scrap material from old construction and leveled with stockpiled topsoil later.

The provision for vegetation with a fast-growing crop and a native seed mix immediately after fill placement to prevent scour and encourage stabilization has been made in the design. Use of stone pitching or riprap has also been provided in the design at appropriate places, especially around culverts; Provision for rip-rap in discharge zones from drainage structures has been made in the design to reduce erosion; Side slopes will be adjusted to a gradient necessary to reduce erosion potential or, if steeper, stabilized, covered with riprap or other material to prevent soil erosion.

## 6.3 Air Pollution

### 6.3.1 Impacts of Air Pollution

The air-related mitigation is discussed as follows, during the construction phase of the proposed sub-project; some adverse impacts on the environment by suspended dust and noise are foreseen. As ESS3 of ESF 2018, the contractor will comply with the requirements for resource efficiency and pollution management and prevention by preparing a dust abatement plan before the start of the construction activities.

The Batch plant requires cement and dry sand gravel to be fed into a mixing chamber, and the addition of water to make concrete. Considerable fine dust is emitted when bagged cement is loaded manually into the batch plant hopper, as well as with the conveyor system bringing the materials to the plant.

Air quality would be disturbed during the construction stage due to vehicular movement, and the release of particulate matter $PM_{2.5}$ from vehicular emission. Construction activities will generate dust and pollute the surrounding area. The emission from the machinery used in earthwork activities will also degrade the air quality of the site. The exhaust of noxious gases from the movement of heavy machinery will further pollute the air, which will adversely affect the health and vigor of plants. Smoke emissions from vehicular movement and heavy machinery would slightly cause the smoke problem in the nearby villages, which are located near the construction areas.

### 6.3.2 Air Pollution Mitigation Measures

Dust from the cement work will be avoided by using bulk cement brought to the plants in large tanker trucks and transferred to the plant hoppers via a closed system. Batch plant/s will need to be equipped with dust suppression equipment, now standard on most such facilities, or which can be easily retrofitted.

The air-related mitigation is discussed as follows, during the construction phase of the proposed sub-projects; some adverse impacts on the environment by suspended dust and noise are foreseen. These will be effectively mitigated by adopting the following preventive measures;

- The Contractor will be required to have approval (from The Construction Supervision Consultant) for the dust abatement plan/Pollution Prevention Plan.

- Regular spraying of water should be undertaken to minimize dust pollution. The water would be obtained from tube wells installed by the Contractors or maybe grey water from the camp areas and reuse of wastewater from batching plant.
- All vehicles, machinery, equipment, and generators used during construction activities will be kept in good working condition to minimize exhaust emissions & limit the idling time of construction vehicles to 2 minutes to minimize local air pollution.
- Enforce the maximum speed limit to 10km/h for vehicles to reduce dust emissions.
- Native species trees shall be planted, and no rapidly growing trees, shrubs and grasses in the sub-project area shall be allowed during the operation stage of the sub-project with the collaboration of the Forest department.
- Conduct ambient air quality monitoring as per SEQS periodically as per Environmental Management Plan (EMP).

## 6.4 Water Pollution

### 6.4.1 Water Related Impacts

During the construction stage, different types of activities such as cutting, earthwork, and concrete work would alternately result in deteriorating the surface water quality. Canals and water courses crossed the road, and during the rehabilitation works of culverts and bridges can be polluted by the accidental discharge of cement and other chemicals like epoxy and paints.

A secondary adverse impact is the potential spillage of chemicals, hydrocarbons and other pollutants as part of the construction process as well as contamination arising from the improper disposal of wastes (organic and inorganic) at the camp and work sites.

### 6.4.2 Water-Related Mitigations

Asphalt should not be applied during heavy rain to avoid it being washed into watercourses. The water channels have to be diverted properly, and a protection mechanism should be provided, or construction will be undertaken during the dry season.

A contractor will make his arrangement, would not rely on existing community resources, and would not extract from sources currently used by the community. Moreover, the Contractor must provide the following facilities at each campsite: Latrines; lined washing areas; septic tanks, and soaking pits for toilet waste. Key mitigation measures are listed below.

- There should be proper septic tanks and soaking pits for sewage treatment and disposal, sewage/sanitation at work camps and proper wastewater collection facilities. Wastewater effluent from contractor/s will be passed through an oil skimmer and to gravel/sand beds to remove oil/grease contaminants before discharging it into the water body. The Septic tank and soak pit shall be covered properly to avoid any obnoxious smell in the surrounding areas. The soak pit will be built in absorbent soil and located 300m away from a water well. Soak pits will be designed to accommodate wastewater generated during the total operation. Soak pit will be constructed such that surface runoff cannot enter the pits. At the time of restoration, septic tanks will be dismantled in place and backfilled with at least a 1m soil cover keeping in view the landscape of the surrounding natural surface.

- To overcome the drinking water contamination issue, at the construction camp/s, the contractor shall install a solar-operated domestic water filter/150GDP with Ultraviolet (UV) to ensure safe and healthy drinking water for the workforce.
- The contractor shall prepare, and implement a spoils management plan under the supervision of PIU.
- The E & S team of PIU shall carry out regular monitoring of water quality.
- Wastewater from laundry, kitchen washings and showers will be disposed of in separate soak pits.
- Soak pits will be built in absorbent soil and located 250 m away from a surface water source or groundwater well.
- In case the soak pits are filled, greywater will be sprinkled over access tracks. A sprinkling of greywater will be done in a manner such that ponding of water is avoided.
- Water consumption will be monitored during the construction stage and records will be maintained to avoid any wastage.
- Diesel, oil, and lubricants should be properly stored following petroleum regulations. This will be the responsibility of the contractor.
- It has been further, proposed that before the start of the construction, the contractor will establish updated baseline environmental monitoring of air, water & noise including the soil analysis (trace metals such as Cd, Zn, Cu, Cr, Pb and Ni as per WHO standards) for comparison during the construction phase. Permissible limits/standards according to the World Health Organization and the Food, and Agriculture Organization of the United Nations (FAO) indicated for soil, and limits set by SEQS for Air, Water& Noise will be followed as standards for the comparison.
- Appropriate arrangements will be made to stop stones and soil to slip into the river water.
- Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets;
- Dispose of any wastes generated by construction activities in designated sites;
- Conduct surface quality inspection according to the Environmental Management
- Plan (EMP) while adhering to SEQS 2016.
- Community liaison will be maintained and GRM will be established to address complaints related to waste disposal.

## 6.5 Diversion of Water channels

### 6.5.1 Impacts due to diversion of water course

Inadequate diversion of canal/water course will affect the water supply to agricultural land of communities living nearby, which may create a social issue. Insufficient diversions/bypasses around bridges and culverts under construction could cause a disturbance to construction activity as well as create a nuisance for the community and project workers.

### 6.5.2 Mitigations for diversion of water course

The contractor should provide an adequate-sized diversion so that there shall be no disturbance to the water flows of the canal /water course. Schedules for construction activities

along the water body have to be prepared with the consultation of the local community and active GRC needs to operate all the time.

## 6.6 Noise Pollution

### 6.6.1 Impacts of Noise Pollution

Construction works will be conducted along the roads in urban/semi-urban areas, where there are houses, schools and hospitals, religious places and small-scale businesses. An increase in noise level may be caused by excavation, particularly the breaking of cement concrete or bitumen roads, the operation of construction equipment like concrete mixers, and vibratory rollers used to compact subgrade materials and the transportation of equipment and materials. Vibration generated from construction activity, for instance from the use of pneumatic drills, will have an impact on near buildings. This impact is negative but short-term and reversible by mitigation measures.

### 6.6.2 Noise Related Mitigation

Plan the activities in consultation with CSC environmentalists so that activities with the greatest potential to generate noise are conducted during periods of the day, which will result in the least disturbance. Machinery operations close to socially sensitive receptors area are restricted to daylight hours, and a schedule will be agreed between the contractor and the local communities. Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach. As a mitigation, the works shall be to limit working hours (8 hours a day) to between 9 am and 5 pm (can be altered as per weather conditions special reference to the summer seasons. Break will be considered during peak time 2 pm to 5 pm), six days a week. six days a week. Noise monitoring will be conducted as recommended in ESMP as per SEQS.

In spite of this, the affected communities will also demand to carry out noise monitoring in case of any complaint. The noise level of machines to be used during the construction will be controlled and measured will be taken to limit the levels as per SEQS, as far as possible and the workers will be provided earmuffs, where necessary. Minimize the noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and using portable street barriers to minimize sound impact to surrounding socially sensitive receptors.

Community liaison will be maintained to ensure that complaints and grievances are addressed as soon as possible. Identify any buildings at risk from vibration damage and avoid any use of pneumatic drills or heavy vehicles in the vicinity. Consult the custodians of important buildings, cultural and tourism authorities and local communities in advance of the work to identify and address key issues, and avoid working at sensitive times, such as religious and cultural festivals.

## 6.7 Waste Management

### 6.7.1 Impacts of Waste

As part of the reconstruction process, the asphalt layers of the existing road will be removed, together with base course material that is unsuitable for re-use. There will also be unused

construction material (sand, crush), empty drums, concrete waste and waste from work camps.

Proper management of waste is also important because of the risk that improper waste handling and disposal pose to human health and environmental degradation. Careless and indiscriminate open dumping of wastes can create unsightly and unsanitary conditions within the project area.

The total quantity of domestic waste generated will vary depending on the strength of labor that the contractor poses to use. Most of the laborers will be locals who will return to their homes at the end of the working day. A maximum of about 25 % of labour comprising mainly skilled labour will reside at construction camps at the peak of the works.

### 6.7.2 Mitigation for Waste

The asphalt and base course removed from the existing road will be recycled. It may be re-used in the soft shoulders or as fill for other parts of the new road depending on the quality of the material. It may also be used as a backfill for borrow pits and then over-lain with topsoil. Asphalt can be pulverized, spread on access roads and compacted.

The contractor will identify dumping locations for construction debris and nonhazardous solid waste with respective Taluka Municipal and EPA Shaheed Benazirabad.

The contractor shall identify any hazardous waste as part of its Waste Management Plan and dispose of the material through Sindh EPA-approved waste contractor under section 13 of the Sindh Environment Protection Act 2014.

For solid wastes, the following mitigation measures are recommended:

- No waste will be disposed of in the field. All waste will be disposed of in the waste bins provided within the working area.
- Combustible noncombustible and hazardous waste will be temporarily stored on-site and handed over to approve waste contractors for recycling purposed and safe disposal.
- Encourage staff (through training) to reduce and reuse waste wherever possible.
- Arrange for regular collection of camp waste and transfer to storage area/disposal with the cooperation of local admiration.
- Furthermore, the contractor will draft The Waste Management Plan (WMP) and get approval from PIU. The Contractor shall include details of the procedures for the collection and disposal of wastes. The Plan shall deal with each waste stream separately.

## 6.8 Traffic Management

### 6.8.1 Traffic diversion and/or road closure.

Rehabilitation of road works significantly impact traffic movement. This should be avoided as far as possible by proper planning of construction works. Excavation along the roads, hauling of construction materials and operation of equipment on-site can cause traffic problems. If traffic diversion and/or road closure is required for the proposed works, prior consent from the department will be required and prior information to affected areas and the public should be

disseminated through consultations by PIU. The potential impact is negative but short-term and reversible by mitigation measures.

### 6.8.2 Traffic/Access-Related Mitigations

The construction contractor will be required to:

- The plan works to minimize traffic disturbance/blockades; in all the roads and streets in the town, work planning is crucial to minimize the inconvenience to the public due to excavations.
- Prepare and implement a Traffic Management Plan
- Locate entry and exit points in areas where there is low potential for traffic congestion;
- Keep the site free from all unnecessary obstructions;
- Coordinate with Traffic Police for temporary road diversions and provision of traffic aids if transportation activities cannot be avoided during peak hours;
- Proper road signage and traffic aids should be provided at the site. Use all necessary safety precautions including signboards, temporary signals, skilled traffic guides, traffic diversions, electric lights, demarcation of construction work lanes/worksites/excavation areas, construction equipment/plant/machinery, separate active/live traffic lane from the active construction work sites,
- Proactively update the signage well in advance on the basis of planned construction activity.
- Notify socially sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.

Increase workforce in the areas with predominantly institutions, places of worship, business establishment, hospitals, and schools; consult businesses and institutions regarding operating hours and factor this into work schedules.

Outreach to nearby communities informing them of road closures and construction schedules. Conduct an awareness program on the nature of work, likely disturbances and risks and construction work, mitigation measures in place, entry restrictions, and do’s and don’ts; and to the communities.

## 6.9 Biodiversity

### 6.9.1 Impacts on Biodiversity

ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources. The objectives of this standard are to protect and conserve biodiversity and habitats and avoid adverse impacts on biodiversity and habitats because of project activities. The following mitigation measures will adhere to comply ESS6. No tree cutting has been involved due to existing RoW will be used for rehabilitation work and no rare or endangered aquatic faunal or floral species occurring in the sub-project area. Furthermore, all of the roads are in a rural area so no wild animals or critical habitats will be impacted. The sub-project will pose a minor negative impact on the fauna present in the area.

### 6.9.2 Mitigations for Biodiversity

During the baseline survey of the sub-project area, no endemic or rare species were observed in CoI. All species recorded during the field survey have a wide range of distribution. Since the

campsite will occupy small areas and will be located in existing clearings, the impacts are reversible and localized by adopting mitigation measures. Use of local vegetation as fuel by labor will be prohibited.

No hunting, harassment, or netting of wildlife will be permitted. Major project activities will be completed before the arrival of migratory birds on wetlands and other sensitive areas that's during winter. No clearing of bushes will be allowed during the nesting/breeding season of birds. Maximum effort will be made to save rodent colonies during construction.

The camps will be properly fenced and gated to check the entry of wild animals in search of eatable goods. Similarly, wastes from the camps will be properly disposed of to prevent them from being eaten by wild animals. Staff working on the project should be given clear orders, not to shoot, snare or trap any bird. New and good-condition machinery with minimum noise will be used in construction. Noisy work will not be carried out at night time so that there should be no disturbance to local birds and animals. Maintain setbacks from wetlands, live dens, live nests, and live rodent holes & keep lights used at the camp to the minimum required. Use low upward scattering lights.

## 6.10 Occupational Health & Safety

### 6.10.1 Impacts on Construction Workers

The health and safety risks which could impact the construction workers are primarily associated with the construction activities of the sub-project. In particular, the various risks of injuries and accidents for workers are related to the rehabilitation of flood-affected roads and associated activities. The typical risks include exposure to the physical hazards of using the construction equipment, working near running traffic, operating equipment, working on and near scaffolding, tripping and falling, handling bitumen, burns, exposure to noise and dust, falling objects, traffic hazards associated with the operation of project-related vehicles, exposure to hazardous materials and exposure to electrical hazards related to the use of tools and machines as well as the prevalence of the incidence of respiratory diseases as a result of dust and emissions.

### 6.10.2 Health and Safety-Related Mitigations

The following steps are suggested for the proper management of occupational health & Safety within the sub-project area:

- The contractor will have to prepare Site Specific Labour Management Plan, an Occupational Health and Safety Plan as well as a Community Health & Safety plan according to Sindh Occupational Safety and Health Act 2017 while adhering to the ESS2 – Labor and Working Conditions as well as Labour Management Procedure (LMP) and will submit it to the PIU for review and approval. When approved, the contractor will implement the plan during the construction period. This plan will need to describe all jobs, their risks, and the controls that will reduce risks; these controls may include PPEs, restrictions on activities or locations, and other measures. The plan also needs to describe what type of training will be given to the workers. Those who work near water, at heights, and with heavy equipment will need special training so those hazards can be managed and minimized.

- The contractor will ensure the use of Personal Protective Equipment (PPEs) for his labours during the construction period; OHS Training[5].
- The contractor will train his crews on the aspects covered in the above-described Plan;
- The contractor shall fence the working area and unauthorized shall not be allowed to enter the area;
- The contractor will hire an HSE officer with adequate experience to address the above impacts.
- The Contractor will display signboards and banners about traffic diversion at places on detour routes;
- Provision of speed breakers at appropriate places in consultation with/approval of the Engineer which should be removed after completion of the project;
- Establish and obey speed limits;
- The Contractor will maintain workers' hygienic conditions in labour camps.
- The Contractor shall make available the first aid kit and bandages at all times and at all the sites. Moreover, paramedic staff will be available on-site and the cost of hiring will be a part of the BOQ item. The location of these kits shall be marked and shall be easy to access by all.
- No private property without permission of the owner will be used for transportation;
- Drivers will fix the net on containers while transporting stones and sand etc.
- Community liaison will be maintained during the construction stage and GRM will be established to address complaints related to safety hazards.

The contractor will also prepare an emergency response plan to address events such as urban floods, fires, earthquakes, injury/death, and accidents.

### 6.11 Community Health & Safety

#### 6.11.1 Impacts on the Public Due to Project Activities.

The potential impacts shall be direct, such as being struck by moving vehicles within and outside the sub-project area and indirect through the decrease in air quality surrounding the sub-project area. The air quality will reduce as a result of increased dust generated from construction and on transport routes, as well as due to emissions from plants and vehicles. The impact will continue for the duration of the work.

#### 6.11.2 Potential Mitigation Measures.

- Ensure that the site is restricted from the entry of irrelevant people, particularly children;

[5] Some of the key areas that may be covered during training as they relate to the primary causes of accidents include (i) slips, trips and falls; (ii) personal protective equipment; (iii) ergonomics, repetitive motion, and manual handling; (iv) workplace transport; and (v) legislation and responsibilities. Training can provide the foundations of competence but it does not necessarily result in a competent worker. Therefore, it is essential to assess staff competence to ensure that the training provided is relevant and effective. Supervision and monitoring arrangements shall be in place to ensure that training has been effective and the worker is competent at their job. The level of supervision and monitoring required is a management decision that shall be based on the risks associated with the job, the level of competence required, the experience of the individual and whether the worker works as part of a team or is a lone worker.

- Timely public notification on planned construction works;
- Seeking cooperation with local educational facilities (school teachers) for road safety campaigns; especially when/if a school is located in the indirect impact area;
- Provision of proper safety and diversion signage, particularly at socially sensitive receptors areas;
- Setting up speed limits in close consultation with the traffic police; and
- During construction work, pedestrian and vehicular passages shall be provided for crossing near the settlement;
- Open trenches and deeply excavated shall be protected by a fence/barricade to avoid any accident.

## 6.12 Physical/Community Infrastructure

### 6.12.1 Damage to Physical Infrastructure

The construction works can potentially damage existing infrastructure such as roads, culverts, and electricity lines. Some of this infrastructure may need to be relocated to allow the proposed works to be carried out.

### 6.12.2 Mitigations to Physical Infrastructure

Currently, no public infrastructures are observed which creates hindrances in the execution of the work. All damaged/removed infrastructures will be repaired/ restored to their original or better condition. Liaison with the community will be maintained and a site GRM will be established to address any related complaint.

## 6.13 Cultural Heritage

There is little likelihood of buried archaeological sites as no archeological or cultural heritage has been identified with a minimum of 500 meters of sub-project area[6].

### 6.13.1 Chance Find Strategy

The sites or items of heritage significance could be found in the course of development work. The “chance finds” procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment for siting and designing a project to avoid significant adverse impacts to the culture the client is responsible for heritage. It would be ensured that any chance to find further is not disturbed until an assessment by competent professionals is made and actions consistent with the requirements of ESS8 – Cultural Heritage. ESS8 recognizes the importance of cultural heritage as a valuable source of scientific and historical information, as an economic and social asset for development, and as

[6] The 500m setback is based on the average zone of the impact that is expected from the sub-project. However, this distance may vary with the type and level of activity, sensitivity of the area, and probability of impacts.

Subproject is rehabilitation-related work (types and Levels of activity) furthermore sub-project area falls in a rural environment and the probability of the impact is low to negligible as the subproject area is far away from notified cultural heritage sites.

an integral part of people's cultural identity. This standard sets out measures to protect cultural heritage throughout the lifecycle of the project

i. In the case of a chance find, the contractor will secure the site and report immediately to PIU. Works may not recommence until the Engineer approves.
ii. PIU will intimate to Culture Tourism & Antiquities Department, Govt of Sindh.
iii. Meanwhile, the contractor will cease their operations and due caution will be ensured for archaeological remains.
iv. Archaeology department to inspect, identify, advise management, and recover remains.
v. Site visits of the Culture Tourism & Antiquities Department, Govt of Sindh will be facilitated. Further works will be carried out on such sites only after obtaining clearance from the Department.

## 6.14 Labour Influx

### 6.14.1 Impacts of Labor Employed from Outside

Some social impacts could arise due to labor influx. There shall also be a risk to community health from HIV/AIDS/COVID-19 or other transmitted infections as a result of the presence of migrant construction labour. There could be the risk of gender-based violence from migrant labour, which often remain away from home on the site. This may lead to inappropriate behavior including sexual harassment of women, girls and boys in the local community. This could especially be relevant in case the nearby population is from any marginalized group e.g. Hindu community.

### 6.14.2 Mitigation Labour Influx

A large-scale labor influx is not expected due to the availability of local unskilled labor supply in the subproject area and the scale of works anticipated under the subproject. Except for a limited number of managers, supervisors and skilled workers, the majority of workers may be sourced locally or from nearby areas within the district. The priority for local labor (dependent on skill, and experience capacity) is expected to minimize the risk of labor influx. As part of the mitigation process, the contractors shall locate/ construct camps for their staff at least 500 meters away from communities to avoid social conflict as well as to avoid the possible adverse impacts of the construction camps on the surrounding communities. Fencing will be provided around the campsite and the Contractor will provide security. The camp layout plan and workers' code of conduct will be prepared by the contractor and will be submitted for review and approval by the Engineer.

While the contractor shall also include proposals for awareness of HIV/AIDS/COVID-19 and the spread of sexually transmitted diseases in the Contractor's Environmental & Social Management Plan (CESMP) and the training plan. The contractor will train the workers regarding (Gender Based Violence - GBV) and also train workers about sexual harassment, child abuse, and human trafficking for reducing the risk of GBV and the code of conduct.

## 6.15 Gender Base Violence (GBV), Sexual Exploitation & Abuse (SEA)/Sexual Harassment (SH)

### 6.15.1 Impacts related to GBV/SEA/SH

Although the influx of workers will be minimal as discussed earlier, new workers (outside of their social spheres) may form close social relationships with local communities. This can lead to unacceptable and/or illegal behavior, ranging from unwanted aggressive advances, SEA/SH against women and children.

### 6.15.2 Mitigations related to GBV/SEA/SH

As part of the mitigation strategy, training/orientation sessions will be conducted to sensitize PIU and the Contractor's staff/workers on the importance of addressing GBV/SEA/SH risks at the project level. The contractor will be required to have a written contract with their workers materially consistent with the objective of ESS2, following the procedures as specified in the World Bank's Procurement Regulations. The workers will be required to sign a Code of Conduct (CoC) prepared by the Contractors and reviewed and approved by PIU.

## 6.16 Violence Against Child (VAG) & Employing Child Labour

### 6.16.1 Impacts Related to VAG & Child Labour

Although the risks of VAG & child labor are anticipated on the lower side, there may be instances when Contractors hire persons below the age of 18 years. Children hired at labor sites are susceptible to unfair treatment, exploitation and violence because their hiring may be depicted as a favor to them, and they may be talked into not raising complaints for fear of losing a much-needed source of income.

### 6.16.2 Mitigations Related to VAG & Child Labour

Only persons above the age of 18 years will be hired at construction sites, and their age will be confirmed by checking their government-issued Computerized National Identity Card (CNIC) which is only provided to persons above 18 years. Moreover, for child labour in hazardous work, the minimum age is 18 years and above as specified by the Sindh Prohibition of Employment of Children Act 2017. However, if other labor-related risks arise during project implementation, the PIU will develop procedures to prevent other impacts. This will include awareness-raising sessions, which will be conducted regularly in the communities to sensitize on prohibition and the negative impacts of child and forced Labor.

## 6.17 Human Resource Development

During the construction stage, the local population would get jobs in the form of semi and unskilled labor. The contractor would ensure that unskilled and skilled labour is paid wages as notified by the Government of Sindh. Due to their interaction with skilled labor, their skills would be developed for future development activities of this kind.

## 6.18 Road Safety Risks and Mitigations

The increased vehicular movement and speed may result in road safety issues like traffic accidents. The impacts on road safety would be permanent and moderately negative. They will be mitigated by enforcing speed limits and imposing penalties on traffic violators. Traffic

signs will be provided to facilitate road users about speed limits, turns, speed breakers, informative signage for Socially sensitive receptors, etc.

Warning messages will also be displayed at appropriate locations and local language to aware drivers of likely accidents due to over speeding. All the median and sharp bends will be reflectorized to facilitate travelers in the night time.

Zebra crossing and traffic calming measures including additional signage, marking and rumble strips with raised walkways and speed restrictions shall be given near socially sensitive receptors areas.

# 7. GRIEVANCE REDRESS MECHANISM (GRM)

## 7.1 Grievance Redress Mechanism (GRM)

The grievance redress mechanism (GRM) is an institutional arrangement that allows stakeholders to address grievances related to the project through a timely, transparent, and predictable process. A grievance is defined as any formal communication that expresses dissatisfaction about an action or lack of action, about the standard of services, works or policy, deficiency of service, works or policy of the project management and its implementation mechanism. During project execution, different issues and constraints may arise. In this situation, if stakeholders have inadequate means to voice and resolve grievances, they may turn to other venues, which may be cumbersome and lengthy, leading to delays in the project. Alternatively, if their grievances remain unresolved or ignored over time, it may lead to inflexibility, stalemate and delays for the project to meet its sustainable development goals.

The SFERP GRM will be gender-responsive, culturally appropriate, and readily accessible to the stakeholders at no cost and without retribution. It will enable Project Affected Persons (PAPs), local communities, employees, and other affected stakeholders to raise grievances and provide suggestions vis the sub-projects, with the project proponents and contractors, and seek redress when they perceive a negative impact arising from the activities. This mechanism serves as a platform to promptly resolve and address community concerns, reduce risks, and strengthen systems and processes, thereby contributing to positive service delivery. Therefore, the complaints/grievances should be addressed through a well-organized Grievance Redress Mechanism (GRM) covering all activities under the project.

## 7.2 Objective and Composition of GRM:

The principal objective of GRM is to implement and maintain a procedure for handling the environmental and social concerns of the project stakeholders. This procedure will include a redressal mechanism scaled to the project's identified risks and adverse impacts, focusing on stakeholders. Standard Operating Procedures (SOPs) and informational material will be prepared for the SFERP GRM in Urdu, Sindhi and English and made publicly available as soon as the Project begins implementation and before contractors mobilize to sites.

### 7.2.1 Specific Objectives:

i. To systematically process complaints received from the Project Affected Persons (PAPs) and other stakeholders and provide a prompt, transparent and fair response and resolution without reprisals;
ii. To provide project staff with practical suggestions/feedback that allows them to be more effective, accountable, transparent, and responsive to beneficiaries;
iii. Increasing stakeholder involvement in the project
iv. The GRM is expected to address 4 types of complaints: *Compensation*; *Environmental issues* (e.g. noise, pollution, solid waste management, flora/fauna, etc.); *Social issues* (Exclusion, Inclusion); *Gender Based Violence (GBV)*; and *other.*

## 7.3 GRM structure

The SFERP grievance redressal mechanism (GRM) is established at three levels starting from the site, PIU and Project Steering Committee (PSC). The process at each level is defined as under:

### 7.3.1 Site level Grievance Redress Cell (GR Cell)

At the site level, a GR cell will be established to enter the PAPs concerns/grievances. The Community Liaison Officer (CLO) appointed by the Contractor will be its Focal Person/Convener and be responsible for registering grievances and maintaining all records. Grievance Focal Points (GFPs) will be nominated by the community at each sub-project site. These will be men and women whom the community can easily approach. Grievances can be received by GFPs or the CLO in writing or by word of mouth, and recorded in the grievance register by the CLO. The Grievance Register contents will be kept updated by the CLO and s/he will share the monthly Grievance Register with the Grievance Redress Committee (GRC) at PIU level, so that the GRC can maintain a consolidated record of all Project site's grievances. The contractor and the project manager are responsible for resolving site level grievances. If a grievance remains unresolved, it will be sent in writing by the project manager of each sub-project to GRC.

The responsibilities of GR Cell shall include the following:

1. Review, consider and resolve grievances site level;
2. Conduct fact-finding pertaining to grievances;
3. Resolve grievances within a period of one week;
4. Undertake analysis of data on grievances and use this to make informed decisions;
5. Maintain confidentiality if complainants wish to remain confidential;
6. Maintain an updated GRM database/ Complaints Log;

During the complaint investigation, the GRC works with the Contractor and the PIC. If mitigation measures are identified in the investigation, the Contractor promptly carries out the mitigation. PIC is responsible for ensuring that the Contractor carries out the measures.

### 7.3.2 Grievance Focal Points (GFPs)

The GFPs will be men and women from each community who will assist and facilitate the community members in reporting grievances resulting from project activities. The GFPs will be provided training by the PIU/PIC in facilitating grievance redress.

GFPs will be identified by the relevant community in consultation with the Social Safeguard team of PIU (SFERP), PIC and CLO. The GFP would be responsible for making the community aware of the following components:

- Inform people about the GRM and how it works, and their options depending on the types of complaint;
- Types of grievances not acceptable/eligible to the GRM;
- Intake channels at the GRM, e.g., phone numbers, postal and email addresses, and website and information that should be included in a complaint;

- Inform the Complainant of the investigation results and the action taken, and option of appeal to PSC if not satisfied with the outcome;
- Two GFPs (a female and a male) will be selected for each sub-project site.

### 7.3.3 PIU Level GRM

A Grievance Redress Committee (GRC) has been established at SFERP PIU office which shall resolve the grievances of affected persons/parties received at the PIU level. If a grievance remains unresolved at the PIU level despite making best efforts till the stipulated time of 21 days, it will either be retained for another 21 days with prior agreement of the Project Director and the complainant, or sent to Project Steering Committee (PSC) for resolution, depending on the GRC's assessment on which is the best option to facilitate a resolution.

The GRC will function as a dedicated body that ensures the grievance redress process is effective and efficient. It will comprise Environmental, Social Safeguard and Gender Specialists of PIU, a Representative of the District Commissioner's office, and community/civil society members from sub-project areas. Its Focal Person/Convener will be the Social Safeguards Specialist. Decisions or findings taken in the GRC would be binding upon the contractor.

The PIU will issue public notices to inform the public about the Grievance Redress Mechanism (GRM) sub-project area. The contractor will also display prominent signage containing the contact details of GRC in the Sindhi language. The complainant(s) can lodge their grievances through an email, phone (021-99332368), and fax number (021-99332367) at GRC based at PIU.

These phone and fax numbers and email ID will be managed by GRC based at PIU. The Social Safeguard Specialist will be the designated focal person to receive complaint(s) in writing, through calls, fax and emails. The Social Safeguard Specialist will have resources and facilities to maintain a complaints database which will be digitized and available online, and will communicate with the contractor, Site Engineers, and PIC.

Given that female community members have restricted mobility outside their villages and homes, the female PIU staff (Gender Specialist) will be required to visit the local communities to record grievances. The frequency of visits will depend on the nature and magnitude of activity in an area and the frequency of grievances.

The responsibilities of the GRC at PIU are:

1. The Social Safeguard & Resettlement Specialist shall be the focal person for GRC, which is responsible for logging the complaint and date of receipt onto the complaint database and informing the PIC and the Contractor;
2. The GRC will coordinate with local government to receive project-related complaints made directly to them;
3. The GRC shall review, consider and resolve grievances related to environmental and social issues during implementation received at the PIU level;
4. The GRC, with the PIC, is responsible for investigating the complaint to determine its validity and assess whether the source of the problem is due to project activities and

identifying appropriate corrective measures. If corrective measures are necessary, GRC, through the PIC, will instruct the Contractor to take necessary action;
5. Resolve grievances presented to the GRC within a period of two weeks;
6. Inform the Complainant of the investigation results and the action taken;
7. Undertake analysis of data on grievances and use this to make informed decisions;
8. GRC decisions, if not acceptable to the complainant(s), can be appealed to the PSC;
9. Maintain an updated online GRM database/Complaints Log.

### 7.3.4 Appeals at the Project Steering Committee (PSC) Level

The PSC will meet on a quarterly basis to hear grievance cases during its regular meetings, and will be convened for special grievance redressal meetings as needed. PSC members and the Secretary will address the grievance with a viable resolution. The below flow chart shows the grievance entry points:

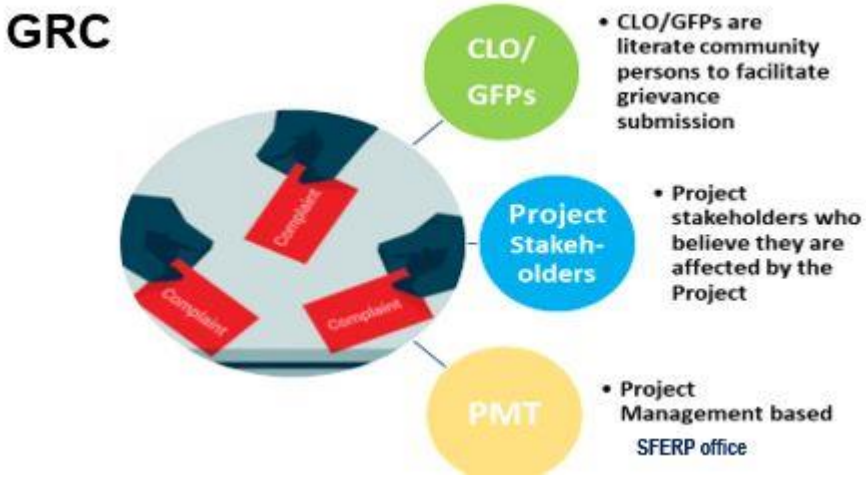



**Figure 10: SFERP Grievances Processes**

The GRC composition at different levels is given below.

**SITE Composition**

- Community Liaison Officer (CLO) - Convener
- Grievance Focal Points (GFPs)
- Contractor
- Project Manager
- Co-opted Members

**GRC PIU Composition**

- Additional Director
- Social Development Specialist - Convener
- Environment Specialist
- Gender Specialist
- PIC Representative (s)
- Representative of relevant Deputy Commissioner
- Co-opted Members

**PSC Composition**

- Secretary
- Project Director
- Representative of relevant Deputy Commissioner
- E&S Specialists
- Gender Specialist
- Co-opted Members

**Grievance Entry Points for Complaint**

## 7.4 GRM for workers

Community Liaison Officer (CLO) will serve as Grievance Focal Point (GFP) for labor/workers complaints at site level. If the issue is successfully resolved, no further follow-up is required, and the case shall be documented and closed. In case the grievance is unresolved at the site/contractor level, the workers may directly approach GRC about their grievance. The prominent signage containing the contact details of GRC in the Sindhi language will be displayed at each site.

## 7.5 Grievance Redress Mechanisms for GBV and SEA/SH

Grievance Redress Mechanisms (GRM) will integrate mechanisms to track complaints related to SEA/GBV, including a feedback system for regular and timely feedback on actions taken to respond to complaints. These mechanisms will protect confidentiality of individuals without compromising access to justice.

Grievances related to GBV and SEA/SH will always be escalated to the PIU, and will be dealt with by the PIU designated GBV specialist. GBV/SEA related complaints will be communicated to World Bank no later than 48 hours after being received by the GR Cell (site level) or by the GRC (PIU level).

The GRC/PIU will assist GBV survivors by referring them to GBV Services Provider(s) for support immediately after receiving a complaint directly from a survivor. A list of GBV service providers will already be available with the GRC before project work commences. In general, the timeframe for resolution of complaints shall not exceed 21 days.

Grievances related to GBV and SEA/SH will be forwarded to the staff specifically trained to handle these types of complaints. The Social Specialist (as GRC Focal Person) and the Gender Specialist at the PIU will receive the necessary training to handle such sensitive cases.

The GRC will develop specific procedures to ensure complainants are able to register their grievances anonymously, and in a survivor-centered and discreet manner. The GRC will assist GBV survivors by referring them to GBV Services Provider(s) for support immediately after receiving a complaint directly from a survivor.

## 7.6 Role of Contractor in GRM Complaints Register

The Contractor will maintain a complaint register at the campsite office to document all complaints received from the local communities. The register will also record the measures taken to mitigate these concerns. The final report regarding complaint closing will be communicated to PIC, the project manager is responsible to provide the record to GRC/PIU. The PIU shall carry out the monitoring of the implementation of measures for the eradication of complaints.

## 7.7 Reporting and Monitoring

The GR Cell will enter the PAPs concerns/grievances at the site level. The PIU gender specialist will be responsible for managing GBV and SEA/SH-related complaints at the project/PIU level. SFERP PIU will develop specific procedures to ensure complainants can register their grievances confidentially, and in a discreet manner. GBV/SEA related complaints

will be communicated to World Bank no later than 48 hours after being received by the GR Cell (site level) or by the GRC (PIU level).

The GRC will record the complaint, investigation, and subsequent actions and results in the monthly Environmental Management and Monitoring reports. In the construction and initial operational periods covered by loan covenants, the PIU will periodically report progress to the World Bank, including reporting complaints and their resolution. The tracking and documenting of grievance resolutions within the GRC and or PIU will include the following elements:

i. tracking forms and procedures for gathering information from project personnel and complainant(s);
ii. computerized grievance database with dedicated staff to update the database routinely;
iii. systems with the capacity to analyze information to recognize grievance patterns, identify any systemic causes of grievances, promote transparency, publicize how complaints are being handled, and periodically evaluate the overall functioning of the mechanism;
iv. processes for informing stakeholders about the status of a case; and
v. procedures to retrieve data for reporting purposes, including the periodic reports to the PIU and GRC, reports into the monthly ESMP Compliance monitoring report to the World Bank.
vi. An annual qualitative review of all complaints processed (ensuring filters such as gender, type of complaint, resolution status, time taken, intake channel, district/site, etc.) will also be undertaken to analyze the efficacy of the system.

The GRM will be provided with the necessary budget required for its efficient functioning.

# 8. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

## 8.1 Objectives

The purpose of the Environmental and Social Management and Monitoring Plan for the rehabilitation works is to ensure that all necessary identified measures have been adopted to protect the environment and social situations and to comply with the country's environmental and social legislation and applicable World Bank standards. After the preparation of ESMF, PIU has outlined site-specific ESMP for the Contractors and executing agency.

## 8.2 Institutional Arrangements

### 8.2.1 Project Management Responsibilities

Implementation of the ESMP will be a contractual obligation between the Contractor and the Project Implementation Unit (PIU), SFERP. The Contractor shall engage full-time technical staff capable of carrying out the monitoring activities as proposed in the ESMP as contractual obligations under the contract agreement.

Environmental and Social Team – PIU will carry out monitoring activities related to the project during the construction phase by using checklists and notify the Contractor of any violations of the ESMP, check the progress reports, advise the client and contractor regarding any violations which require further action and maintain a record of events and surveys for reference.

The overall responsibility for the SFERP project as well as the Environmental and Social Team will rest with the PIU. Besides, the PIU will be supported during ESMP implementation by E&S team to be established within PIU respectively.

### 8.2.2 Project Implementation Unit (PIU)

The overall responsibility for the supervision of ESMP will rest with the PIU under SFERP will act as the apex body of the project to take care of Social/Gender, Environmental issues and to take policy decisions at the project level. An Environmental and Social Management team (E&S Team) will be hired within Key positions within the E&S Team including Environment Specialist, Social Safeguard/Resettlement Specialist and Gender Specialist

The E&S Team shall be responsible for the supervision of implementing and monitoring the ESMMP including GRM. The team shall be answerable to the Project Director (PD) SFERP. The team shall be responsible for the monitoring defined in the ESMP as part of their overall monitoring of social and environmental management. Furthermore, the PIU must ensure that the Suggested Due Diligence measure which has been annexed in Annexure – III be included in the contract/s.

### 8.2.3 Construction Supervision Consultant (CSC)

The Construction Supervision Consultant (CSC) will be engaged by the project proponent, is responsible for monitoring the ESMP on behalf of the PIU during the execution of the Civil Works for sub-projects under the SFERP, and shall submit periodic reports. In general, the CSC has the following responsibilities regarding the environmental aspects of the project:

- Review the documents prepared by the Contractor regarding E&S implementation.
- Monitor the implementation of ESMP regularly during the execution of civil works by the Contractor. The CSC must have the following key positions:

a) Environmental Specialist
b) Social and Resettlement Specialist
c) HSE Expert

### 8.2.4 Contractor Responsibilities

The Contractor will be responsible for the on-field implementation of the ESMP as well as maintaining responsibility for environmental protection liabilities under Sindh Environmental Protection Act (SEPA), 2014, World Bank ESF 2018, ESMF of SFERP, Stakeholder Engagement Plan (SEP-SFERP) Labour Management Procedures (LMP) for SFERP, Contractor's code of conduct as mentioned in the ESMF and other applicable national as well as provincial policies and regulations. Besides, the contractor has to comply with the suggested measure as annexed in Annexure – III.

Furthermore, the contractor has to be filled the particulars of employment which have been given in Annexure – IV. The Contractor will also be responsible for training his crews on all aspects and implementation of the ESMP. The bid should include an environmental and social mitigation budget as part of the engineering costs of the respective works. The key positions to be filled within the contractor's staff for implementation of the ESMP include:

Environmental; Occupational Health and Safety (OHS) Officers; and Social Expert as Community Liaison Officer.

## 8.3 Environmental Code of Practices (ECOPs)

The objective of the preparation of the Environmental Code of Practices (ECOPs) is to address less significant environmental impacts and all general construction-related impacts for the proposed SFERP sub-project implementation. The ECOPs will provide guidelines for best-operating practices and environmental management guidelines to be followed by the contractors for sustainable management of all environmental issues. This ECOP will be annexed to the general conditions of all the contracts to be carried out under the SFERP project. Detailed E.CoPs can be obtained from the website[7]**.**

## 8.4 Contractor's Plans

This Environmental and Social Management Plan (ESMP) has been prepared before the Contract award, and therefore, certain mitigations, which are dependent upon the methodology chosen by any Contractor to deliver the project, could not be specified in it. For example, haulage routes are dependent upon the exact campsite locations chosen by the Contractor. Therefore, it is required that the Contractor shall prepare plans before mobilization and implement the plans described below with the help of mitigation measures. Once

[7] https://documents1.worldbank.org/curated/en/249991468024570005/pdf/E40110V70REVIS00disclosed0100260120.pdf

approved by the CSC Environment Specialist & PIU, these documents will become part of the Site-Specific Environmental Management Plan -SSEMP for the Contract.

### 8.4.1 Stakeholder Engagement Plan - SFERP

The contractor shall prepare the SEP-specific for the sub-project under the guidelines of SEP or SFERP as well as ESS10 – Stakeholder Engagement and Disclosure. The SEP outlines ways in which the PIU will communicate with stakeholders and includes a mechanism by which people can raise concerns, provide feedback, or make complaints about project activities. The plan shall also ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format.

### 8.4.2 Labour Management Plan

The contractor shall be prepared and get approval from PIU for the LMP and its implementation. The LMP will adhere to Labour Management Procedures, which have been approved for SFERP. These procedures have been developed to manage risks under the SFERP funded by World Bank. The LMP will set out the project's approach consistent with national requirements as well as the objectives of the relevant World Bank's Environmental and Social Standards on Labor and Working Conditions (ESS2).

### 8.4.3 Camp Management Plan

The contractor camp management shall provide all details of social facilities, including dormitories, washrooms for labor, cooking areas, dining facilities, prayer areas, septic tanks, drinking water, and other necessary facilities.

### 8.4.4 Communicable Diseases Prevention Plan

The contractor shall provide the details of prevention measures, and arrangements planned for the Management of Communicable Diseases including COVID-19. The Plan shall include the details of the designated quarantine area, disinfection facilities for Vehicles, and inventory arriving on site. The plan shall also include necessary supplies, such as facemasks, soap, hand sanitizers, temperature-monitoring infrared guns, etc. Disposal of COVID-19-related waste plans should also be prepared.

### 8.4.5 Pollution (air, land, and water) Control Plan

The Contractor shall provide details of the principal pollution control facilities proposed and of contingency plans in the event of failure of these facilities. The contractor must follow ESS3 – Resource Efficiency and Pollution Prevention and Management while formulating the plan before the start of civil work.

The plan shall include the details of the designated and licensed tip, oil treatment facilities and hazardous waste disposal sites that shall be used to dispose of waste. The plan shall also include Environmental effects monitoring.

### 8.4.6 Waste Management Plan

The Contractor shall include details of the procedures for the collection and disposal of wastes. The Plan shall deal with each waste stream separately. WMP will be prepared and implemented by the Contractor based on ECoPs 1, 2, 4 & 10 and WBG EHS Guidelines

(2007), as well as the mitigation plans given in the report. The Plan will include the camp layout, and details of various facilities including supplies, storage, and disposal.

### 8.4.7 Traffic Management Plan

The basis of the Contractor's Traffic Management Plan and further information is to be provided. The Contractor is required to provide further details once camp/worksite locations and material sources are finalized. The Traffic Management Plan must include details of the proposed access routes to the project area as well as haulage and access routes throughout the project area (including access to and from borrow pits).

### 8.4.8 Plan for Handling of Hazardous Materials

The Contractor shall identify control measures to ensure no environmental or health impacts from the handling of hazardous materials and the collection and safe disposal of hazardous materials (this may be included within the Pollution Control Plan).

### 8.4.9 Occupational Health and Safety

Upon mobilization, the Contractor shall prepare an Occupational Health and Safety Plan following ESS4 – Community Health and Safety & Sindh Occupational Safety and Health Act 2017, which shall be relevant to his chosen methodology. This plan shall detail the following:

- Health and safety management structure, responsibilities, supervision and reporting scheme
- Health and safety goals for the project
- Identification of potential hazards (health risks, safety risks)
- Proposed measures to reduce the risk of identified hazards
- Arrangements to implement such measures
- A system for reporting and investigating accidents, incidents and near misses
- A plan for emergency transfer of staff or public from the site to medical facilities
- Fire and emergency procedures
- Site security.

### 8.4.10 Environmental and Social Awareness Training Plan

This shall include details of the Contractor's environmental and social awareness training program proposed for the workforce. Details are given in Table – 18 given below.

### 8.4.11 Emergency Response Plan

The contractor will prepare an emergency plan to address emergencies/events such as fire, floods, earthquakes, accidents, and death/injury. The Plan will include the following details:

- Contacting the relevant agency (e.g., Fire Brigade)
- Procedure for the shutdown of the site;
- Indicators on-site that shall prompt the shutdown of areas of work (linked to natural events)
- Emergency evacuation procedure of staff and members of the public within range of likely impact.)

**Table 19: Environmental and Social Awareness Training Plan**

| Areas of Training | Key Aspects to be Covered | Target Group | Frequency | Budget. |
|---|---|---|---|---|
| Environment, Social Safeguards | **a.** Environmental and social awareness on ESS;<br>**b.** Key environmental and social issues associated with the project and subprojects ESMP and findings;<br>**c.** Subproject monitoring and reporting;<br>**d.** Occupational Health and Safety Issues associated with Construction.<br>**e.** Grievance Redress Mechanism implementation<br>**f.** Gender-Based Violence GBV)/SEA/SH<br>**g.** Child Labor<br>**h.** Resource Efficiency and Conservation<br>**i.** Safety measures for communicable diseases<br>**j.** Water conservation and optimal resource use, Awareness regarding open defecation and better WASH practices for relevant community<br>**k.** Identifications, conservation and precautionary measures of wildlife. | PIU, Contractor staff as well as relevant communities. | Before project/physical works commencement, during construction and after construction. | A total of eleven types of training for the proposed sub-project is to be conducted. |

### 8.5 Compliance and Effects Monitoring

PIU shall carry out monitoring within the sub-project area using the monitoring checklists to be prepared based on this mitigation and monitoring plan to aid the monitoring process, the Contractor will complete the following:

- Train construction staff for the implementation of the ESMP and safety measures.
- Submit various progress reports to the Environmental and Social Specialists of PIU.
- Explain the implementation of various environmental aspects to visiting national and international agencies and representatives of the donor.
- Receive monitoring reports/notes issued and take action to mitigate various violations of ESMP.
- Regularly submit Reports to PIU Environment Specialists about compliance with the ESMP and various issues related to the HSE including but not limited to the following:
- OHS Measures adopted (OHS statistics)
- Fuel and hazardous material consumption
- Workforce statistics (employment/deployment etc.)
- Compliance monitoring to check whether the actions proposed in the ESMMP are being carried out.
- Effects monitoring to record the impacts of mitigation measures adopted on the biophysical and social environment; as applicable, these effects are repeatedly measured.

E&S team – PIU, will complete compliance monitoring. The effects monitoring shall be the responsibility of CSC. Examples of compliance and effects monitoring parameters are

included in the Box below. Both approaches will be conducted using the monitoring parameters by visual observation, photographic documentation, and measurement where necessary. A record of events and surveys will be maintained.

### 8.6 Environmental Non-compliances and Corrective Measures

The Contractor will be notified of any violations of the ESMP, as well as any corrective actions required. Outlined below are some steps, relating to the increasing severity of environmental problems, which will be implemented. The principle is to keep as many issues within the first few steps as possible.

**Step 1**. PIU and Contractor to work out mitigations together and record the facts and the decision implemented.

**Step 2**. A more serious infringement is observed and PIU notifies the Contractor of the issues in writing, with a deadline by which the problem must be rectified. All costs will be borne by the Contractor.

**Step 3**. PIU shall order the Contractor to suspend part, or all, of the works. The suspension will be enforced until the offending parties, procedure, or equipment is corrected and/or remedial measures put in place if required. No extension of time will be granted for such delays and all costs will be borne by the Contractor.

**Step 4.** Breach of contract - One of the possible consequences of this is the removal of a Contractor and/or equipment and/or the termination of the contract. Such measures will not replace any legal proceedings that PIU may institute against the Contractor.

### 8.7 Communication Reporting and Documentation

The following environmental meetings are proposed:

- Primary meetings between the E & S team of PIU and the Contractor for setting out the format for the regular meetings shall be held before the commencement of the project.
- Scheduled Environmental and Social Progress Review Meeting (ESRPM) meetings between the team PIU and the Contractor shall be done every regular intervals.

The purpose of the meetings is to discuss the conduct of the operation, non–compliances noted by the environmental and social teams and measures recommended for their remedy.
The Contractor and PIU will produce monthly, quarterly and work completion reports of the sub-projects based on social and environmental issues. The distribution of the reports shall be to PIU and World Bank.

**Box 1**

***(i) Compliance Monitoring:***

- Frequency of anti-dust water sprays during construction period;
- Installation of signage regarding community health and safety
- Safety at workplaces and working hours during construction;
- Incidence of liquid/solid waste in the vicinity of work camps (type and amount of waste, amount, interference with local residents, fauna, flora and crops);
- Plantation of saplings of new trees against trees cut
- Survival rate of saplings of new trees
- Arrangements made at construction sites for protection of floral and faunal resources
- Assurance of installation of signage regarding community health and safety

***(ii) Environmental Effects Monitoring***

- Ambient air quality (Particulate matter) during construction phase;
- Surface water quality during construction phase especially at diversion sites
- Ground water quality at camp sites;
- Ground water table at construction sites;
- Number of patients suffering from malaria, cholera, diarrhea, respiratory ailments during construction phase
- Noise levels (in dBA), monitored at fixed locations and planed schedule during construction
- Extent and degree of functionality of diversion channels to ensure un-interrupted water supply;

***(iii) Social Effects Monitoring***

- Number of local people recruited on project works.
- Incidence of child labour and disproportionate wages
- Conflict at community level
- Chance find archaeological site
- Grievance redressal mechanism is in place
- Health screening of labour at site
- Contractor's staff sensitized on Gender base violence (GBV)

A photographic record of the project area shall be kept. The contractor, E&S-PIU will take photographs at key locations using a digital camera of the project area in a walkthrough survey the following data shall be recorded for each photograph:

- Shot number
- All the photographs will be referenced with GPS Coordinates
- Title of photograph
- Date and Time, and
- Photographic features.

The photographic record shall be incorporated into the monthly reports.

**Complaints Register**. The Contractor will maintain a complaint register at the campsite and workplaces to document all complaints received from the local communities. The register will also record the measures taken to mitigate the reported concerns. The final report will be communicated to the E&S team of PIU. All complaints/issues of the community will be reported in the monthly progress report of the following month along with the status of the last month's complaints and will be reviewed by the E&S team of PIU.

Moreover, telephone numbers and addresses of all concerned tiers within the GRM would be displayed in Sindhi and Urdu at all sites, and the same would be distributed in community training/meetings.

**Complaints Register Ties in with the Project GRM**

The stakeholder's or affected people's concerns, complaints and grievances about sub-the project's environmental & social performance will be received, recorded and replied to in a systematic way using an understandable and transparent process that is gender-responsive, culturally appropriate and readily accessible to all segments of the affected people at no cost and without retribution.

**Change Record Register**. A review of this ESMP will be triggered in two scenarios:

- A change to the designs deviates from the parameters that are safeguarded in this ESMP.
- A discovery in the baseline socio-environmental conditions, which is not recognized or covered by this ESMP.

In the event of either scenario, the ESMP shall be updated and reissued accordingly. The Contractor and PIU to document any change in the project design/operation shall maintain the design change record.

### 8.8 Environmental and Social Management and Monitoring Cost

The implementation of the ESMP involves inputs from Construction Contractor (CC), CSC and PIU. The CC will be primarily responsible for ensuring the implementation of mitigation measures proposed in the ESMP, which will be part of the contract documents. Hence, the provision of environmental mitigation cost as a separate head in Bill of Quantities (BOQs) will be made mandatory in contract documents.

However, if the CC fails to comply with the implementation of ESMP and reporting properly, the proponent will enforce compliance with the terms of the contract, including adherence to the ESMP. For the smooth execution of ESMP implementation activities, it has been recommended that all the bills/payments related to EMP implementation will be approved/authenticated by the CSC Env & Social. ESMP implementation cost will be deducted from Interim Payment Certificates (IPC) until compliance has been done.

The cost of Rs. 6,829,000/- budget for the implementation (for one year of estimation) of the ESMP has been allocated The breakup of the cost is given in Table 19. The ESMP cost included the cost of the protective measures which will be adopted for working near the socially sensitive receptors.

## Table 20: Cost of Environmental &Social Management and Monitoring Cost

| Item No. | Item | Rational | Frequency | Average Rate (Rs.)/unit* | Quantity/ year | no of units | Total Quantity | Estimated Amount (Rs.) |
|---|---|---|---|---|---|---|---|---|
| **A. Baseline Environmental Monitoring Before Start of Civil Works** | | | | | | | | |
| **1** | Surface Water | Construction near water body/one each from roads no 1, 2, 5 | Once Before Start of Civil Works | 15,000 | 1 | 3 | 3 | 45,000 |
| **2** | Drinking Water | one from camp area and other from road no. 1, 3, 5, 6, 7 due to presence of settlements near to subproject area | | 15,000 | 1 | 6 | 6 | 90,000 |
| **3** | Ambient Air from Batching/Asphalt plant area | One from the proposed camp area, one each from roads no 1, 3, 4, 6 | | 20,000 | 1 | 4 | 4 | 80,000 |
| **4** | Ambient Noise | 2 from each road/nearby sensitive receptor | | 1,000 | 2 | 14 | 28 | 28,000 |
| | | | | | | | **Sub Total - A** | **243,000** |
| **B. Environmental Monitoring Cost During Construction Phase (12 months)** | | | | | | | | |
| **5** | Surface Water | Construction near water body/one each from roads no 1, 2, 5 | Once every in four months | 15,000 | 3 | 3 | 9 | 135,000 |
| **6** | Drinking Water | one from camp area and other from road no. 1, 3, 5, 6, 7 due to presence of settlements near to subproject area | | 15,000 | 3 | 6 | 18 | 270,000 |
| **7** | Ambient Air from Batching/Asphalt plant area | One from the proposed camp area, one each from roads no 1, 3, 4, 6 | | 20,000 | 3 | 4 | 12 | 240,000 |
| **8** | Ambient Noise | nearby sensitive receptors/as per community demand | | 1,000 | 3 | 7 | 21 | 21,000 |
| **9** | Machinery/Stack emissions | Lump sum - depending upon machinery used for construction activities | | | | | | 200,000 |
| | | | | | | | **Sub Total - B** | **866,000** |
| **C. EHS Management** | | | | | | | | |
| **10** | Personal Protective Equipment | | Bi annual | 5,000 | 2 | 50 | 100 | 500,000 |
| **11** | Fire Fighting Equipment purchase and refilling | | | | | | Lump sum | 100,000 |
| **12** | Soft and Hard Landscaping - Plantation Plan | | | | | | Lump sum | 100,000 |
| | | | | | | | **Sub Total - C** | **700,000** |
| **D. EHS Administrative Cost** | | | | | | | | |
| **13** | Training/Capacity Building | | 50 persons | 2,000 | 2 | 1 | 100 | 200,000 |
| **14** | Social Expert (for social compliance & GRM implementation) Salary | | | 120,000 | 12 | 1 | 12 | 1,440,000 |
| **15** | GRM running & General Community support needs (if any) | | | | | | Lump sum | 500,000 |
| **16** | Environmental & OHS Officer Salaries (120 thousand for each person) | | | 120,000 | 12 | 2 | 24 | 2,880,000 |
| | | | | | | | **Sub Total - D** | **5,020,000** |
| | | | | | | | **TOTAL OF (A TO D)** | **6,829,000** |

## Table 21: Environmental & Social Management Plan

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| **A. DESIGN PHASE** | | | | | | | | | |
| A.1. Design / pre-construction considerations | | | | | | | | | |
| A.1.1 | pre-construction considerations | A.1.1.1 | Slope Instability | Excavated Material Disposal Plan to include a siting and detailed assessment of the suitability of the proposed excavated materials disposal site | PIU | SFERP | All excavated surplus materials are to be disposed of in designated sites. | Once at the end of the design stage | SFERP Office |
| | | A.1.1.2 | Compliance to ESMP | Consideration of EMP in preparation for the detailed design and bid documents. | PIU | SFERP | Added ESMP in contract documents | Before the tendering | SFERP Office |
| | | A.1.1.3 | Baseline Environmental Monitoring | As per the monitoring plan given in ESMP before the start of the civil works as per SEQS | CC | CSC | Compliance to ESMP | Once before the start of the works | Sub-project areas |
| | | A.1.1.4 | Geology and seismology | Stone pitching of the degraded reaches | PIU | SFERP | Emergency Preparedness Plan in place before the commencement of construction. | Once at the end of the design stage | SFERP Office |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | A.1.1.5 | Public Consultations in urban/ semi-urban areas | Stakeholder Engagement Plan (SEP) has been prepared for the SFERP and will be implemented in the sub-project. Stakeholder consultations will be conducted throughout the project implementation. Full-time CSC Social Expert will be engaged for the proposed project. The CSC Social Expert will exchange rehabilitation work to roadside landowners, the period of access restriction, and the measures taken to allow movement around the construction work | CC | PIU | Implementation of SEP | Once at the end of the design stage | Sub-project areas |
| **B. CONSTRUCTION PHASE** | | | | | | | | | |
| B.1. Site Preparation and Clearance | | | | | | | | | |
| B.1.1 | Site preparation | B.1.1.1 | Top Soil Erosion | PIU will prepare earthworks the checklist that defines the contractor, and limits to the excavation during road rehabilitation. Instructions for topsoil management will also be defined, including the removal and storage of all topsoil to be used in landscaping, once the road work is completed. The use of soil from private land will be minimized and only after consultation with and compensation of landowners. | CC | PIU & CSC | Approved Plans and comply with ESS1 | During the Planning phase, in parallel with the preparation of bid documents | At any locations where borrow pits, and quarries will be operated. |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | | Vegetation clearance shall be limited to the area required for work. | CC | PIU & CSC | Written approval for cutting marked trees before cutting | Weekly | Same as above |
| | | | | use of existing accessing tracks | CC | PIU & CSC | No tree-cutting on temporary haul routes | Weekly | Same as above |
| B.1.2 | Disposal of Excavated Material | B.1.2.1 | Identification of re-use of excavated material on site, to reduce off-site effects | All excavated materials are to be disposed of in designated sites as per the approved waste management plan the Plan shall deal with each waste stream separately | CC | PIU & CSC | Comply with approved WMP as per ESS1 – Assessment and Management of Environmental and Social Risks and Impacts, ESS3 – Resource Efficiency and Pollution Prevention and Management & ECPs 1, 2, 4 & 10 and WBG EHS Guidelines (2007). Community complaints; Monitoring record | Monthly | Same as above |
| | | B.1.2.2 | Community Disturbance | Community liaison will be maintained during the construction stage and GRM will be established to address complaints. | CC | PIU & CSC | | Monthly | Same as above |
| | | | Noise | Limiting working hours to between 9 am and 5 pm, six days a week.<br>The campsite/s shall be situated at least 500m from any settlement.<br>The affected communities will carry out on-demand noise monitoring in case of any complaint or request.<br>Additional mitigation measures will be identified and implemented in case the noise levels exceed the permissible limits of SEQS.<br>Community liaison will be maintained to ensure that complaints and grievances are addressed as soon as | CC | PIU & CSC | | Monthly | Same as above |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | | possible. | | | | | |
| | | B.1.2.3 | Damage to existing infrastructure Need to relocate infrastructure such as electricity transmission lines | Currently, no public infrastructure is observed which creates hindrances in the execution of the work. All damaged/removed infrastructures will be repaired/ restored to their original or better condition. Community liaison to be maintained. | CC | PIU & CSC | | Monthly | Along the alignment |
| B.2. Construction and Labor Camps | | | | | | | | | |
| B.2.1 | Locating Camp | B.2.1.1 | Community disturbance | Locate the camp at least 500m away from the communities. Community consultations will be carried out and liaison will be maintained. GRM to be established to address related complaints. | CC | PIU & CSC | Review of Camp layout plan | Once | Campsite |
| | | | Loss of flora and fauna | Submit layout plans for the camp for the approval of the Engineer before the construction of the camp | CC | PIU & CSC | Construction of campsite: do not begin before approval of the layout plan. As per ECoP 3: | Once before camp establishment. | Same as above |
| | | | Surface water pollution | Locate camps away from the waterbody, canal, watercourses, etc. | CC | PIU & CSC | | | |
| B.2.2 | Supply of Drinking Water | B.2.2.1 | Depletion of local drinking water resources | The contractor shall make his arrangements for the supply of water ensuring water supply and availability to local communities is unaffected. | CC | PIU & CSC | The contractor is not using public water resources | Monthly | Along the alignment |
| | | B.2.2.2 | Spread of the disease through the unsuitable water supply | Provision of safe drinking water and monthly testing according to the SEQS-16 | CC | PIU & CSC | Comply with SEQS | Monthly | Same as above |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| B.2.3 | Water contaminations | B.2.3.1 | Construction of impermeable layer | Suitable latrines ( septic tanks etc.) and washing facilities are provided in the camps | CC | PIU & CSC | Latrines are provided at each camp | Once | Construction Camp |
| | | | | Lined washing facilities including a shower, are available near each latrine, including clean running water, soap and drying facilities. | CC | PIU & CSC | Suitable washing facilities are provided at each camp | Once | Same as above |
| | Diversion of Water channels/water course | B.2.3.2 | Inadequate diversion of canal/water course will affect the water supply to agricultural land of communities living nearby, which may create a social issue. | Schedules for construction activities along the water body have to be prepared with the consultation of the local community and active GRC needs to operate all the time | CC | PIU & CSC | adequate-sized diversion | Monthly | Along the alignment |
| B.2.4 | Accidents and Emergencies | B.2.4.1 | Emergency Response | The contractor shall prepare a shutdown procedure and evacuation plan | CC | PIU & CSC | Approved Plan as per ECoP 10: Construction Camp Management | Once | All active work sites |
| | | | | Emergency Response Plan to man-made and natural disasters (including rains, urban floods, fire, etc.) | CC | PIU & CSC | Annual evacuation drill | Quarterly | Same as above |
| | | | | Emergency access routes shall be signed and maintained | CC | PIU & CSC | Emergency access routes are clear and signed | Monthly | Same as above |
| | | | | Fire extinguishers are to be provided throughout the camp | CC | PIU & CSC | Fire extinguishers provided | Monthly | Same as above |
| B.2.5 | Security | B.2.5.1 | Conflict with local communities, attack on staff | Security for avoiding any conflict with local communities | CC | PIU & CSC | Fencing and security. The entrance to the | Monthly | Same as above |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | | | | | camp shall be monitored and restricted | | |
| | | | | Preparation and Implementation of communication strategy | CC | PIU & CSC | Approval of Communication Strategy | Once | |
| | | | | The contractor shall provide all staff with Identity Cards showing their association with the project | CC | PIU & CSC | | Monthly | All active work sites |
| | | | | Sindh-speaking staff to be available at all active work sites to communicate with the local community | CC | PIU & CSC | Sindhi staff available at all active work sites | Monthly | Same as above |
| | | | | The Contractor shall include in the Emergency Plan, a procedure for emergency evacuation of camp and practice this procedure | CC | PIU & CSC | Plan submitted and approved | Once | Camp area |
| B.2.6 | Restoration | B.2.6.1 | Change in Landscape after the closure of works | All temporary facilities shall be removed by the Contractor after the completion of the works | CC | PIU & CSC | Temporary facilities are removed on completion of works | Once | Same as above |
| B.3. Storage of Material | | | | | | | | | |
| B.3.1 | Stockpile Storage of Materials | B.3.1.1 | Increase in particulate matter | Proper covered storage. Water sprinkling of any uncovered stockpile where dust is generated | CC | PIU & CSC | No dust generated from stockpiles | Monthly | Stockpiles |
| B.3.2 | Storage of Hazardous Materials | B.3.2.1 | Health and safety due to improper use of hazardous material | Fuel tanks and other hazardous material storage containers will be properly marked to highlight their contents. | CC | PIU & CSC | Comply with the approved Plan for Handling of Hazardous Materials while adhering ECP2 | Monthly | Hazardous material storage areas |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | | Hazardous areas to be secure and access limited to trained personnel only | CC | PIU & CSC | Untrained personnel are not accessing hazardous storage areas | Monthly | Hazardous material storage areas |
| | | | | Provide fire extinguishers | CC | PIU & CSC | Fire extinguishers are provided | Monthly | |
| | | | | Provide and enforce the use of PPEs as per the Contractor's Health and Safety Plan | CC | PIU & CSC | PPEs used | Monthly | |
| | | B.3.2.3 | Health and Safety and Pollution | An oil-designated storage area used | CC | PIU & CSC | Stockpiles only in storage areas identified in the camp layout plan | Monthly | Sub-Project area |
| | | | | Training on handling, use and disposal of hazardous material must be given to all those with access to the hazardous material area | CC | PIU & CSC | Training as per the Contractor's approved training plan | Monthly | Hazardous material storage area |
| B.4. Waste Management | | | | | | | | | |
| B.4.1 | Disposal of sanitary wastes using the municipal system (if available) | B.4.1.1 | Introduction of Inappropriate Contaminants or Waste Volume to Municipal System | Testing of wastes and submission of results to the Engineer. | CC | PIU & CSC | Test results show waste is within SEQS limit for pre-treatment | Quarterly | Construction camp/s |
| | | | | Written consent from the operator of the municipal system submitted to the Engineer | CC | PIU & CSC | Consent submitted | Once | |
| | | B.4.1.2 | Use of municipal system which falls below SEQS standards | All waste should be dispose of through SEPA certified vendor (They should be compliance and having expertise for handling and disposal the waste. | CC | PIU & CSC | The government-approved system used | Once | |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| B.4.2 | Collection of domestic wastes | B.4.2.1 | Surface and groundwater pollution | Provide garbage bins within all camps for domestic wastes | CC | PIU & CSC | Provision of bins | Monthly | |
| B.4.3 | Disposal of domestic wastes using Municipal facilities. | B.4.3.1 | Ground and groundwater pollution, the spread of disease | Domestic waste shall be collected from waste bins on alternate days and transported by tractor trolley to dispose of in a nearby Municipal facility. A written agreement shall be made between the Municipal operator and contractor for the disposal of domestic waste. | CC | PIU & CSC | License or Written agreement b/w Municipal operator and Contractor checked. | Monthly | Licensed site. |
| B.4.4 | Disposal of medical wastes | B.4.4.1 | Surface water pollution, health and safety of staff and public. | Medical wastes will be stored on site<br>The contractor will engage a third-party contractor for the treatment and ultimate disposal of medical waste in a controlled manner. | CC | PIU & CSC | No medical waste in the municipal facility. | Monthly | Collection point |
| B.4.5 | Disposal of hazardous wastes | B.4.5.1 | Ground, groundwater and surface water pollution, health and safety | Hazardous wastes are to be passed to licensed contractors, or, available wastes are to be stored in long-term storage facilities meeting the requirement of hazardous material storage area to be taken on client following construction. Details are to be provided in the pollution plan to the Engineer. | CC | PIU & CSC | As per approval of the Plan and guidelines set by ECoP 1: Waste Management.<br>ECoP 2: Fuels and Hazardous Substances Management to meet the ESS1 & 3 | Once | Collection point |
| B.4.6 | Closure of works | B.4.6.1 | Ground, groundwater and surface water pollution, health and safety. | All solid wastes shall be removed from the project area on completion of works | CC | PIU & CSC | All solid wastes disposed of or removed from the site | Once | Sub-Project area |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| B.5. Construction Plant and Vehicles | | | | | | | | | |
| B.5.1 | Movement/ operation of vehicles on site | B.5.1.1 | Air pollution | All vehicles are regular services as per manufacturers' requirements | CC | PIU & CSC | Black smoke was not observed emitting from Vehicles/plant | Quarterly | Sub-Project area |
| | | B.5.1.2 | Generation of dust | The access road is to be adequately compacted or regularly sprinkled to prevent dust generation during use | CC | PIU & CSC | Dust not reaching the settlements in the project area | | Settlement in the Sub-project area |
| | | | Soil and Groundwater pollution | Vehicles/plants will be checked daily for fuel oils and leaks and fixed as required | CC | PIU & CSC | No fuel oil leaks were observed from the plant/vehicle | | Sub-Project area |
| | | B.5.1.3 | Safety of the community, other road users, fauna and staff | Vehicle speed is limited to 15km/hr. | CC | PIU & CSC | Submittal and approval of the plan | Once | |
| | | | | Safe driving practices included in Contractor's training plan | CC | PIU & CSC | Training as per the approved plan | Monthly | Sub-Project area |
| | | | | Flag persons to be provided where plant cross/meet the village road | CC | PIU & CSC | Flag persons provided | Monthly | Road approaching and crossing |
| | | | | The contractor's Community Liaison Officer collaborates with communities to identify Socially sensitive areas and inform communities before the movement of large plant | CC | PIU & CSC | No complaints were received from the communities | Monthly | Settlement in the project area |
| | | | | Vehicles with restricted rear visibility to be fitted with an audible backup alarm or provided with banks men | CC | PIU & CSC | Back-up alarms or banks men provided | Monthly | Project area |
| | | | | Driving in the project area after nightfall is prohibited except on public highways | CC | PIU & CSC | No driving after dark | Monthly | Haul roads and temporary access roads |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | Damage to public infrastructure | Damage to roads, infrastructure and property was immediately repaired/compensated by the Contractor | CC | PIU & CSC | No damage to roads/infrastructure | Monthly | Public roads |
| | | | | Use of horns is prohibited near the settlement | CC | PIU & CSC | Nor horns were heard at the settlement | Monthly | Settlement in the project area |
| | | | Disturbance of Fauna | Biodiversity monitoring of impacts on fauna | CC | PIU & CSC | Status and behavior of terrestrial and avian-fauna | Quarterly | Sub-Project area |
| | | | Reduction in access to women and girls | Avoid routes used by women and girls as far as possible, if unavoidable, identify alternate routes for women and girls | CC | PIU & CSC | No complaints were received from women and girls | Monthly | |
| B.5.2 | Deliveries to Site | B.5.2.1 | Dust | Covered transportation of loose materials | CC | PIU & CSC | No dust generation from delivered materials | Monthly | Approach roads |
| | | B.5.2.3 | Community disturbance increase in traffic | Traffic management plan to be submitted to Engineer for approval and to include routes for delivery vehicles | CC | PIU & CSC | Submittal and approval of plan TMP as per ECoP 9: Road Transport and Road Traffic Management to aggress ESS 4 | Once | |
| | | | | Deliveries should be carried out during normal working hours and prohibited at night if unavoidable then follow the nighttime working protocols. | CC | PIU & CSC | No deliveries were carried out at the night. | Monthly | Construction camp |
| | | | | Delivery vehicles are prohibited from queuing on public roads | CC | PIU & CSC | No queuing delivery vehicles on public roads | Monthly | Same as the above |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| B.5.3 | Road/access Closure | B.5.3.1 | Community disturbance increase in traffic | Flag persons are to be provided where the plant cross/meet the village road. | CC | PIU & CSC | Flag persons provided | Weekly | At road partial closure |
| | | | | The contractor's Community Liaison Officer collaborates with communities to identify the sensitive areas and inform communities before movement. | CC | PIU & CSC | No complaint received | Monthly | Settlement in the project area |
| | | | | Request for road closure must be approved by the relevant authority | CC | PIU & CSC | As per Approved TMP | Once for each closure | Throughout construction period |
| B.6. Health and Safety of The Workforce | | | | | | | | | |
| B.6.1 | General construction works | B.6.1.1 | Health and safety of provisions | The contractor shall prepare and submit occupational health and safety plan.<br>This plan will need to describe all jobs, their risks, and the controls that will reduce risks; these controls may include PPE, restrictions on activities or locations, and other measures. Those who work near water, with heavy equipment will need special training so those hazards can be managed.<br>The contractor will ensure the use of Personal Protective Equipment (PPE) for his labours during the construction period;<br>To overcome the drinking water contamination issue, at each construction camp, the contractor shall install a solar- | CC | PIU & CSC | Submittal and approval of Labour Management plan as per the guidelines provided in Labour Management Procedure of SFERP to comply with the ESS 2.<br>The number of reported accidents.<br>The number of reported near-misses.<br>Non-compliance observed.<br>Community complaints. | Regularly | Sub-Project area |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | | operated domestic water filter/150GDP with Ultraviolet (UV) to ensure safe and healthy drinking water for the workforce.<br>The Contractor will display sign boards and banners about traffic diversion at places on detour routes;<br>Community liaison will be maintained during the construction stage and GRM will be established to address complaints related to safety hazards. | | | | | |
| | | B.6.2.1 | Health and safety of Staff | The contractor will submit an accident report to the Engineer following an accident on site. The report must detail actions to be taken to reduce the risk of occurrence | CC | PIU & CSC | Submittal of the accident report | Monthly | Same as above |
| | | | | Qualified health and safety manager will be appointed by the Contractor | CC | PIU & CSC | Qualified health & safety manager present on site | Monthly | Same as above |
| | | | | The contractor shall engage a full-time first-aider on-site Contractor to have the on-call doctor | CC | PIU & CSC | On-site Presence of qualified Doctor | Monthly | Same as above |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | | Provision of the dispensary for the treatment of staff. Dispensary to be stocked with appropriate medicines for likely incidents, diseases and ailments to have occurred on site. Stock is to be replenished as necessary. | CC | PIU & CSC | Dispensary available on-site and regularly restocked | Monthly | Same as above |
| B.7 Rehabilitation of rain-affected roads/ Works | | | | | | | | | |
| B.7.1 | Rehabilitation works along water body/water crossing structures | B.7.1.1 | Flooding | Prefer given not to work during rainy seasons Provide alternative drainage for rainwater if earthworks fill established drainage lines | CC | PIU & CSC | alternative drainage is provided | Monthly | Same as above |
| B.7.2 | Formation of Borrow Areas | B.7.2.1 | Habitat loss | The borrow Area Management Plan has to be prepared before the start of the civil work. Borrow areas shall not be established in the agriculture active land | CC | PIU & CSC | Borrow Area Management Plan. Borrow areas are not established in the agriculture-active lands. | Weekly | Borrow Area |
| | | B.7.2.2 | Borrowing from toes of embankments | The material shall not be borrowed from the outer and inner toe of the embankments | CC | PIU & CSC | Material is not borrowed from the toe of the embankments | Weekly | Borrow Area |
| | | B.7.2.3 | Borrow areas in environmentally sensitive sites | Borrow areas shall not be established in the wetlands, forest and any other environmental and socially sensitive areas | CC | PIU & CSC | Borrow areas are not established in the environmental and socially sensitive sites | Weekly | Same as above |
| | | B.7.2.4 | Restoration/rehabilitation of borrowed areas | Restoration of borrowed areas | CC | PIU & CSC | Borrow areas are restored to their original condition if situated on the | Monthly | Same as above |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | | | | | private land | | |
| | | | | Community liaison to be maintained. GRM to be established to address related complaints. | CC | PIU & CSC | Number of complaints | Regularly | Borrow Area |
| B.7.3 | Access to Borrow Areas | B.7.3.1 | Impacts on flora and fauna | available/existing access routes shall be followed | CC | PIU & CSC | existing access routes are followed | Weekly | Sub-Project area |
| | | B.7.3.2 | Impacts on agriculture land and crops | access routes in agricultural land shall be avoided | CC | PIU & CSC | Same as above | Weekly | Same as above |
| | | B.7.3.3 | if access route in the agricultural land is unavoidable, the owner of the land and crop shall be compensated | Compensation to the affected person shall be paid | CC | PIU & CSC | the affected person is compensated | Weekly | |
| B.7.4 | Restoration of borrowed areas | B.7.4.1 | Loss of habitat and landscape change | Potential for shallow wetland creation shall be maximized by the limited restored depth of borrow area to 0.3m | CC | PIU & CSC | | Monthly | |
| | | B.7.4.2 | Loss of topsoil | Spread stockpiled topsoil (where topsoil is unsuitable for the formation of rehabilitation work) over borrow areas | CC | PIU & CSC | | Weekly | |
| B.8 Archaeology and Cultural Sites | | | | | | | | | |
| B.8.1 | Construction near religious sites | B.8.1.1 | Community disturbance | All works excluded from mosques and Graveyards at the Project Site. (Spiritual Place for local people). | CC | PIU & CSC | Compliance with ESS8 – Cultural Heritage by adopting the ECoP 11: Cultural and Religious Issues. All works excluded from the identified | Monthly | Sub-Project area |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | | | | | locations | | |
| | | | | Works do not block access to sites | CC | PIU & CSC | access to the sites is not blocked | Daily | Same as above |
| B.8.2 | Discovery of unidentified cultural or religious site | B.8.2.1 | Community disturbance | The contractor shall not trespass into the site, shall exclude all works and immediately inform the Site Engineer | CC | PIU & CSC | The engineer informed of the discovery of unidentified cultural or religious sites | Monthly | Same as above |
| | | | | Community liaison to be maintained. GRM to be established to address related complaints. | CC | PIU & CSC | Number of complaints | regularly | Same as above |
| B.8.3 | Chance find | B. 8.3.1 | | In the case of a chance find, the contractor will secure the site and report immediately to PIU. Works may not recommence until the Engineer approves. Site visits of the Culture Tourism & Antiquities Department, Govt of Sindh will be facilitated. Further works will be carried out on such sites only after obtaining clearance from the Department | CC, CSC | PIU & Culture Tourism & Antiquities Departme nt, Govt of Sindh | Chance find | As or when | Same as above |
| B9. Safety/Health Measures for The Local Population | | | | | | | | | |
| B 9.1 | The local population living within/near the sub-project especially | B 9.1.1 | Accident risks, particularly for the local population living within/near the subproject especially | Restriction on movement of machinery on the designated haulage routes for transportation of materials. Public awareness campaigns through displaying signboards | CC | PIU & CSC | Number of complaints to ensure compliance with ESS4 – Community Health and Safety | regularly | Same as above |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | women, children and elderly people | | women, children and elderly people; Public awareness campaigns through displaying signboards at site and haulage routes; Vulnerability to accidents; Deterioration of health due to dust | at the site and haulage routes. Interaction with the community; Setting up speed limits (not more than 15 Km in work areas); Availability of first aid box for locals; Strict enforcement keeping non-working persons, particularly children, away from work sites; Adequate signage to manage traffic at sites, haulage and access roads; Ensure water sprinkling. (ECoP 12)<br>**For Community Female Members:**<br>•Awareness should be created among the local community including females about the construction work.<br>•Workers should not be allowed to crowd in the residential communities within the site.<br>•Alternative routes for pedestrians should be provided to avoid mixing women with workers.<br>•Raise awareness among the communities of the potential risks of GBV, SEA, and SH and establish links with response services in the nearby communities that can respond to instances of GBV (particularly those related to issues of labour influx).<br>•Contractor should take proper | | | | | |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | | measures to address and resolve issues relating to harassment, intimidation, and exploitation, especially against women.<br>•Measures to prevent GBV, SEA and SH the Contractor must include relevant clauses in the workers' code of conduct.<br>•Development and implementation of grievance redress/stakeholder response mechanism procedures to ensure timely handling of grievances. | | | | | |
| **C. OPERATION PHASE** | | | | | | | | | |
| C.1 | Maintenance of rehabilitation facilities | C.1.1 | Road Safety | Road maintenance will be carried out as per the contract agreement.<br>During maintenance follow road safety rules and regulations to avoid any accidents. | SFERP/ W&S Deptt | Third-party | No incident of any damges | Continues | Entire project area |
| C.2 | Increased Traffic | C.2.1 | Air pollution and Greenhouse gases | Regular motioning of the vehicles for engine efficiency and avoid any unnecessary work and transportation.<br>Alternative energy resources should be considered where possible.<br>SEQs applicable to gaseous emissions generated by construction vehicles, equipment and machinery should be enforced during construction works. | SEPA/ SFERP/ W&S Deptt | Third-party | Compliance with SEQS | Once in year | Entire project area |

| Sr. No. | Project Activities | Section | Environmental Impacts/Entity | Mitigation Measures | Responsibility | | Key Performance Indicators | Monitoring Frequency | Location |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Execution | Monitoring | | | |
| | | | | Reduction in travel time and better mode and frequency of transport and enhanced tourism activities in the area which in many terms will boost the local economy and improve the lifestyle of local people.<br>Access to quality health care facilities, educational and other infrastructural facilities.<br>A better investment climate for industries creates more employment opportunities for local people. | | | | | |

**Table 22: Environmental Monitoring Plan**

| Sr. No. | Parameters | Means of Monitoring | Frequency | Responsibility | |
|---|---|---|---|---|---|
| | | | | Implementation | Supervision |
| 1 | Vegetation clearance | Visual inspection of loss of vegetation, soil erosion & instability, surface water pollution and occupational health of workers and community | Weekly | CC | CSC/PIU-SFERP |
| 2 | Top Soil | Visual inspection of topsoil of 20 cm to 30 cm depth should be excavated and stored properly | Beginning of earthworks | CC | CSC/PIU-SFERP |
| 3 | Erosion | Visual inspection of the occurrence of erosion and erosion prevention measures | At the end of the filling activity | CC | CSC/PIU-SFERP |
| 4 | Operation of burrow and quarry site | Visual inspections of quarry sites/ burrow areas for change in landscape and creation of water ponds. | Monthly | CC | CSC/PIU-SFERP |
| 5 | Excavation of earth | Visual inspection for soil erosion & stability | Weekly | CC | CSC/PIU-SFERP |
| 6 | Material supply | Inspection of possession of official approval or valid operating license of suppliers' materials (asphalt, cement, quarry and burrow material) | Before the agreement for the | CC | CSC/PIU-SFERP |

| Sr. No. | Parameters | Means of Monitoring | Frequency | Responsibility | |
|---|---|---|---|---|---|
| | | | | Implementation | Supervision |
| | | | supply of material | | |
| 7 | Storage and handling of materials | Visual inspection of storage facilities | Monthly | CC | CSC/PIU-SFERP |
| 8 | Local roads | Visual inspection to ensure local roads are not damaged | Monthly | CC | CSC/PIU-SFERP |
| 9 | Traffic safety | Visual inspection to see whether proper traffic signs are placed and safety barriers for traffic management are occupied | Monthly | CC | CSC/PIU-SFERP |
| 10. | Air Quality | Air quality monitoring mobile lab (Certified laboratory from SEPA) | Quarterly | CC | CSC/PIU-SFERP |
| | | Visual inspection to ensure water sprinkling is being implemented | Daily | CC | CSC/PIU-SFERP |
| | | Visual inspection to ensure asphalt plant is located greater than 500 m from residential/settlement areas | Monthly | CC | CSC/PIU-SFERP |
| 10 | Air quality & noise | Certified laboratory from SEPA | Quarterly | CC | CSC/PIU-SFERP |
| 11 | Surface & groundwater quality | Sampling and analysis of surface water quality (Certified laboratory from SEPA) | Quarterly | CC | CSC/PIU-SFERP |
| 12 | Solid waste | The visual inspection that solid waste is disposed of at the designated site | Weekly | CC | CSC/PIU-SFERP |
| 13 | Floral and faunal monitoring | Visual inspection | Daily | CC | CSC/PIU-SFERP |
| 14 | Cultural and archeological sites | Visual inspection | Daily | CC | CSC/PIU-SFERP |
| 15 | Visual check for exhaust emissions from equipment and vehicles | Visual inspection | Daily | CC | CSC/PIU-SFERP |

| Sr. No. | Parameters | Means of Monitoring | Frequency | Responsibility | |
|---|---|---|---|---|---|
| | | | | Implementation | Supervision |
| 16 | Grievances of the local communities | Visual inspection | Daily | CC | CSC/PIU-SFERP |
| 17 | Reinstatement of work site | Visual Inspection | After completion of all works | CC | CSC/PIU-SFERP |

# Annexure I: Rehabilitation of Road-SFERP Screening Checklist

**SINDH FLOOD EMERGENCY REHABILITATION PROJECT**

**Environmental and Social Screening Checklist**

| **Proposed Project Interventions Details** | |
|---|---|
| Name of proposed project interventions | Improvement / Rehabilitation of road from Nawabshah-Jam Sahib road @ Bhutta Water Stop to connect Nawabshah - Sanghar via village Gul Muhammad Bhutto |
| ID of proposed project interventions | 01- 26.27'22.20"N 68.54'16.73"E 26.20'54.03"N 60.52'79.40"E |
| Proposing agency | PIU-SFERP |
| Proposed project interventions location | District Shaheed Benazirabad Taluka Nawabshah |
| Proposed project interventions objective | The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works,<br>The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas. |
| Estimated cost | - |
| Proposed date of commencement of civil work | Will complete in 12 months |

| ***Screening Question*** | ***Yes*** | ***No*** | ***Remarks*** |
|---|---|---|---|
| **PHYSICAL ENVIRONMENT** | | | |
| Will the proposed project interventions pose the risk of **clearance of vegetation** that may result in an increase in the level of suspended solids washing into nearby water bodies? | | No | None of the trees will need to be cut due to the proposed rehabilitation work. |
| Will the proposed project interventions pose a risk of **contaminating water sources** due to construction activities? | yes | | During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality |
| Will the proposed project interventions **deplete groundwater** because of the water used during road construction activities? | | No | Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage. |
| Will the proposed project interventions result in an increase in **ambient air pollution**, including chemical and particulate matter due to the construction and operation of related machinery? | Yes | | During the construction phase of the proposed sub-project; some adverse impacts on the ambient air by suspended dust and noise are foreseen. |
| Will the proposed project interventions result in an increase in **ambient noise levels** and vibrations due to the operation of construction machinery/vehicles? | Yes | | An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc. |
| Will these ambient noise levels be beyond the specifications in the **SEQS**? | | No | These are within the limit as per baseline monitoring results. |

| | | | |
|---|---|---|---|
| Will the proposed project interventions lead to **erosion hazards**? | | No | Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient. |
| Will the proposed project interventions lead to increased **soil erosion?** | | No | |
| Will the proposed project interventions result in the generation of **hazardous and/or non-hazardous waste**? | | No | Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal. |
| Will the proposed project interventions result in potentially increased health risks for **project workers and communities** (e.g. COVID-19)? | | No | The screening will be carried out before hiring the labour. |
| Is the proposed project interventions being implemented in an area with **high natural hazard risk**? (e.g. floods, earthquakes, landslides) | | No | The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences. |
| **ECOLOGICAL ENVIRONMENT** | | | |
| Will the proposed project interventions potentially cause any adverse impacts on **habitats, ecosystems**, and/or ecosystem services? | | No | No protected areas were observed near (1000 meters) of the proposed sub-project area. |
| Will any rehabilitation & improvement works be located in areas that would promote the **conversion of natural habitats**? | | No | Proposed rehabilitation works falls in rural area, |
| Will any proposed project interventions be located **on or near sensitive environmental areas**, including national parks and protected areas? | | No | The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), Two mosque at approximately 85,238 ft way from the center line. |
| Are the proposed project interventions activities likely to pose risks to any **endangered species?** | | No | As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site. |
| **SOCIAL ENVIRONMENT** | | | |
| Will the proposed project interventions involve **land acquisition**? | | No | No land acquisition is involved as the proposed subproject interventions are within the existing RoW. |
| Are there any **forced labor or child labor** risks associated with contractors or other third parties involved in implementing this proposed project intervention? | | No | Child & forced labour is not allowed on the SFERP, |
| Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated **outside labor force.** | | No | A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject. |

| | | | |
|---|---|---|---|
| **Will local labor** be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force. | Yes | | Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.). |
| Will there be any **temporary or permanent displacement** as a result of the proposed project intervention activities? | | No | None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component. |
| Are there expected to be any **traffic-related issues** as a result of the proposed project intervention activities, particularly during the construction phase? | Yes | | Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas |
| Are there any recognized **Indigenous Peoples** present in the proposed project interventions area, and are they likely to be impacted by the project, **either positively or negatively**? | | No | no Indigenous Peoples were found in the impact zone. |
| Are the proposed project interventions likely to have **impacts on important religious/cultural heritage sites**? | | No | no archaeological sites were found in the impact zone. |
| Have there been any past **security-related issues** at the proposed project intervention site? | | No | no security-related issues were found in the impact zone. |
| Has **stakeholder engagement** taken place in the proposed project interventions area? | yes | | A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts. |
| Were **vulnerable and indigenous groups** involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.) | | No | no Indigenous Peoples were found in the impact zone. |

**RISK CLASSIFICATION**

| **Step** | **Recommendations/Findings** |
|---|---|
| Risk category identification | Low-Medium risk level |
| Recommendation on type of E&S instruments required. | ESMP |
| Summary of screening findings | These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas |
| Name of the person endorsing screening findings | Environmental Safeguard of PIU |

**SINDH FLOOD EMERGENCY REHABILITATION PROJECT**

**Environmental and Social Screening Checklist**

| **Proposed Project Interventions Details** | |
|---|---|
| Name of proposed project interventions | Improvement / Rehabilitation of road from Nawaz Dahri Gupchani road @ mile 5/2 to Connect Gupchani Shahdadpur road |
| ID of proposed project interventions | 02- 26.17'86.12"N 68.46.53.48"E 26.18'97.04"N 68.55'40.97"E |
| Proposing agency | PIU-SFERP |
| Proposed project interventions location | District Shaheed Benazirabad Taluka Nawabshah |
| Proposed project interventions objective | The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works,<br>The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas. |
| Estimated cost | - |
| Proposed date of commencement of civil work | Will complete in 12 months |

| ***Screening Question*** | ***Yes*** | ***No*** | ***Remarks*** |
|---|---|---|---|
| **PHYSICAL ENVIRONMENT** | | | |
| Will the proposed project interventions pose the risk of **clearance of vegetation** that may result in an increase in the level of suspended solids washing into nearby water bodies? | | No | None of the trees will need to be cut due to the proposed rehabilitation work. |
| Will the proposed project interventions pose a risk of **contaminating water sources** due to construction activities? | yes | | During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality |
| Will the proposed project interventions **deplete groundwater** because of the water used during road construction activities? | | No | Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage. |
| Will the proposed project interventions result in an increase in **ambient air pollution**, including chemical and particulate matter due to the construction and operation of related machinery? | Yes | | During the construction phase of the proposed sub-project; some adverse impacts on the ambient air by suspended dust and noise are foreseen. |
| Will the proposed project interventions result in an increase in **ambient noise levels** and vibrations due to the operation of construction machinery/vehicles? | Yes | | An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc. |
| Will these ambient noise levels be beyond the specifications in the **SEQS**? | | No | These are within the limit as per baseline monitoring results. |

| | | | |
|---|---|---|---|
| Will the proposed project interventions lead to **erosion hazards**? | | No | Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient. |
| Will the proposed project interventions lead to increased **soil erosion?** | | No | |
| Will the proposed project interventions result in the generation of **hazardous and/or non-hazardous waste**? | | No | Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal. |
| Will the proposed project interventions result in potentially increased health risks for **project workers and communities** (e.g. COVID-19)? | | No | The screening will be carried out before hiring the labour. |
| Is the proposed project interventions being implemented in an area with **high natural hazard risk**? (e.g. floods, earthquakes, landslides) | | No | The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences. |
| **ECOLOGICAL ENVIRONMENT** | | | |
| Will the proposed project interventions potentially cause any adverse impacts on **habitats, ecosystems**, and/or ecosystem services? | | No | No protected areas were observed near (1000 meters) of the proposed sub-project area. |
| Will any rehabilitation & improvement works be located in areas that would promote the **conversion of natural habitats**? | | No | Proposed rehabilitation works falls in rural area, |
| Will any proposed project interventions be located **on or near sensitive environmental areas**, including national parks and protected areas? | | No | The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), None of the socially sensitive receptors found in the buffer zone |
| Are the proposed project interventions activities likely to pose risks to any **endangered species?** | | No | As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site. |
| **SOCIAL ENVIRONMENT** | | | |
| Will the proposed project interventions involve **land acquisition**? | | No | No land acquisition is involved as the proposed subproject interventions are within the existing RoW. |
| Are there any **forced labor or child labor** risks associated with contractors or other third parties involved in implementing this proposed project intervention? | | No | Child & forced labour is not allowed on the SFERP, |
| Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated **outside labor force.** | | No | A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject. |

| | | | |
|---|---|---|---|
| **Will local labor** be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force. | Yes | | Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.). |
| Will there be any **temporary or permanent displacement** as a result of the proposed project intervention activities? | | No | None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component. |
| Are there expected to be any **traffic-related issues** as a result of the proposed project intervention activities, particularly during the construction phase? | Yes | | Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas |
| Are there any recognized **Indigenous Peoples** present in the proposed project interventions area, and are they likely to be impacted by the project, **either positively or negatively**? | | No | no Indigenous Peoples were found in the impact zone. |
| Are the proposed project interventions likely to have **impacts on important religious/cultural heritage sites**? | | No | no archaeological sites were found in the impact zone. |
| Have there been any past **security-related issues** at the proposed project intervention site? | | No | no security-related issues were found in the impact zone. |
| Has **stakeholder engagement** taken place in the proposed project interventions area? | yes | | A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts. |
| Were **vulnerable and indigenous groups** involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.) | | No | no Indigenous Peoples were found in the impact zone. |

**RISK CLASSIFICATION**

| **Step** | **Recommendations/Findings** |
|---|---|
| Risk category identification | Low-Medium risk level |
| Recommendation on type of E&S instruments required. | ESMP |
| Summary of screening findings | These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas |
| Name of the person endorsing screening findings | Environmental Safeguard of PIU |

## SINDH FLOOD EMERGENCY REHABILITATION PROJECT

### Environmental and Social Screening Checklist

| Proposed Project Interventions Details | |
|---|---|
| Name of proposed project interventions | Improvement / Rehabilitation of road from 60th mile Desert area @ mile 1/2 road to connect village Jamal Din Chandio via Bullo Khan Jamali |
| ID of proposed project interventions | 03- 26°24'58.72"N 68°26'58.58"E 26.44'31.02"N 68.42'25.24"E |
| Proposing agency | PIU-SFERP |
| Proposed project interventions location | District Shaheed Benazirabad Taluka Daur |
| Proposed project interventions objective | The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works,<br>The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas. |
| Estimated cost | - |
| Proposed date of commencement of civil work | Will complete in 12 months |

| *Screening Question* | *Yes* | *No* | *Remarks* |
|---|---|---|---|
| **PHYSICAL ENVIRONMENT** | | | |
| Will the proposed project interventions pose the risk of **clearance of vegetation** that may result in an increase in the level of suspended solids washing into nearby water bodies? | | No | None of the trees will need to be cut due to the proposed rehabilitation work. |
| Will the proposed project interventions pose a risk of **contaminating water sources** due to construction activities? | yes | | During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality |
| Will the proposed project interventions **deplete groundwater** because of the water used during road construction activities? | | No | Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage. |
| Will the proposed project interventions result in an increase in **ambient air pollution**, including chemical and particulate matter due to the construction and operation of related machinery? | Yes | | During the construction phase of the proposed sub-project; some adverse impacts on the ambient air by suspended dust and noise are foreseen. |
| Will the proposed project interventions result in an increase in **ambient noise levels** and vibrations due to the operation of construction machinery/vehicles? | Yes | | An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc. |
| Will these ambient noise levels be beyond the specifications in the **SEQS**? | | No | These are within the limit as per baseline monitoring results. |

| | | | |
|---|---|---|---|
| Will the proposed project interventions lead to **erosion hazards**? | | No | Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient. |
| Will the proposed project interventions lead to increased **soil erosion?** | | No | |
| Will the proposed project interventions result in the generation of **hazardous and/or non-hazardous waste**? | | No | Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal. |
| Will the proposed project interventions result in potentially increased health risks for **project workers and communities** (e.g. COVID-19)? | | No | The screening will be carried out before hiring the labour. |
| Is the proposed project interventions being implemented in an area with **high natural hazard risk**? (e.g. floods, earthquakes, landslides) | | No | The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences. |
| **ECOLOGICAL ENVIRONMENT** | | | |
| Will the proposed project interventions potentially cause any adverse impacts on **habitats, ecosystems**, and/or ecosystem services? | | No | No protected areas were observed near (1000 meters) of the proposed sub-project area. |
| Will any rehabilitation & improvement works be located in areas that would promote the **conversion of natural habitats**? | | No | Proposed rehabilitation works falls in rural area, |
| Will any proposed project interventions be located **on or near sensitive environmental areas**, including national parks and protected areas? | | No | The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), only one School at approximately 175 ft way from the center line. |
| Are the proposed project interventions activities likely to pose risks to any **endangered species?** | | No | As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site. |
| **SOCIAL ENVIRONMENT** | | | |
| Will the proposed project interventions involve **land acquisition**? | | No | No land acquisition is involved as the proposed subproject interventions are within the existing RoW. |
| Are there any **forced labor or child labor** risks associated with contractors or other third parties involved in implementing this proposed project intervention? | | No | Child & forced labour is not allowed on the SFERP, |
| Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated **outside labor force.** | | No | A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject. |

| | | | |
|---|---|---|---|
| **Will local labor** be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force. | Yes | | Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.). |
| Will there be any **temporary or permanent displacement** as a result of the proposed project intervention activities? | | No | None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component. |
| Are there expected to be any **traffic-related issues** as a result of the proposed project intervention activities, particularly during the construction phase? | Yes | | Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas |
| Are there any recognized **Indigenous Peoples** present in the proposed project interventions area, and are they likely to be impacted by the project, **either positively or negatively**? | | No | no Indigenous Peoples were found in the impact zone. |
| Are the proposed project interventions likely to have **impacts on important religious/cultural heritage sites**? | | No | no archaeological sites were found in the impact zone. |
| Have there been any past **security-related issues** at the proposed project intervention site? | | No | no security-related issues were found in the impact zone. |
| Has **stakeholder engagement** taken place in the proposed project interventions area? | yes | | A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts. |
| Were **vulnerable and indigenous groups** involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.) | | No | no Indigenous Peoples were found in the impact zone. |

**RISK CLASSIFICATION**

| **Step** | **Recommendations/Findings** |
|---|---|
| Risk category identification | Low-Medium risk level |
| Recommendation on type of E&S instruments required. | ESMP |
| Summary of screening findings | These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas |
| Name of the person endorsing screening findings | Environmental Safeguard of PIU |

**SINDH FLOOD EMERGENCY REHABILITATION PROJECT**

**Environmental and Social Screening Checklist**

| **Proposed Project Interventions Details** | |
|---|---|
| Name of proposed project interventions | Improvement / Rehabilitation of road from Daur Jamal Shah road to village Saeed Khan Mashori via Dr. Azam Khan Zardari |
| ID of proposed project interventions | 04- 26.25'19.50"N 68.10'26.54"E 26.50'53.48"N 68.10'33.40"E |
| Proposing agency | PIU-SFERP |
| Proposed project interventions location | District Shaheed Benazirabad Taluka Daur |
| Proposed project interventions objective | The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works,<br>The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas. |
| Estimated cost | - |
| Proposed date of commencement of civil work | Will complete in 12 months |

| ***Screening Question*** | ***Yes*** | ***No*** | ***Remarks*** |
|---|---|---|---|
| **PHYSICAL ENVIRONMENT** | | | |
| Will the proposed project interventions pose the risk of **clearance of vegetation** that may result in an increase in the level of suspended solids washing into nearby water bodies? | | No | None of the trees will need to be cut due to the proposed rehabilitation work. |
| Will the proposed project interventions pose a risk of **contaminating water sources** due to construction activities? | yes | | During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality |
| Will the proposed project interventions **deplete groundwater** because of the water used during road construction activities? | | No | Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage. |
| Will the proposed project interventions result in an increase in **ambient air pollution**, including chemical and particulate matter due to the construction and operation of related machinery? | Yes | | During the construction phase of the proposed sub-project; some adverse impacts on the ambient air by suspended dust and noise are foreseen. |
| Will the proposed project interventions result in an increase in **ambient noise levels** and vibrations due to the operation of construction machinery/vehicles? | Yes | | An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc. |
| Will these ambient noise levels be beyond the specifications in the **SEQS**? | | No | These are within the limit as per baseline monitoring results. |

| | | | |
|---|---|---|---|
| Will the proposed project interventions lead to **erosion hazards**? | | No | Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient. |
| Will the proposed project interventions lead to increased **soil erosion?** | | No | |
| Will the proposed project interventions result in the generation of **hazardous and/or non-hazardous waste**? | | No | Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal. |
| Will the proposed project interventions result in potentially increased health risks for **project workers and communities** (e.g. COVID-19)? | | No | The screening will be carried out before hiring the labour. |
| Is the proposed project interventions being implemented in an area with **high natural hazard risk**? (e.g. floods, earthquakes, landslides) | | No | The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences. |
| **ECOLOGICAL ENVIRONMENT** | | | |
| Will the proposed project interventions potentially cause any adverse impacts on **habitats, ecosystems**, and/or ecosystem services? | | No | No protected areas were observed near (1000 meters) of the proposed sub-project area. |
| Will any rehabilitation & improvement works be located in areas that would promote the **conversion of natural habitats**? | | No | Proposed rehabilitation works falls in rural area, |
| Will any proposed project interventions be located **on or near sensitive environmental areas**, including national parks and protected areas? | | No | The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), None of the socially sensitive receptors found in the buffer zone |
| Are the proposed project interventions activities likely to pose risks to any **endangered species?** | | No | As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site. |
| **SOCIAL ENVIRONMENT** | | | |
| Will the proposed project interventions involve **land acquisition**? | | No | No land acquisition is involved as the proposed subproject interventions are within the existing RoW. |
| Are there any **forced labor or child labor** risks associated with contractors or other third parties involved in implementing this proposed project intervention? | | No | Child & forced labour is not allowed on the SFERP, |
| Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated **outside labor force.** | | No | A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject. |

| | | | |
|---|---|---|---|
| **Will local labor** be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force. | Yes | | Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.). |
| Will there be any **temporary or permanent displacement** as a result of the proposed project intervention activities? | | No | None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component. |
| Are there expected to be any **traffic-related issues** as a result of the proposed project intervention activities, particularly during the construction phase? | Yes | | Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas |
| Are there any recognized **Indigenous Peoples** present in the proposed project interventions area, and are they likely to be impacted by the project, **either positively or negatively**? | | No | no Indigenous Peoples were found in the impact zone. |
| Are the proposed project interventions likely to have **impacts on important religious/cultural heritage sites**? | | No | no archaeological sites were found in the impact zone. |
| Have there been any past **security-related issues** at the proposed project intervention site? | | No | no security-related issues were found in the impact zone. |
| Has **stakeholder engagement** taken place in the proposed project interventions area? | yes | | A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts. |
| Were **vulnerable and indigenous groups** involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.) | | No | no Indigenous Peoples were found in the impact zone. |

**RISK CLASSIFICATION**

| **Step** | **Recommendations/Findings** |
|---|---|
| Risk category identification | Low-Medium risk level |
| Recommendation on type of E&S instruments required. | ESMP |
| Summary of screening findings | These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas |
| Name of the person endorsing screening findings | Environmental Safeguard of PIU |

**SINDH FLOOD EMERGENCY REHABILITATION PROJECT**

**Environmental and Social Screening Checklist**

| **Proposed Project Interventions Details** | |
|---|---|
| Name of proposed project interventions | Improvement / Rehabilitation of road from Sui Gas Head Quarter road to connect Rab Nawaz Mori, road |
| ID of proposed project interventions | 05- 26.51'59.64"N 68.40'46.82"E 26.49'92.59"N 68.41'30.079"E |
| Proposing agency | PIU-SFERP |
| Proposed project interventions location | District Shaheed Benazirabad Taluka Daur |
| Proposed project interventions objective | The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works,<br>The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas. |
| Estimated cost | - |
| Proposed date of commencement of civil work | Will complete in 12 months |

| ***Screening Question*** | ***Yes*** | ***No*** | ***Remarks*** |
|---|---|---|---|
| **PHYSICAL ENVIRONMENT** | | | |
| Will the proposed project interventions pose the risk of **clearance of vegetation** that may result in an increase in the level of suspended solids washing into nearby water bodies? | | No | None of the trees will need to be cut due to the proposed rehabilitation work. |
| Will the proposed project interventions pose a risk of **contaminating water sources** due to construction activities? | yes | | During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality |
| Will the proposed project interventions **deplete groundwater** because of the water used during road construction activities? | | No | Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage. |
| Will the proposed project interventions result in an increase in **ambient air pollution**, including chemical and particulate matter due to the construction and operation of related machinery? | Yes | | During the construction phase of the proposed sub-project; some adverse impacts on the ambient air by suspended dust and noise are foreseen. |
| Will the proposed project interventions result in an increase in **ambient noise levels** and vibrations due to the operation of construction machinery/vehicles? | Yes | | An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc. |
| Will these ambient noise levels be beyond the specifications in the **SEQS**? | | No | These are within the limit as per baseline monitoring results. |

| | | | |
|---|---|---|---|
| Will the proposed project interventions lead to **erosion hazards**? | | No | Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient. |
| Will the proposed project interventions lead to increased **soil erosion?** | | No | |
| Will the proposed project interventions result in the generation of **hazardous and/or non-hazardous waste**? | | No | Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal. |
| Will the proposed project interventions result in potentially increased health risks for **project workers and communities** (e.g. COVID-19)? | | No | The screening will be carried out before hiring the labour. |
| Is the proposed project interventions being implemented in an area with **high natural hazard risk**? (e.g. floods, earthquakes, landslides) | | No | The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences. |
| **ECOLOGICAL ENVIRONMENT** | | | |
| Will the proposed project interventions potentially cause any adverse impacts on **habitats, ecosystems**, and/or ecosystem services? | | No | No protected areas were observed near (1000 meters) of the proposed sub-project area. |
| Will any rehabilitation & improvement works be located in areas that would promote the **conversion of natural habitats**? | | No | Proposed rehabilitation works falls in rural area, |
| Will any proposed project interventions be located **on or near sensitive environmental areas**, including national parks and protected areas? | | No | The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), only one School at approximately 210 ft way from the center line. |
| Are the proposed project interventions activities likely to pose risks to any **endangered species?** | | No | As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site. |
| **SOCIAL ENVIRONMENT** | | | |
| Will the proposed project interventions involve **land acquisition**? | | No | No land acquisition is involved as the proposed subproject interventions are within the existing RoW. |
| Are there any **forced labor or child labor** risks associated with contractors or other third parties involved in implementing this proposed project intervention? | | No | Child & forced labour is not allowed on the SFERP, |
| Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated **outside labor force.** | | No | A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject. |

| | | | |
|---|---|---|---|
| **Will local labor** be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force. | Yes | | Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.). |
| Will there be any **temporary or permanent displacement** as a result of the proposed project intervention activities? | | No | None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component. |
| Are there expected to be any **traffic-related issues** as a result of the proposed project intervention activities, particularly during the construction phase? | Yes | | Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas |
| Are there any recognized **Indigenous Peoples** present in the proposed project interventions area, and are they likely to be impacted by the project, **either positively or negatively**? | | No | no Indigenous Peoples were found in the impact zone. |
| Are the proposed project interventions likely to have **impacts on important religious/cultural heritage sites**? | | No | no archaeological sites were found in the impact zone. |
| Have there been any past **security-related issues** at the proposed project intervention site? | | No | no security-related issues were found in the impact zone. |
| Has **stakeholder engagement** taken place in the proposed project interventions area? | yes | | A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts. |
| Were **vulnerable and indigenous groups** involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.) | | No | no Indigenous Peoples were found in the impact zone. |

**RISK CLASSIFICATION**

| **Step** | **Recommendations/Findings** |
|---|---|
| Risk category identification | Low-Medium risk level |
| Recommendation on type of E&S instruments required. | ESMP |
| Summary of screening findings | These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas |
| Name of the person endorsing screening findings | Environmental Safeguard of PIU |

## SINDH FLOOD EMERGENCY REHABILITATION PROJECT

### Environmental and Social Screening Checklist

| Proposed Project Interventions Details | |
|---|---|
| Name of proposed project interventions | Improvement / Rehabilitation of road from Lashari Stop road to connect Daur Jamal Shah road via Nathiyani road |
| ID of proposed project interventions | 06- 26.44'00.19"N 68.27'68.111"E 26.42'50.77"N 68.28'02.94"E |
| Proposing agency | PIU-SFERP |
| Proposed project interventions location | District Shaheed Benazirabad Taluka Daur |
| Proposed project interventions objective | The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works,<br>The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas. |
| Estimated cost | - |
| Proposed date of commencement of civil work | Will complete in 12 months |

| *Screening Question* | *Yes* | *No* | *Remarks* |
|---|---|---|---|
| **PHYSICAL ENVIRONMENT** | | | |
| Will the proposed project interventions pose the risk of **clearance of vegetation** that may result in an increase in the level of suspended solids washing into nearby water bodies? | | No | None of the trees will need to be cut due to the proposed rehabilitation work. |
| Will the proposed project interventions pose a risk of **contaminating water sources** due to construction activities? | yes | | During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality |
| Will the proposed project interventions **deplete groundwater** because of the water used during road construction activities? | | No | Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage. |
| Will the proposed project interventions result in an increase in **ambient air pollution**, including chemical and particulate matter due to the construction and operation of related machinery? | Yes | | During the construction phase of the proposed sub-project; some adverse impacts on the ambient air by suspended dust and noise are foreseen. |
| Will the proposed project interventions result in an increase in **ambient noise levels** and vibrations due to the operation of construction machinery/vehicles? | Yes | | An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc. |
| Will these ambient noise levels be beyond the specifications in the **SEQS**? | | No | These are within the limit as per baseline monitoring results. |

| | | | |
|---|---|---|---|
| Will the proposed project interventions lead to **erosion hazards**? | | No | Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient. |
| Will the proposed project interventions lead to increased **soil erosion?** | | No | |
| Will the proposed project interventions result in the generation of **hazardous and/or non-hazardous waste**? | | No | Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal. |
| Will the proposed project interventions result in potentially increased health risks for **project workers and communities** (e.g. COVID-19)? | | No | The screening will be carried out before hiring the labour. |
| Is the proposed project interventions being implemented in an area with **high natural hazard risk**? (e.g. floods, earthquakes, landslides) | | No | The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences. |
| **ECOLOGICAL ENVIRONMENT** | | | |
| Will the proposed project interventions potentially cause any adverse impacts on **habitats, ecosystems**, and/or ecosystem services? | | No | No protected areas were observed near (1000 meters) of the proposed sub-project area. |
| Will any rehabilitation & improvement works be located in areas that would promote the **conversion of natural habitats**? | | No | Proposed rehabilitation works falls in rural area, |
| Will any proposed project interventions be located **on or near sensitive environmental areas**, including national parks and protected areas? | | No | The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), one School and one Mosque at approximately 220,70 ft way from the center line. |
| Are the proposed project interventions activities likely to pose risks to any **endangered species?** | | No | As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site. |
| **SOCIAL ENVIRONMENT** | | | |
| Will the proposed project interventions involve **land acquisition**? | | No | No land acquisition is involved as the proposed subproject interventions are within the existing RoW. |
| Are there any **forced labor or child labor** risks associated with contractors or other third parties involved in implementing this proposed project intervention? | | No | Child & forced labour is not allowed on the SFERP, |
| Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated **outside labor force.** | | No | A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject. |

| | | | |
|---|---|---|---|
| **Will local labor** be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force. | Yes | | Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.). |
| Will there be any **temporary or permanent displacement** as a result of the proposed project intervention activities? | | No | None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component. |
| Are there expected to be any **traffic-related issues** as a result of the proposed project intervention activities, particularly during the construction phase? | Yes | | Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas |
| Are there any recognized **Indigenous Peoples** present in the proposed project interventions area, and are they likely to be impacted by the project, **either positively or negatively**? | | No | no Indigenous Peoples were found in the impact zone. |
| Are the proposed project interventions likely to have **impacts on important religious/cultural heritage sites**? | | No | no archaeological sites were found in the impact zone. |
| Have there been any past **security-related issues** at the proposed project intervention site? | | No | no security-related issues were found in the impact zone. |
| Has **stakeholder engagement** taken place in the proposed project interventions area? | yes | | A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts. |
| Were **vulnerable and indigenous groups** involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.) | | No | no Indigenous Peoples were found in the impact zone. |

**RISK CLASSIFICATION**

| **Step** | **Recommendations/Findings** |
|---|---|
| Risk category identification | Low-Medium risk level |
| Recommendation on type of E&S instruments required. | ESMP |
| Summary of screening findings | These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas |
| Name of the person endorsing screening findings | Environmental Safeguard of PIU |

**SINDH FLOOD EMERGENCY REHABILITATION PROJECT**

**Environmental and Social Screening Checklist**

| **Proposed Project Interventions Details** | |
|---|---|
| Name of proposed project interventions | Improvement/Rehabilitation of road from Trimore - Sijawal Minor to Durai Mahar Road Via Lal Bux Shahani Road |
| ID of proposed project interventions | 07- 26°22'38.55"N 68°15'30.52"E 26°20'51.05"N 68°12'35.23"E |
| Proposing agency | PIU-SFERP |
| Proposed project interventions location | District Shaheed Benazirabad Taluka Daur |
| Proposed project interventions objective | The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works,<br>The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas. |
| Estimated cost | - |
| Proposed date of commencement of civil work | Will complete in 12 months |

| ***Screening Question*** | ***Yes*** | ***No*** | ***Remarks*** |
|---|---|---|---|
| **PHYSICAL ENVIRONMENT** | | | |
| Will the proposed project interventions pose the risk of **clearance of vegetation** that may result in an increase in the level of suspended solids washing into nearby water bodies? | | No | None of the trees will need to be cut due to the proposed rehabilitation work. |
| Will the proposed project interventions pose a risk of **contaminating water sources** due to construction activities? | yes | | During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality |
| Will the proposed project interventions **deplete groundwater** because of the water used during road construction activities? | | No | Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage. |
| Will the proposed project interventions result in an increase in **ambient air pollution**, including chemical and particulate matter due to the construction and operation of related machinery? | Yes | | During the construction phase of the proposed sub-project; some adverse impacts on the ambient air by suspended dust and noise are foreseen. |
| Will the proposed project interventions result in an increase in **ambient noise levels** and vibrations due to the operation of construction machinery/vehicles? | Yes | | An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc. |
| Will these ambient noise levels be beyond the specifications in the **SEQS**? | | No | These are within the limit as per baseline monitoring results. |

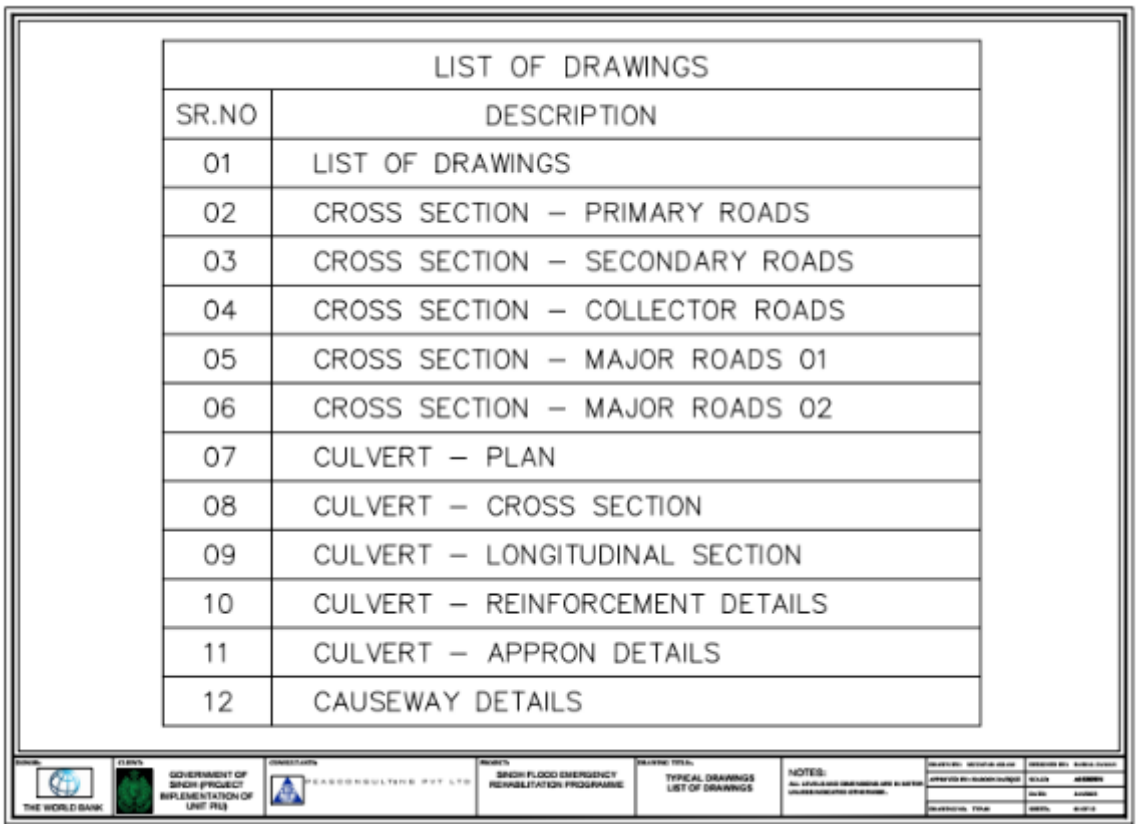
| | | | |
|---|---|---|---|
| Will the proposed project interventions lead to **erosion hazards**? | | No | Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient. |
| Will the proposed project interventions lead to increased **soil erosion?** | | No | |
| Will the proposed project interventions result in the generation of **hazardous and/or non-hazardous waste**? | | No | Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal. |
| Will the proposed project interventions result in potentially increased health risks for **project workers and communities** (e.g. COVID-19)? | | No | The screening will be carried out before hiring the labour. |
| Is the proposed project interventions being implemented in an area with **high natural hazard risk**? (e.g. floods, earthquakes, landslides) | | No | The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences. |
| **ECOLOGICAL ENVIRONMENT** | | | |
| Will the proposed project interventions potentially cause any adverse impacts on **habitats, ecosystems**, and/or ecosystem services? | | No | No protected areas were observed near (1000 meters) of the proposed sub-project area. |
| Will any rehabilitation & improvement works be located in areas that would promote the **conversion of natural habitats**? | | No | Proposed rehabilitation works falls in rural area, |
| Will any proposed project interventions be located **on or near sensitive environmental areas**, including national parks and protected areas? | | No | The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), None of the socially sensitive receptors found in the buffer zone |
| Are the proposed project interventions activities likely to pose risks to any **endangered species?** | | No | As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site. |
| **SOCIAL ENVIRONMENT** | | | |
| Will the proposed project interventions involve **land acquisition**? | | No | No land acquisition is involved as the proposed subproject interventions are within the existing RoW. |
| Are there any **forced labor or child labor** risks associated with contractors or other third parties involved in implementing this proposed project intervention? | | No | Child & forced labour is not allowed on the SFERP, |
| Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated **outside labor force.** | | No | A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject. |

| | | | |
|---|---|---|---|
| **Will local labor** be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force. | Yes | | Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.). |
| Will there be any **temporary or permanent displacement** as a result of the proposed project intervention activities? | | No | None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component. |
| Are there expected to be any **traffic-related issues** as a result of the proposed project intervention activities, particularly during the construction phase? | Yes | | Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas |
| Are there any recognized **Indigenous Peoples** present in the proposed project interventions area, and are they likely to be impacted by the project, **either positively or negatively**? | | No | no Indigenous Peoples were found in the impact zone. |
| Are the proposed project interventions likely to have **impacts on important religious/cultural heritage sites**? | | No | no archaeological sites were found in the impact zone. |
| Have there been any past **security-related issues** at the proposed project intervention site? | | No | no security-related issues were found in the impact zone. |
| Has **stakeholder engagement** taken place in the proposed project interventions area? | yes | | A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts. |
| Were **vulnerable and indigenous groups** involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.) | | No | no Indigenous Peoples were found in the impact zone. |

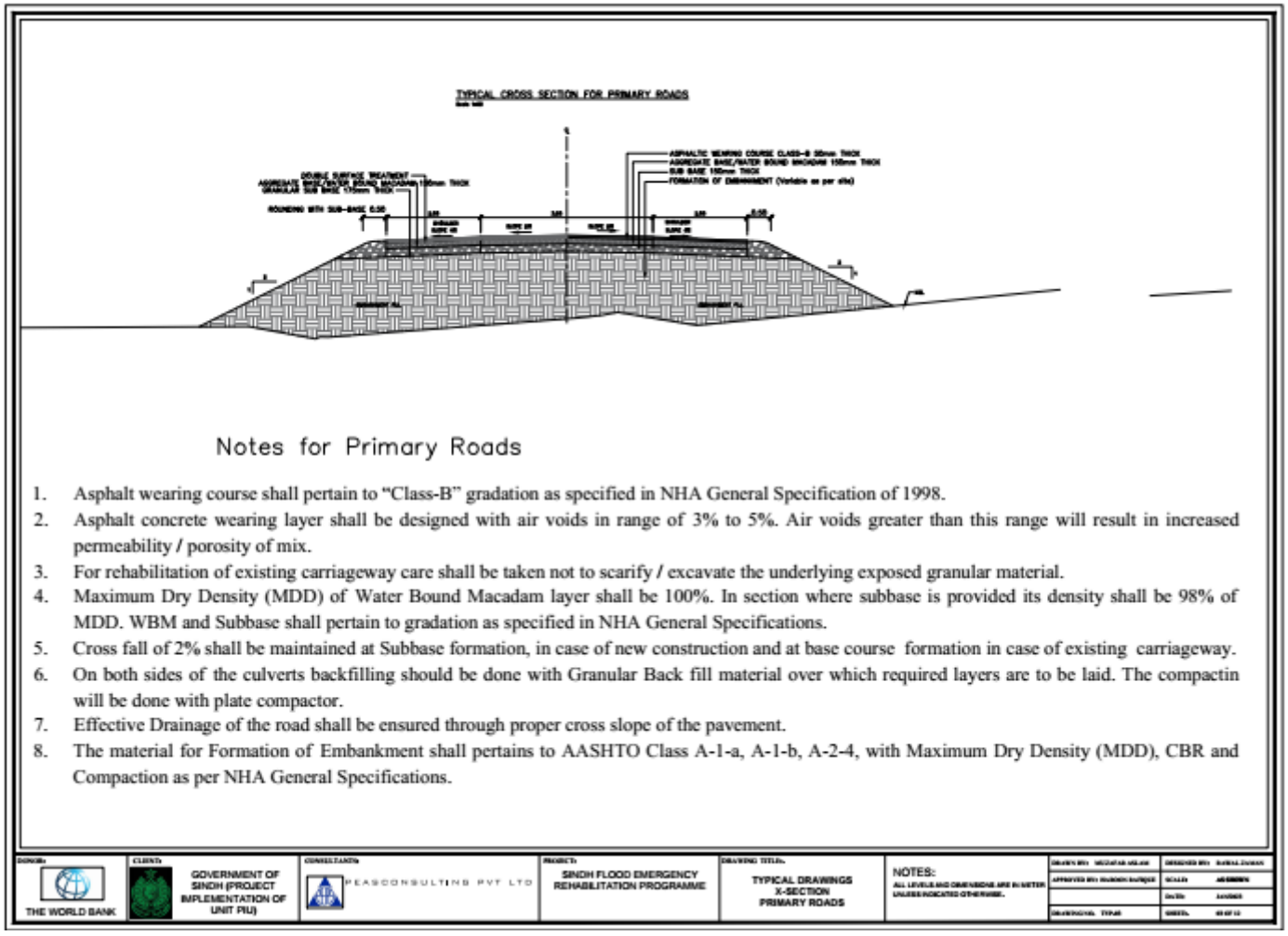
**RISK CLASSIFICATION**

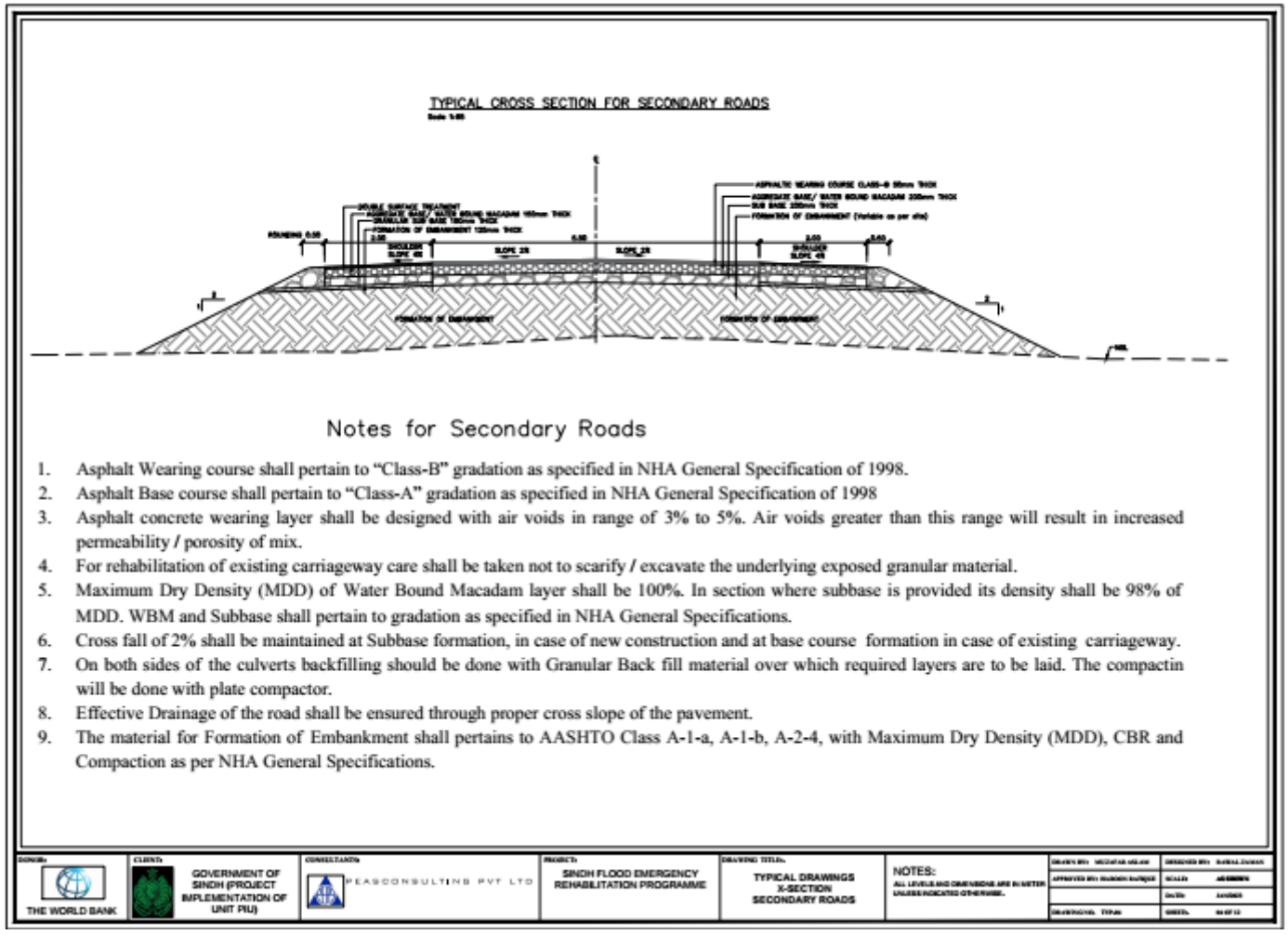
| **Step** | **Recommendations/Findings** |
|---|---|
| Risk category identification | Low-Medium risk level |
| Recommendation on type of E&S instruments required. | ESMP |
| Summary of screening findings | These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas |
| Name of the person endorsing screening findings | Environmental Safeguard of PIU |

# Annexure II: Typical Cross Sections of Sub-Project



| LIST OF DRAWINGS | |
|---|---|
| SR.NO | DESCRIPTION |
| 01 | LIST OF DRAWINGS |
| 02 | CROSS SECTION – PRIMARY ROADS |
| 03 | CROSS SECTION – SECONDARY ROADS |
| 04 | CROSS SECTION – COLLECTOR ROADS |
| 05 | CROSS SECTION – MAJOR ROADS 01 |
| 06 | CROSS SECTION – MAJOR ROADS 02 |
| 07 | CULVERT – PLAN |
| 08 | CULVERT – CROSS SECTION |
| 09 | CULVERT – LONGITUDINAL SECTION |
| 10 | CULVERT – REINFORCEMENT DETAILS |
| 11 | CULVERT – APPRON DETAILS |
| 12 | CAUSEWAY DETAILS |


TYPICAL CROSS SECTION FOR PRIMARY ROADS
DOUBLE SURFACE TREATMENT
ROUNDING WITH SUB-BASE 0.50
ASPHALTIC WEARING COURSE CLASS-B 25mm THICK
AGGREGATE BASE/WATER BOUND MACADAM 150mm THICK
SUB BASE 150mm THICK
FORMATION OF EMBANKMENT (Variable as per site)
0.50
Notes for Primary Roads
1. Asphalt wearing course shall pertain to "Class-B" gradation as specified in NHA General Specification of 1998.
2. Asphalt concrete wearing layer shall be designed with air voids in range of 3% to 5%. Air voids greater than this range will result in increased permeability / porosity of mix.
3. For rehabilitation of existing carriageway care shall be taken not to scarify / excavate the underlying exposed granular material.
4. Maximum Dry Density (MDD) of Water Bound Macadam layer shall be 100%. In section where subbase is provided its density shall be 98% of MDD. WBM and Subbase shall pertain to gradation as specified in NHA General Specifications.
5. Cross fall of 2% shall be maintained at Subbase formation, in case of new construction and at base course formation in case of existing carriageway.
6. On both sides of the culverts backfilling should be done with Granular Back fill material over which required layers are to be laid. The compactin will be done with plate compactor.
7. Effective Drainage of the road shall be ensured through proper cross slope of the pavement.
8. The material for Formation of Embankment shall pertains to AASHTO Class A-1-a, A-1-b, A-2-4, with Maximum Dry Density (MDD), CBR and Compaction as per NHA General Specifications.
THE WORLD BANK
GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT PIU)
PEASCONSULTING PVT LTD
SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME
TYPICAL DRAWINGS X-SECTION PRIMARY ROADS
NOTES:


TYPICAL CROSS SECTION FOR SECONDARY ROADS
Notes for Secondary Roads
1. Asphalt Wearing course shall pertain to "Class-B" gradation as specified in NHA General Specification of 1998.
2. Asphalt Base course shall pertain to "Class-A" gradation as specified in NHA General Specification of 1998
3. Asphalt concrete wearing layer shall be designed with air voids in range of 3% to 5%. Air voids greater than this range will result in increased permeability / porosity of mix.
4. For rehabilitation of existing carriageway care shall be taken not to scarify / excavate the underlying exposed granular material.
5. Maximum Dry Density (MDD) of Water Bound Macadam layer shall be 100%. In section where subbase is provided its density shall be 98% of MDD. WBM and Subbase shall pertain to gradation as specified in NHA General Specifications.
6. Cross fall of 2% shall be maintained at Subbase formation, in case of new construction and at base course formation in case of existing carriageway.
7. On both sides of the culverts backfilling should be done with Granular Back fill material over which required layers are to be laid. The compactin will be done with plate compactor.
8. Effective Drainage of the road shall be ensured through proper cross slope of the pavement.
9. The material for Formation of Embankment shall pertains to AASHTO Class A-1-a, A-1-b, A-2-4, with Maximum Dry Density (MDD), CBR and Compaction as per NHA General Specifications.
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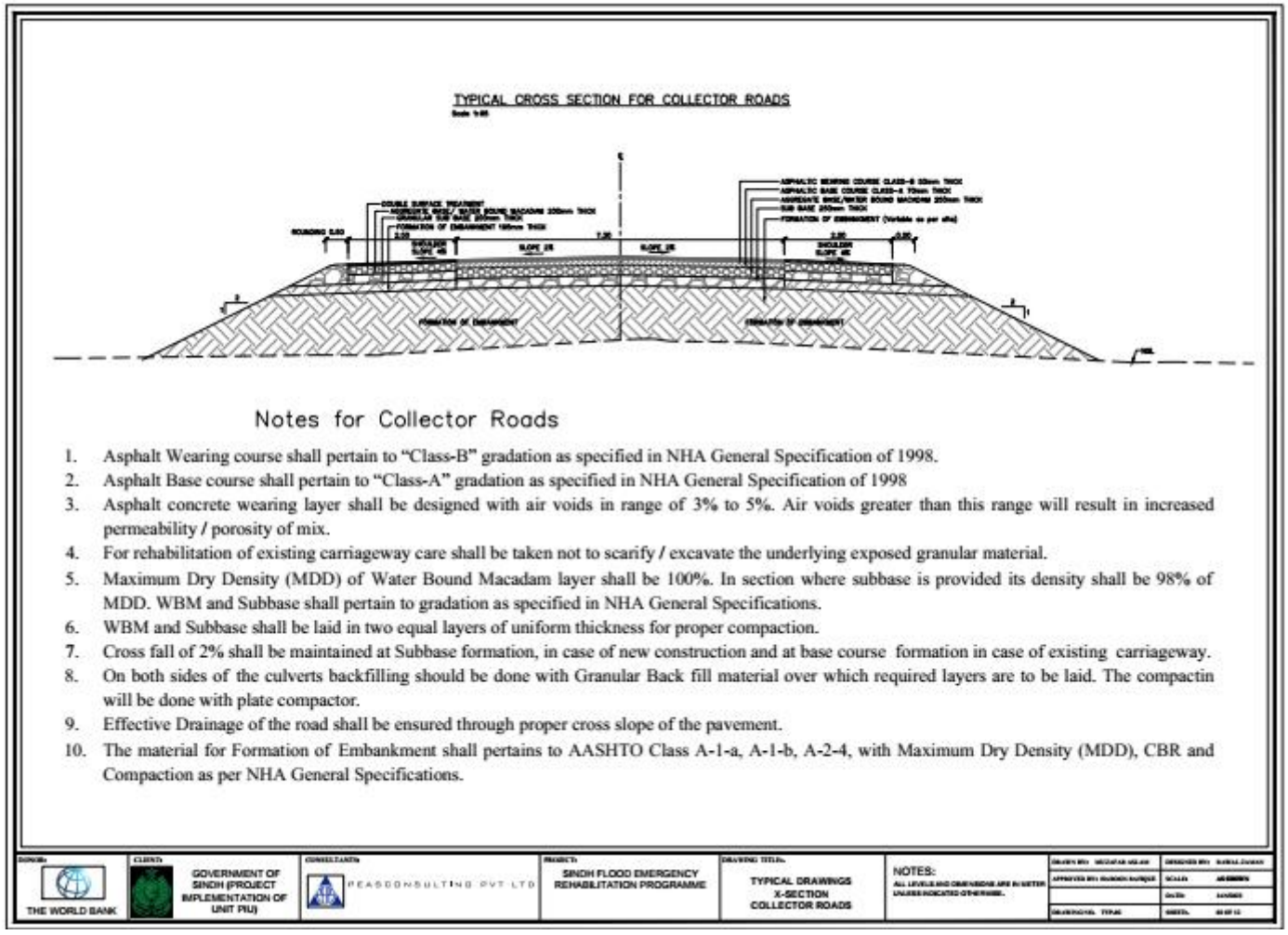
TYPICAL DRAWINGS X-SECTION SECONDARY ROADS
NOTES:


TYPICAL CROSS SECTION FOR COLLECTOR ROADS
Notes for Collector Roads
1. Asphalt Wearing course shall pertain to "Class-B" gradation as specified in NHA General Specification of 1998.
2. Asphalt Base course shall pertain to "Class-A" gradation as specified in NHA General Specification of 1998
3. Asphalt concrete wearing layer shall be designed with air voids in range of 3% to 5%. Air voids greater than this range will result in increased permeability / porosity of mix.
4. For rehabilitation of existing carriageway care shall be taken not to scarify / excavate the underlying exposed granular material.
5. Maximum Dry Density (MDD) of Water Bound Macadam layer shall be 100%. In section where subbase is provided its density shall be 98% of MDD. WBM and Subbase shall pertain to gradation as specified in NHA General Specifications.
6. WBM and Subbase shall be laid in two equal layers of uniform thickness for proper compaction.
7. Cross fall of 2% shall be maintained at Subbase formation, in case of new construction and at base course formation in case of existing carriageway.
8. On both sides of the culverts backfilling should be done with Granular Back fill material over which required layers are to be laid. The compactin will be done with plate compactor.
9. Effective Drainage of the road shall be ensured through proper cross slope of the pavement.
10. The material for Formation of Embankment shall pertains to AASHTO Class A-1-a, A-1-b, A-2-4, with Maximum Dry Density (MDD), CBR and Compaction as per NHA General Specifications.
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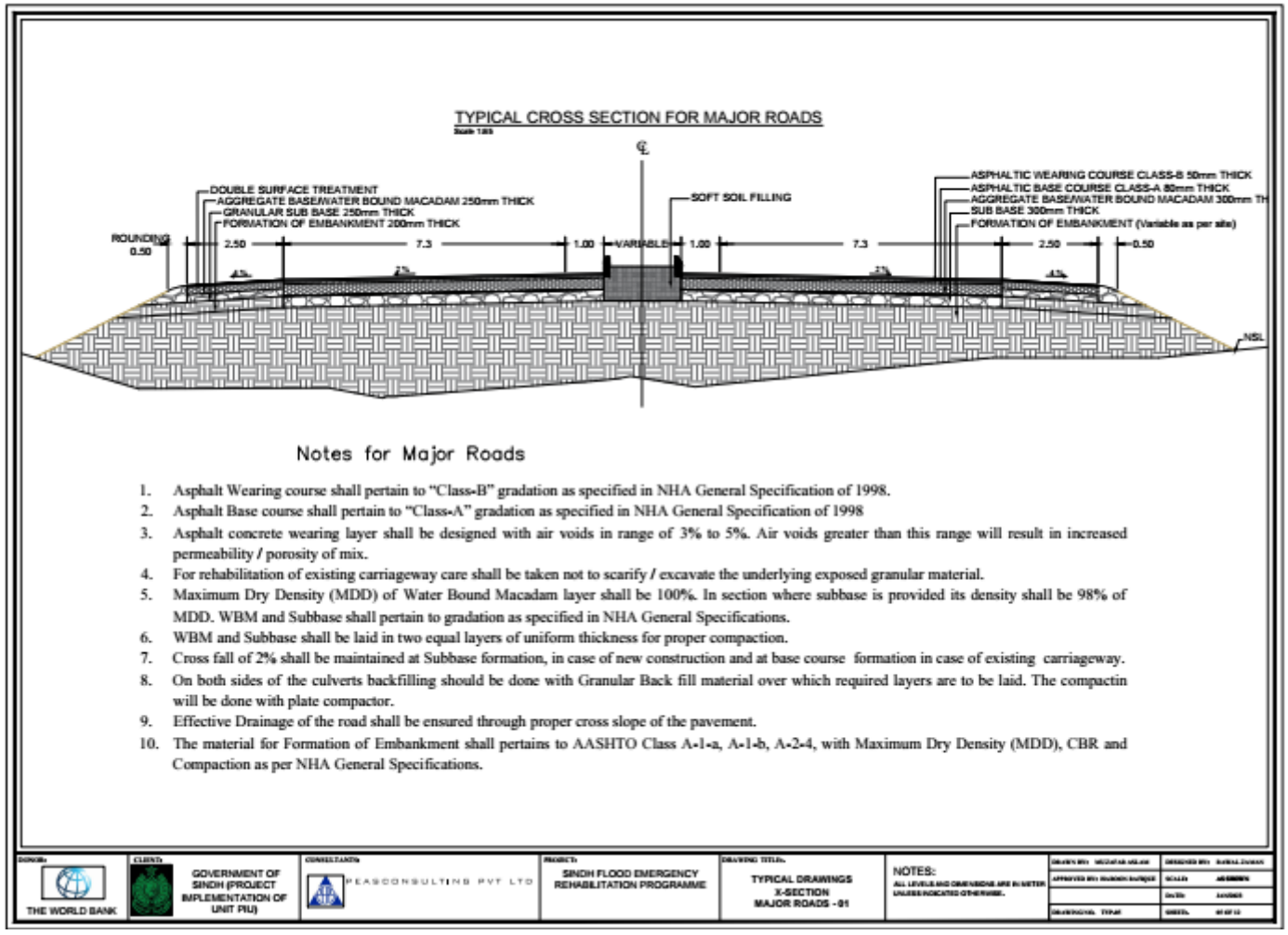
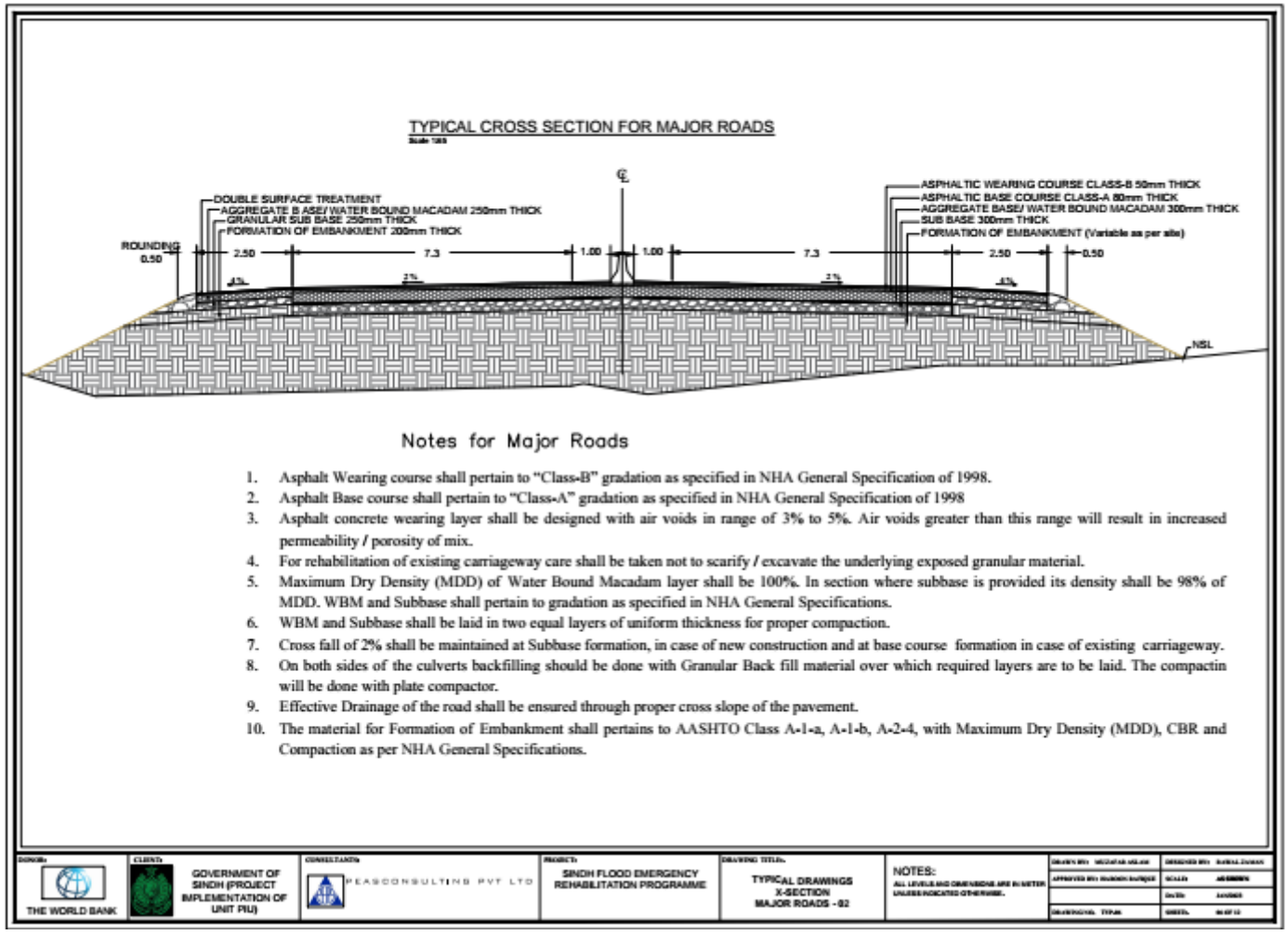
REASONSULTING PVT LTD
SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME
TYPICAL DRAWINGS X-SECTION COLLECTOR ROADS
NOTES:




## Notes for Major Roads

1. Asphalt Wearing course shall pertain to "Class-B" gradation as specified in NHA General Specification of 1998.
2. Asphalt Base course shall pertain to "Class-A" gradation as specified in NHA General Specification of 1998
3. Asphalt concrete wearing layer shall be designed with air voids in range of 3% to 5%. Air voids greater than this range will result in increased permeability / porosity of mix.
4. For rehabilitation of existing carriageway care shall be taken not to scarify / excavate the underlying exposed granular material.
5. Maximum Dry Density (MDD) of Water Bound Macadam layer shall be 100%. In section where subbase is provided its density shall be 98% of MDD. WBM and Subbase shall pertain to gradation as specified in NHA General Specifications.
6. WBM and Subbase shall be laid in two equal layers of uniform thickness for proper compaction.
7. Cross fall of 2% shall be maintained at Subbase formation, in case of new construction and at base course formation in case of existing carriageway.
8. On both sides of the culverts backfilling should be done with Granular Back fill material over which required layers are to be laid. The compactin will be done with plate compactor.
9. Effective Drainage of the road shall be ensured through proper cross slope of the pavement.
10. The material for Formation of Embankment shall pertains to AASHTO Class A-1-a, A-1-b, A-2-4, with Maximum Dry Density (MDD), CBR and Compaction as per NHA General Specifications.

| | | | | | |
|---|---|---|---|---|---|
| THE WORLD BANK | GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT PIU) | REASONSULTING PVT LTD | SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME | TYPICAL DRAWINGS X-SECTION MAJOR ROADS - 01 | NOTES: |


TYPICAL CROSS SECTION FOR MAJOR ROADS
DOUBLE SURFACE TREATMENT
AGGREGATE B ASE/ WATER BOUND MACADAM 250mm THICK
GRANULAR SUB BASE 250mm THICK
FORMATION OF EMBANKMENT 200mm THICK
ROUNDING 0.50
2.50
7.3
1.00
1.00
7.3
2.50
0.50
4%
2%
2%
4%
ASPHALTIC WEARING COURSE CLASS-B 50mm THICK
ASPHALTIC BASE COURSE CLASS-A 80mm THICK
AGGREGATE BASE/ WATER BOUND MACADAM 300mm THICK
SUB BASE 300mm THICK
FORMATION OF EMBANKMENT (Variable as per site)
NSL
Notes for Major Roads
1. Asphalt Wearing course shall pertain to "Class-B" gradation as specified in NHA General Specification of 1998.
2. Asphalt Base course shall pertain to "Class-A" gradation as specified in NHA General Specification of 1998
3. Asphalt concrete wearing layer shall be designed with air voids in range of 3% to 5%. Air voids greater than this range will result in increased permeability / porosity of mix.
4. For rehabilitation of existing carriageway care shall be taken not to scarify / excavate the underlying exposed granular material.
5. Maximum Dry Density (MDD) of Water Bound Macadam layer shall be 100%. In section where subbase is provided its density shall be 98% of MDD. WBM and Subbase shall pertain to gradation as specified in NHA General Specifications.
6. WBM and Subbase shall be laid in two equal layers of uniform thickness for proper compaction.
7. Cross fall of 2% shall be maintained at Subbase formation, in case of new construction and at base course formation in case of existing carriageway.
8. On both sides of the culverts backfilling should be done with Granular Back fill material over which required layers are to be laid. The compactin will be done with plate compactor.
9. Effective Drainage of the road shall be ensured through proper cross slope of the pavement.
10. The material for Formation of Embankment shall pertains to AASHTO Class A-1-a, A-1-b, A-2-4, with Maximum Dry Density (MDD), CBR and Compaction as per NHA General Specifications.
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GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT PIU)
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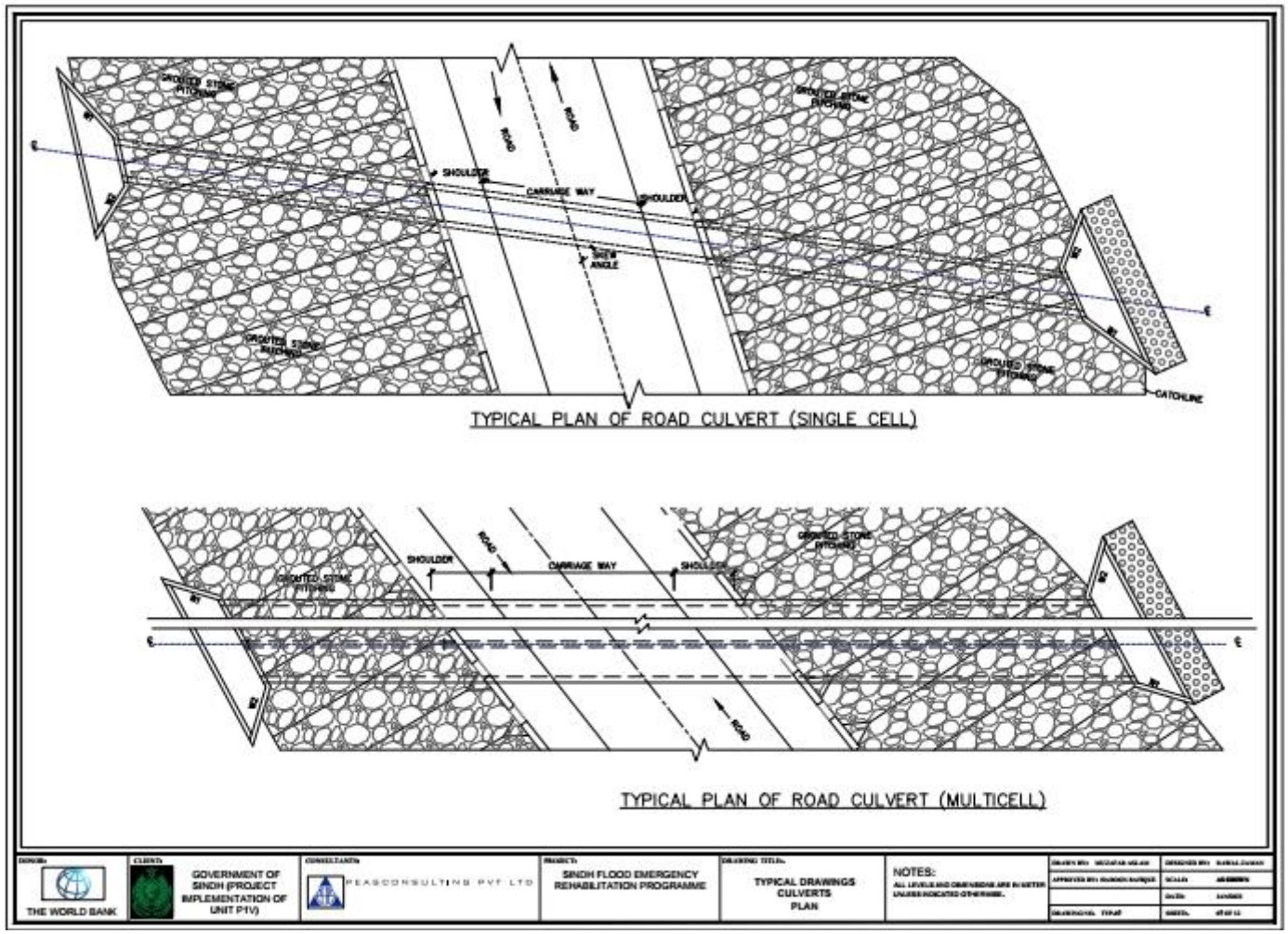
TYPICAL DRAWINGS X-SECTION MAJOR ROADS - 02
NOTES:


TYPICAL PLAN OF ROAD CULVERT (SINGLE CELL)
TYPICAL PLAN OF ROAD CULVERT (MULTICELL)
GROUTED STONE PITCHING
ROAD
SHOULDER
CARRIAGE WAY
SKEW ANGLE
CATCHLINE
THE WORLD BANK
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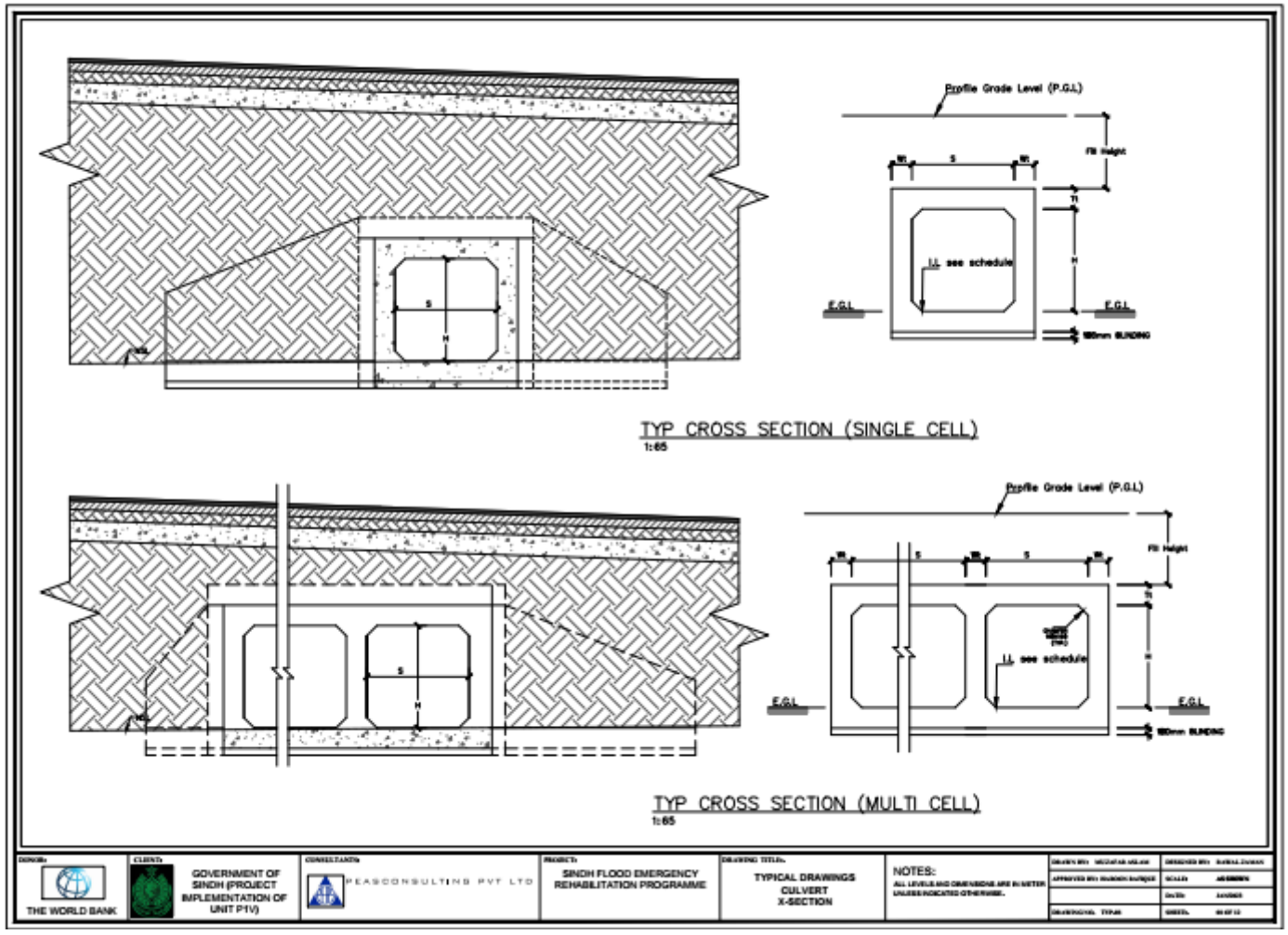
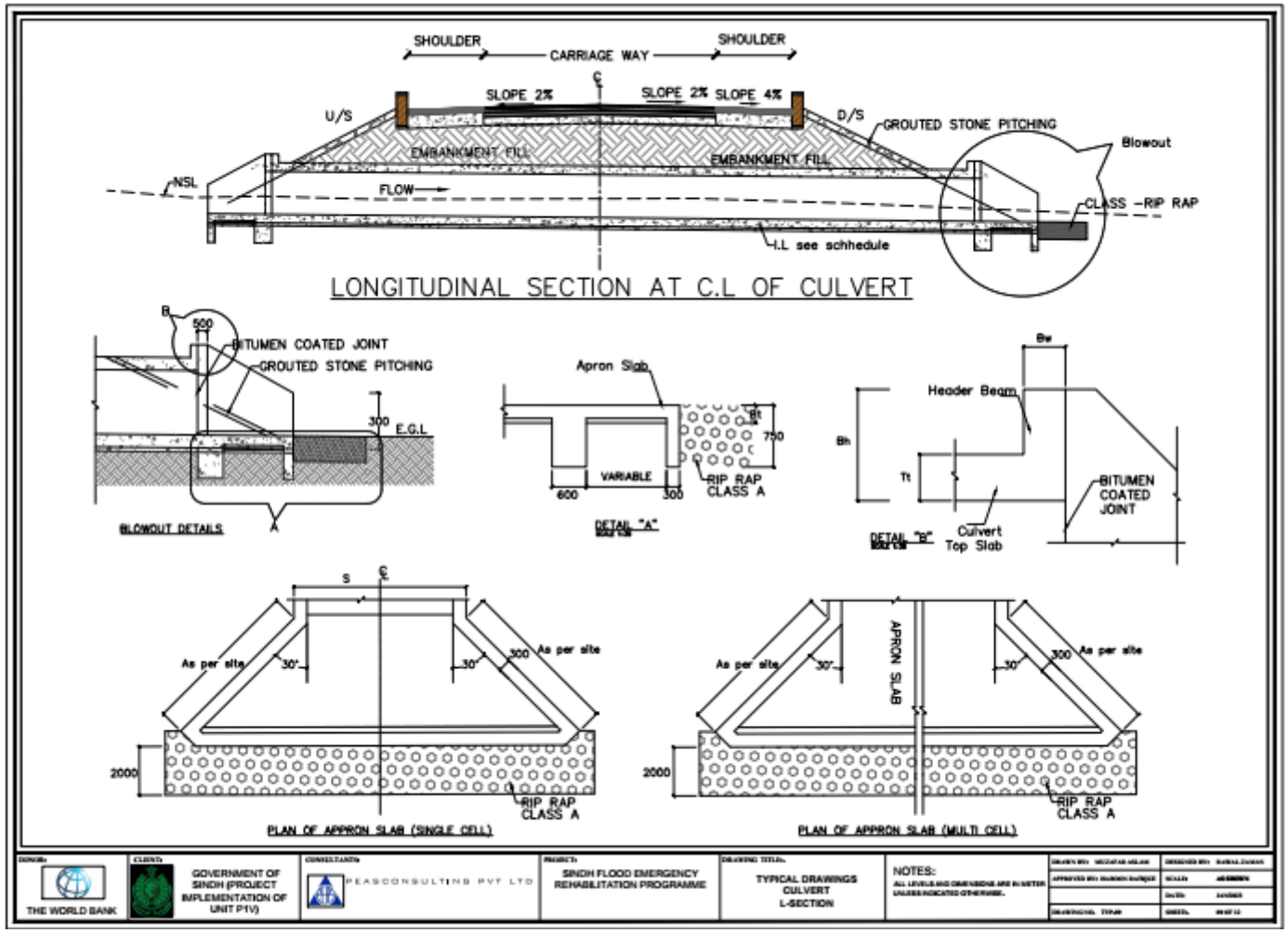
TYPICAL DRAWINGS CULVERTS PLAN
NOTES:


Profile Grade Level (P.G.L)
Fill Height
see schedule
E.G.L
E.G.L
TYP CROSS SECTION (SINGLE CELL)
1:65
Profile Grade Level (P.G.L)
Fill Height
see schedule
E.G.L
E.G.L
TYP CROSS SECTION (MULTI CELL)
1:65
THE WORLD BANK
GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT P1U)
PEASCONSULTING PVT LTD
SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME
TYPICAL DRAWINGS CULVERT X-SECTION
NOTES:


SHOULDER
CARRIAGE WAY
SHOULDER
SLOPE 2%
SLOPE 2%
SLOPE 4%
U/S
D/S
GROUTED STONE PITCHING
Blowout
EMBANKMENT FILL
EMBANKMENT FILL
NSL
FLOW
CLASS –RIP RAP
I.L see schhedule
LONGITUDINAL SECTION AT C.L OF CULVERT
BITUMEN COATED JOINT
GROUTED STONE PITCHING
300
E.G.L
BLOWOUT DETAILS
Apron Slab
750
VARIABLE
600
300
RIP RAP
CLASS A
DETAIL "A"
Bw
Header Beam
Bh
Tt
BITUMEN
COATED
JOINT
Culvert
Top Slab
As per site
30°
300
2000
RIP RAP
CLASS A
PLAN OF APPRON SLAB (SINGLE CELL)
APRON SLAB
PLAN OF APPRON SLAB (MULTI CELL)
THE WORLD BANK
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TYPICAL DRAWINGS
CULVERT
L-SECTION
NOTES:

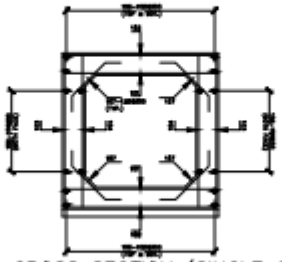
| SINGLE CELL CULVERT | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIMENSIONS | | | | | | BAR MARK - 101 | | BAR MARK - 102 | | BAR MARK - 103 | | BAR MARK - 104 | |
| S (mm) | H (mm) | FILL (mm) | Wt (mm) | Bt (mm) | Tt (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) |
| 1000 | 1500 | 600-3000 | 250 | 250 | 250 | 10Ø | 150 c/c | 10Ø | 200 c/c | 10Ø | 150 c/c | 10Ø | 200 c/c |
| 2000 | 1500 | 600-3000 | 300 | 300 | 300 | 12Ø | 100 c/c | 12Ø | 150 c/c | 12Ø | 150 c/c | 12Ø | 150 c/c |
| 3000 | 1500 | 600-1000 | 350 | 350 | 350 | 16Ø | 125 c/c | 16Ø | 100 c/c | 16Ø | 150 c/c | 12Ø | 150 c/c |
| 3000 | 1500 | 1000-3000 | 350 | 350 | 350 | 16Ø | 150 c/c | 16Ø | 125 c/c | 16Ø | 150 c/c | 12Ø | 150 c/c |

| DOUBLE CELL CULVERT | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIMENSIONS | | | | | | BAR MARK - 101 | | BAR MARK - 102 | | BAR MARK - 103 | | BAR MARK - 104 | | BAR MARK - 104A | |
| S (mm) | H (mm) | FILL (mm) | Wt (mm) | Bt (mm) | Tt (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) |
| 2000 | 1500 | 600-1000 | 300 | 300 | 300 | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c |
| 2000 | 1500 | 1000-3000 | 300 | 300 | 300 | 12Ø | 150 c/c | 12Ø | 125 c/c | 12Ø | 150 c/c | 12Ø | 150 c/c | 12Ø | 150 c/c |

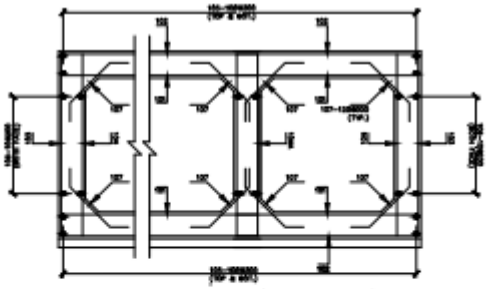
| TRIPLE CELL CULVERT | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIMENSIONS | | | | | | BAR MARK - 101 | | BAR MARK - 102 | | BAR MARK - 103 | | BAR MARK - 104 | | BAR MARK - 104A | |
| S (mm) | H (mm) | FILL (mm) | Wt (mm) | Bt (mm) | Tt (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) |
| 2000 | 1500 | 600-1000 | 300 | 300 | 300 | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c |
| 2000 | 1500 | 1000-3500 | 300 | 300 | 300 | 12Ø | 150 c/c | 16Ø | 150 c/c | 12Ø | 150 c/c | 12Ø | 150 c/c | 12Ø | 150 c/c |
| 3000 | 1500 | 600-1000 | 350 | 350 | 350 | 16Ø | 125 c/c | 16Ø | 100 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c |
| 3000 | 1500 | 1000-3000 | 350 | 350 | 350 | 16Ø | 150 c/c | 16Ø | 125 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c |
| 3000 | 3000 | 600-1000 | 350 | 350 | 350 | 16Ø | 100 c/c | 16Ø | 100 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c |
| 3000 | 3000 | 1000-3000 | 350 | 350 | 350 | 16Ø | 125 c/c | 16Ø | 125 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c |

| FOUR CELL CULVERT | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIMENSIONS | | | | | | BAR MARK - 101 | | BAR MARK - 102 | | BAR MARK - 103 | | BAR MARK - 104 | | BAR MARK - 104A | |
| S (mm) | H (mm) | FILL (mm) | Wt (mm) | Bt (mm) | Tt (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) |
| 2000 | 1500 | 600-1500 | 300 | 300 | 300 | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c |

| FIVE CELL CULVERT | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIMENSIONS | | | | | | BAR MARK - 101 | | BAR MARK - 102 | | BAR MARK - 103 | | BAR MARK - 104 | | BAR MARK - 104A | |
| S (mm) | H (mm) | FILL (mm) | Wt (mm) | Bt (mm) | Tt (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) | DIA (mm) | SPACING (mm) |
| 2000 | 1500 | 3500 | 300 | 300 | 300 | 12Ø | 150 c/c | 16Ø | 150 c/c | 12Ø | 150 c/c | 12Ø | 150 c/c | 12Ø | 150 c/c |
| 3000 | 1500 | 600-1000 | 350 | 350 | 350 | 16Ø | 125 c/c | 16Ø | 100 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c | 16Ø | 150 c/c |



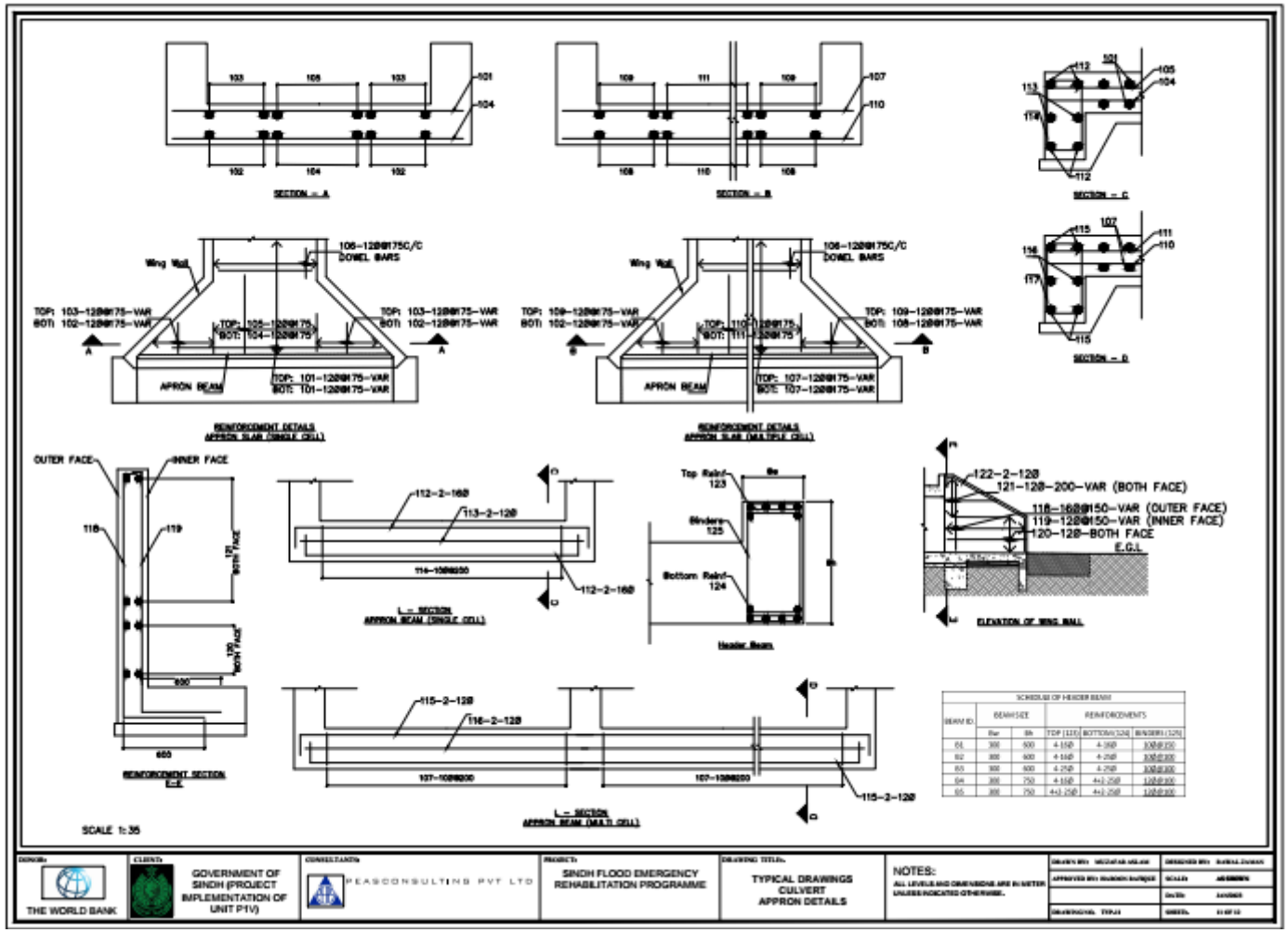
TYP CROSS SECTION (SINGLE CELL)
1:65

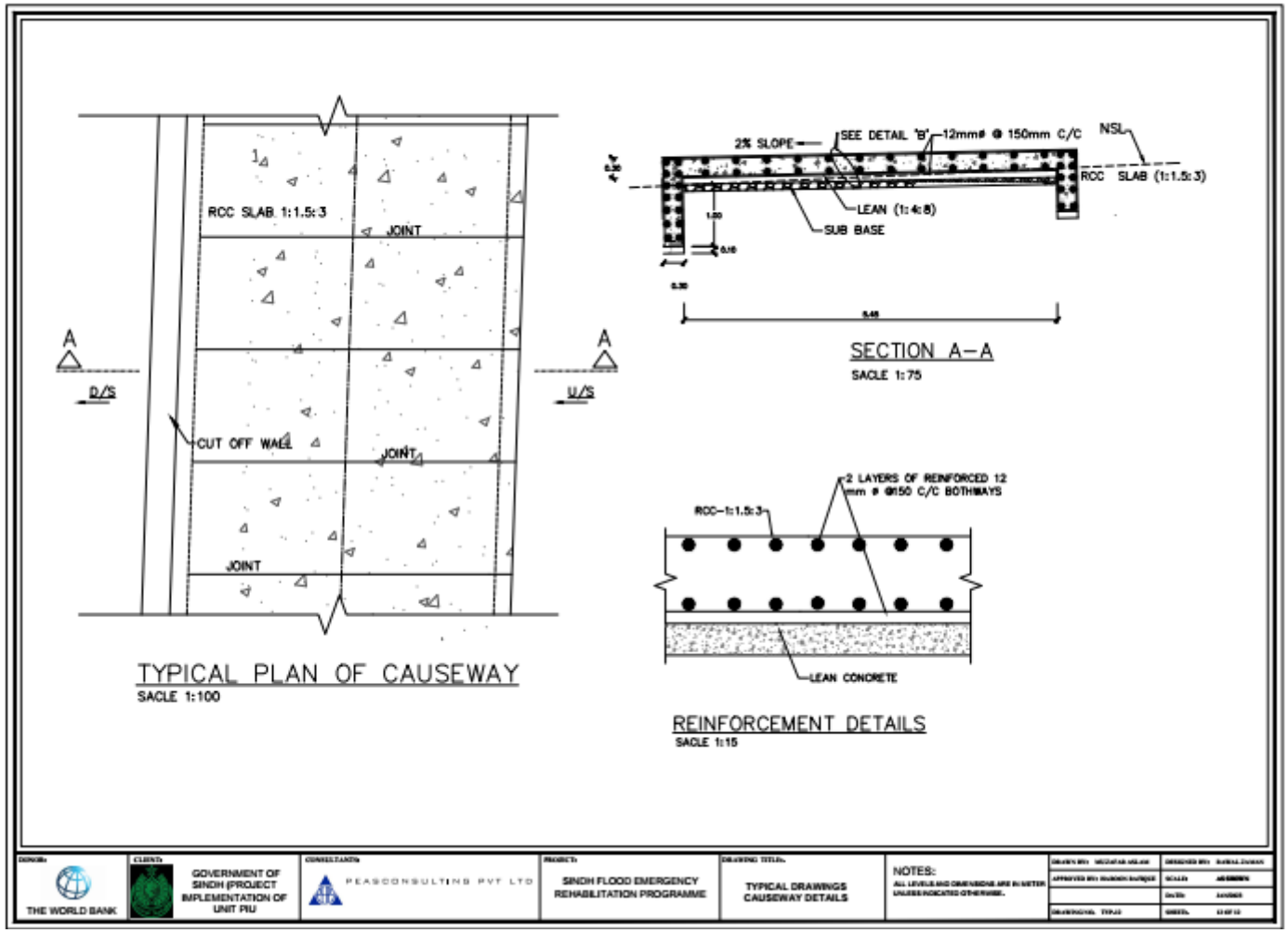


TYP CROSS SECTION (MULTICELL)
1:65

THE WORLD BANK | GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT PIU) | REASONSULTING PVT LTD | SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME | TYPICAL DRAWINGS CULVERT REINFORCEMENT DETAILS

NOTES:
ALL LEVELS AND DIMENSIONS ARE IN METER UNLESS INDICATED OTHERWISE.


SECTION – A
SECTION – B
SECTION – C
SECTION – D
REINFORCEMENT DETAILS
APRON SLAB (SINGLE CELL)
REINFORCEMENT DETAILS
APRON SLAB (MULTIPLE CELL)
APRON BEAM
Wing Wall
106–12@@175C/C
DOWEL BARS
OUTER FACE
INNER FACE
REINFORCEMENT SECTION
L – SECTION
APRON BEAM (SINGLE CELL)
L – SECTION
APRON BEAM (MULTI CELL)
Top Reinf.
123
Dividers
125
Bottom Reinf.
124
Header Beam
122–2–12@
121–12@–200–VAR (BOTH FACE)
116–16@@150–VAR (OUTER FACE)
119–12@@150–VAR (INNER FACE)
120–12@–BOTH FACE
E.G.L
ELEVATION OF WING WALL
SCALE 1:35
THE WORLD BANK
GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT P1V)
REASCONSULTING PVT LTD
SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME
TYPICAL DRAWINGS CULVERT APPRON DETAILS
NOTES:


RCC SLAB 1:1.5:3
JOINT
CUT OFF WALL
JOINT
JOINT
A
A
D/S
U/S
TYPICAL PLAN OF CAUSEWAY
SACLE 1:100
2% SLOPE
SEE DETAIL 'B' 12mm# @ 150mm C/C
NSL
RCC SLAB (1:1.5:3)
LEAN (1:4:8)
SUB BASE
SECTION A-A
SACLE 1:75
2 LAYERS OF REINFORCED 12 mm # @150 C/C BOTHWAYS
RCC-1:1.5:3
LEAN CONCRETE
REINFORCEMENT DETAILS
SACLE 1:15
THE WORLD BANK
GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT PIU
PEASCONSULTING PVT LTD
SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME
TYPICAL DRAWINGS CAUSEWAY DETAILS
NOTES:

# Annexure III: Suggested Due Diligence Measures (to be Included in The Contracts)

| Stage of Contractual Process | Suggested Due Diligence |
|---|---|
| Before bidding | • Ensure that the terms of reference clearly define the supervision engineer's responsibilities regarding oversight of, and reporting on, labor influx and workers' camps.<br>• Ensure the team skills in the terms of reference clearly include key staff qualified and experienced in managing similar projects, and demonstrated capacity to manage social and environmental issues, including issues pertaining to community health and safety.<br>• Ensure that the project GRM is established and its use is widely publicized. |
| Preparation of bidding documents | • Review contract conditions included in bidding documents to: (i) Ensure that the relevant mitigation measures in the ESMP are reflected and budgeted in the contract, (ii) Ensure the ESMP forms part of, and is explicitly referred to in the bidding documents. (iii) Identify relevant provisions (workers, camps, child and forced labor, occupational health and safety, grievance redress, etc.) regulating the contractor's responsibility and identify any gaps, inconsistencies or areas of concern that could be addressed through additional provisions in the "particular conditions of contract" and/or technical specifications (iv) Include a requirement that all workers sign 'Codes of Conduct' governing behavior, and identifying sanctions (v) Clearly identify that training programs on implementing the Codes of Conduct, etc. will be undertaken by external providers<br>• Ensure the contract conditions and matrix of consequences clearly specify what type of penalty the contractor will face if the provisions of the ESMP and CESMP including OHS MP are not adhered to— including by subcontractors. This may include direct consequences to contractors in the form of penalties for poor performance on social and environmental matters or specific Performance Securities for ESMP and CESMP compliance.<br>• Ensure that bidding documents clearly indicate OHS standards that are going to be applicable to different aspects of the works<br>• Ensure bidding documents make clear the responsibilities of the contractor to prepare and adhere to a CESMP based on the ESMP and that no civil works will commence until the CESMP has been approved by the supervision engineer.<br>Ensure the bidding documents detail how the contractor and supervision engineer will be required to monitor and report on the impacts on the local community, issues related to labor influx and workers' camps.<br>• Propose Key Performance Indicators (KPIs) for Contract Management, reflecting issues and risks specific to the contract and<br>• the monitoring plan |

| | |
|---|---|
| Bidding evaluation | • Review the bid evaluation report and request to review the bids where appropriate, to verify for the recommended bidder that documents related to the ESMP, safeguard implementation capacity, and other obligations of the contractor required to be submitted with the bid are sufficiently detailed and cover the contractual requirements.<br>• Require the contractor's representative or dedicated community liaison staff to have the ability to communicate in the language of the Borrower and/or the local language.<br>• Verify that the contract management framework identifies clearly lines of communication and that these are formalized and a consistent record is provided.<br>• Ensure that the contractor meets the project's OHS requirements for capability and experience. |
| After contract signing | • Prior to commencing works, the contractor submits CESMP(s) based on the ESMP, which includes specific management plans for: (i) work activities; (ii) traffic management; (iii) occupational health and safety; (iv) environmental management; (v) social management; and (vi) labor influx.<br>• Supervision engineer reviews and approves the CESMP— with inputs from appropriate Government agencies—before any works start. For moderate risk sub-projects, the supervision consultants should review and clear the CESMP. Borrower should disclose the approved CESMP.<br>• Supervision Engineers must approve occupational health and safety management plan is approved before contractor is mobilized at site |

# Annexure IV: Written Particulars of Employment

1. Name of Employer
……
2. Name of Employee
……
3. Date Employment began
……
4. Wage and Method of Calculation
……
5. Interval at which wages are paid
……
6. Normal Hours of work
……
7. Short description of employee's work
……
8. Probation Period
……
9. Annual Holiday Entitlement
……
10. Paid Public Holiday
……
11. Payment during sickness
……
12. Maternity Leave (if employee female)
……
13. Nursing Break Entitlement (for female employee)
……
14. Notice employee entitled to receive
……
15. Notice employer required to give
……
16. Any other matter either party wishes to include
……

Notes:

(a) An employee is free to join a trade union or staff association, which is recognized by the undertaking. The address of the Trade Union or Staff Association is:

(b) The grievance procedure and disciplinary procedure in this undertaking requires to be followed when a grievance arises or disciplinary action needs to be taken.

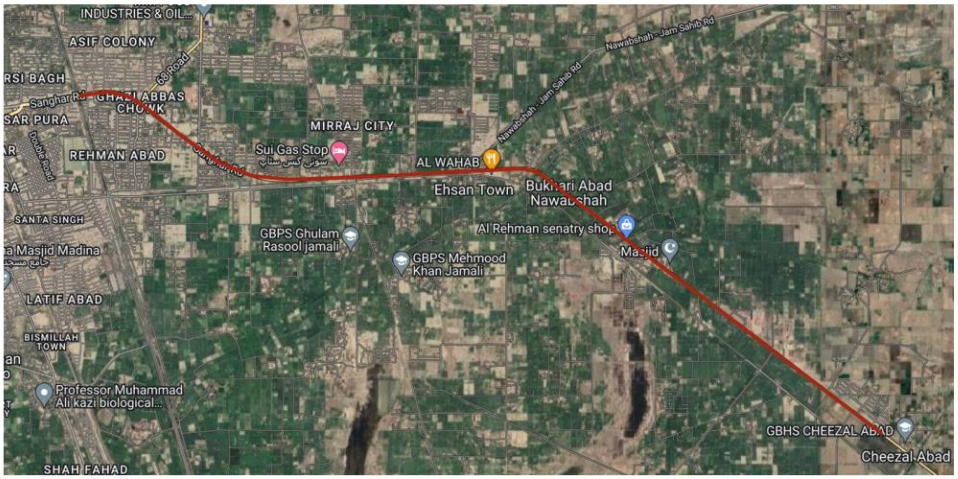
(c) When any heading is inapplicable, enter NIL.

……

| | |
|---|---|
| Employer's signature | Witness |
| …… | …… |
| Employee's signature | Witness |
| …….. | …… |
| Date | Date |

# Annexure V: Photolog

**Road 01 – Improvement / Rehabilitation of road from Nawabshah Jam Sahib road @ Bhutta Water Stop to connect Nawabshah – Sanghar via village Gul Muhammad Bhutto, Zanwar Umaid Ali Zardari**

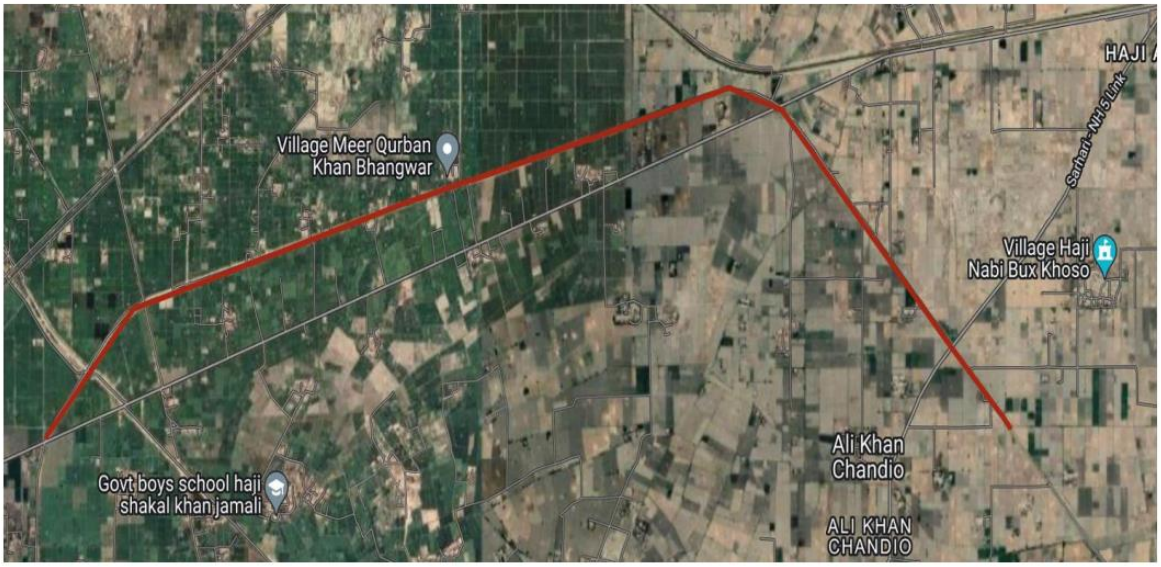








**Road 02 – Imrovement / Rehabilitation of road from Nawaz Dahri Gupchani road @ mile 5/2 to connect Gupchani Sahdadpur road**









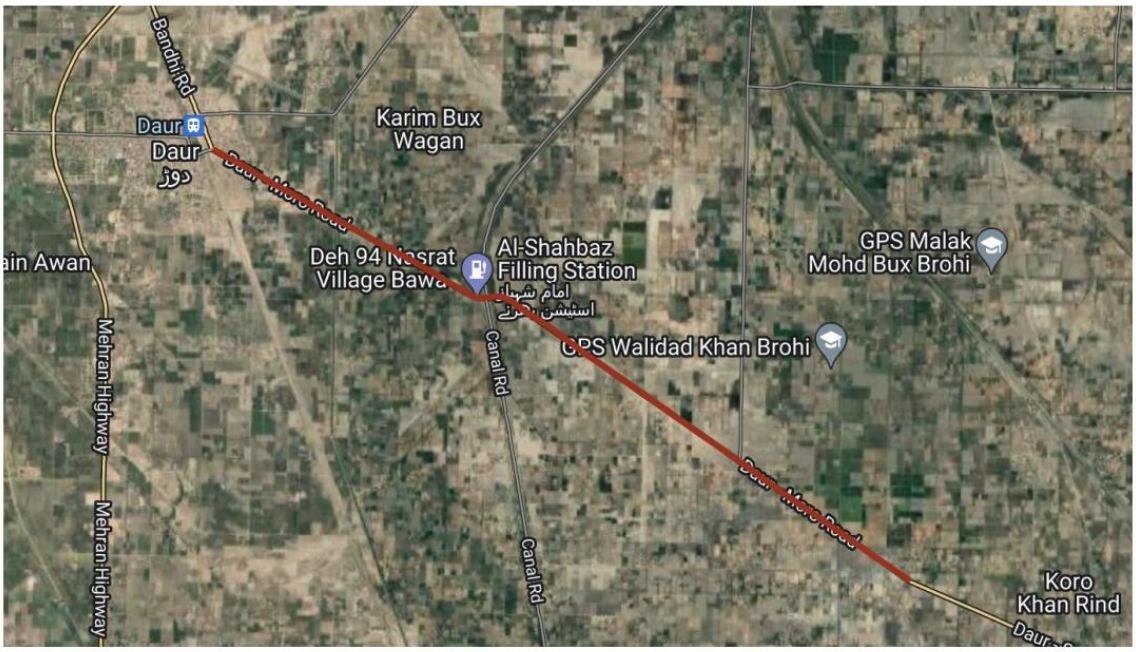
**Road 03 – Improvement / Rehabilitation of road from 60th mile desert area @ mile ½ road to connect village jamal din Chandio via Bullo Khan Jamali, Mehboob Ali Chandio, Darghah Qaim Din Shah, Village Malik Muhammad Bux Brohi road**







**Road 04 – Improvement / Rehabilitation of road from Daur Jamal Shah road to village Saeed khan Mashori via Dr. Azam Khan Zardari, Village Haji Riaz Hussain Zardari, Village Ashraf Chandio, village Meer Hassan Zardari, village Ahmed Bux Chandio, village Sain Bix Shahi Road**

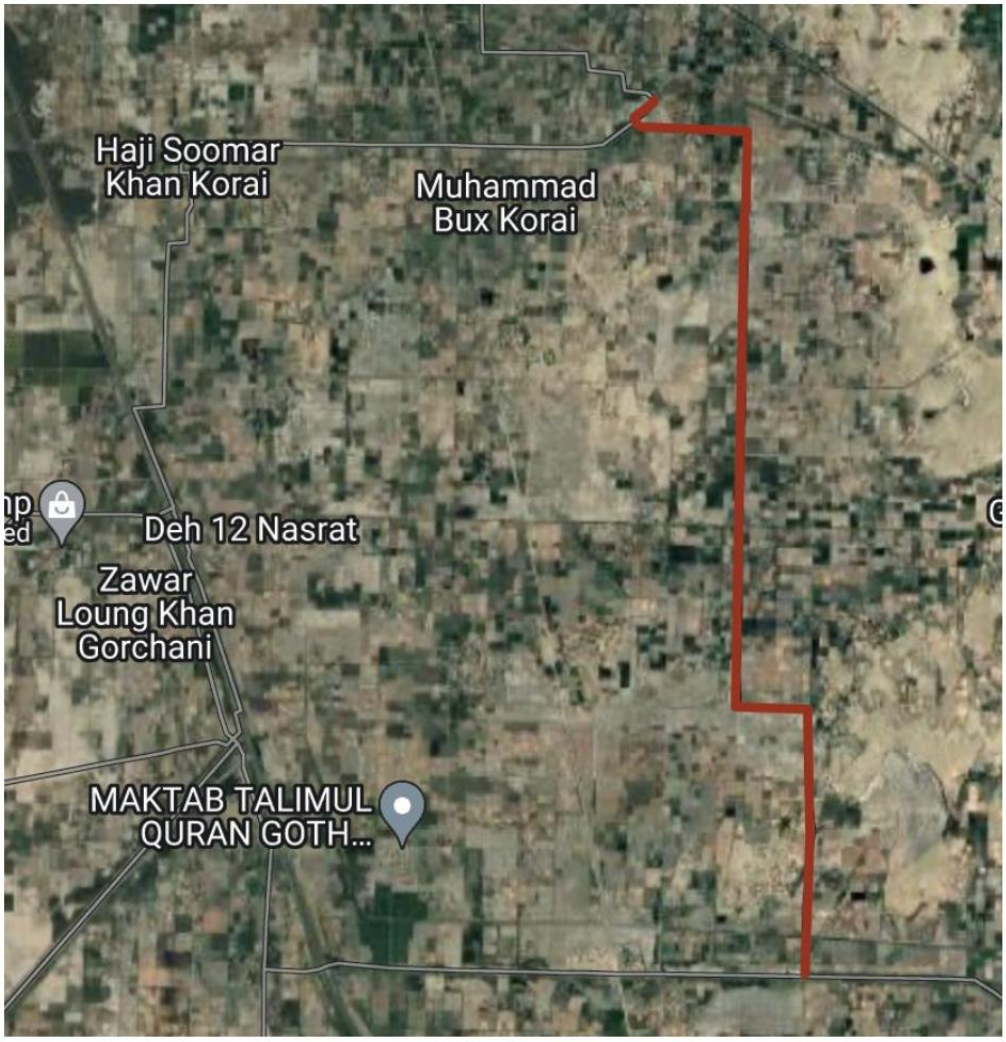








**Road 05 – Improvement / Rehabilitation of road from Sui Gas Head Quarter road to connect Rab Nawaz Mori, road**

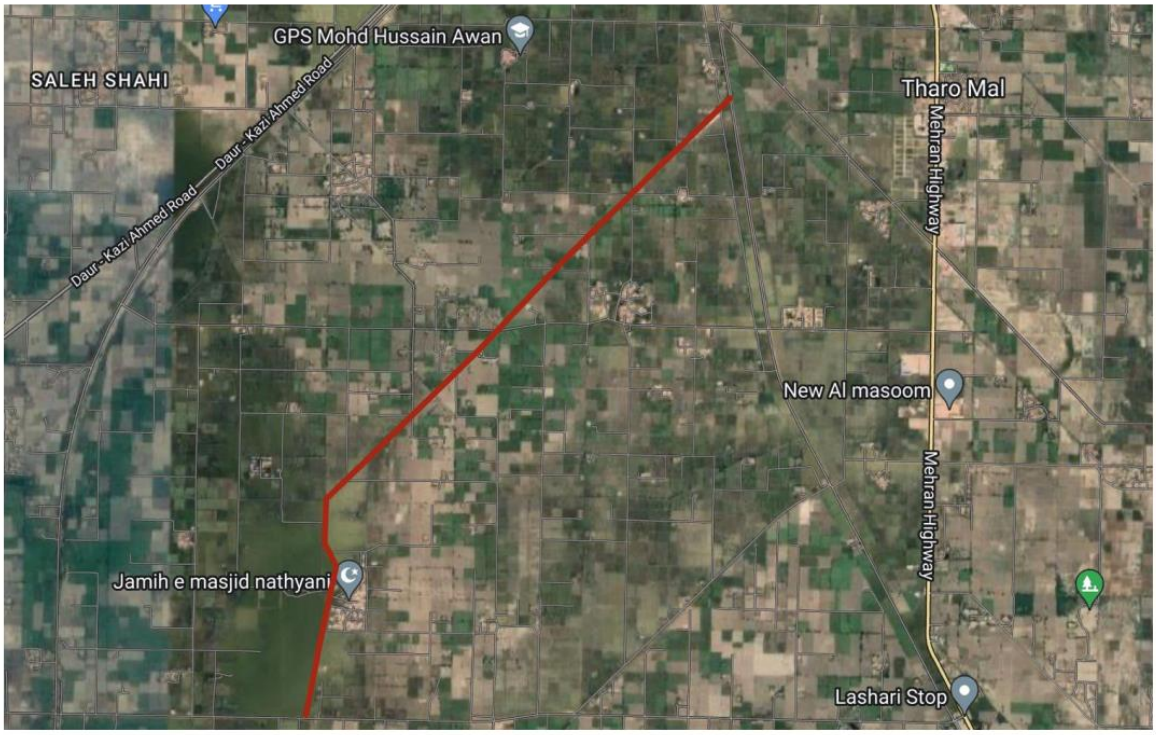








**Road 06 – Improvement / Rehabilitation of road from Lashari Stop road to connect Daur Jamal Shah road via Nathiyani road**









**Road 07 – Improvement / Rehabilitation of road from Trimore – Sijawal Minor to Durai Mahar road via Lal Bux Shahani Road**







# Annexure VI: Contractor's Environmental & Social Management Plan (C-ESMP)

## DRAFT-SAMPLE
## CONTRACTOR'S ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN (CESMP)
## FOR
**Rehabilitation of Rain/Flood Affected Roads**

| S. NO | DATE | PREPARED BY | CHECKED BY | APPROVED | REMARKS |
|---|---|---|---|---|---|
| **1.** | | The Contractor | CSC | PIU | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# ABBREVIATIONS / DEFINITIONS

| | |
|---|---|
| **CESMP** | Contractor's Environmental & Social Management Plan |
| **CFP** | Chance Finding Procedure |
| **CLO** | Community Liaison Officer |
| **E&P** | Equipment & Plant |
| **EIA** | Environment Impact Assessment |
| **EO** | Environmental officer |
| **EPA** | Environmental Protection Agency |
| **ESIA** | Environment Social Impact Assessment |
| **GRC** | Grievance Redress Community |
| **GRM** | Grievance Redress Mechanism |
| **HSE** | Health, Safety & Environment |
| **I/C** | In-charge |
| **IEE** | Initial Environment Examination |
| **MOU** | Memorandum of Understanding |
| **OHSO** | Occupational Health Safety officer |
| **PCIS** | Physical and Cultural Infrastructure |
| **PIC** | Project Implementation Consultants |
| **PM** | Project Manager |
| **PPE** | Personal Protective Equipment |
| **SDS** | Safety Data Sheet |
| **SM** | Site Manager |
| **WMP** | Waste Management Plan |

# 1 INTRODUCTION

This Contractor's Environmental & Social Management Plan (CESMP) is formulated for the Rehabilitation of Rain/Flood Affected Roads to control and minimize the environmental and social impacts of all construction related activities associated with the project at construction sites as well as at camp & batching plant sites.

This section explains the purpose of CESMP, the procedures and responsibilities associated with its implementation. It contains the general overview of the CESMP and details of measures, which have been included in the CESMP. The mitigation measures of each specific condition have also been addressed.

CESMP minimizes negative impacts of activities on local communities and natural environment. It also helps in reducing the induced impacts of construction activities; prevent pollution and ensure that construction activities are planned to ensure sustainable development without posing any risk to the environment.

## 1.1 Requirements of CESMP

Rehabilitation/restoration works are limited to the existing Right of Way (RoW) hence, the proposed project will have some medium-minor adverse environmental impacts that are reversible in nature and site-specific with short duration. Therefore, this sub-project falls under the moderate risk category of ESMF of the SFERP. The ESMP has been prepared at PIU level accordingly to meet the moderate risk level requirements.

This CESMP has been prepared by (The Contractor) E&S Staff in line with guidelines provided in ESMP document.

## 1.2 Aims and Objectives of CESMP

For the main stakeholders, namely the Employer, Project Implementation Unit (PIU), Construction Supervision Consultant (CSC) and the Contractor, this CESMP will provide a guide on; (i) what mitigation measures need to be taken; and (ii) when and where they are needed to be invoked. Thus, it will help in mitigating adverse impacts associated with the project execution, which ultimately results in maximizing project benefits.

Development and implementation of CESMP is the requirement for execution of different activities (such as construction of camp, Rehabilitation of Rain/Flood Affected Roads and allied works) to provide delivery mechanism for addressing associated socio-environmental impacts of the project.

Following is the synopsis of CESMP objectives.

- Identify the potential negative environmental impacts that can result from the construction activities and identify measures to control or avoid these impacts.
- Outline specific roles and responsibilities of project staff related to environmental management and mitigation measures.

- Take actions and conduct monitoring to show the compliance with Provincial, National, International requirements and ESS 2018.
- To ensure that the impacts on the environment are kept to a minimum by ensuring the mitigation measures described in the CESMP are implemented and continuously monitored.
- To plan, organize and implement all the measures required for health and safety of the workers.
- The CESMP will perform a risk assessment & hazard identification and will propose site-specific mitigation options that would appropriate and commensurate with the actual impact and implement all the measures required for health and safety of the workers.

### 1.3 CESMP Administration

Copies of this CESMP will be kept at the site office and will be distributed to all senior project officers i.e. Project Manager, Construction Managers, E&S Staff and site engineers etc. All senior officers will be required to understand and familiarize themselves with the contents of this document.

### 1.4 Institutional Arrangements for implementation of CESMP

#### 1.4.1 PIU (Project Director and its E&S Staff)

Overall responsibility for environmental and social management and monitoring will rest with the Project Director (PD). An Environmental & Social Staff (E&S Staff) has been deployed within the PIU, with direct reporting line to the PD to ensure compliance to ESMP/CESMP.

The responsibilities of PIU- E&S Staff will be, but not limited to the following.

- Ensure effective compliance of CESMP in line with ESMP.
- Provide technical assistance to the project team, in matters related to environmental and social safeguards as a whole.
- Put in place reporting mechanism and monitoring regimes for project staff as well as contractors.
- Provide technical input to the various training programs proposed as a part of the CESMP.
- Ensuring that all regulatory clearances from the Sindh-EPA are obtained before starting civil works for the Project.
- Conduct on site spot checks; to check the compliance level, as well as for any outstanding issue not being covered by the CESMP - Regularly report to PD as well as The World Bank on progress related to CESMP Compliance.
- Approve the CESMP prepared by the Contractor, reviewed by CSC and monitor the implementation.

**Table 1 PIU Staff for CESMP Monitoring**

| Sr. No | Name of Staff | Designation | Contact Number |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

### 1.4.2 Construction Supervision Consultants

- During implementation, the Construction Supervision Consultants will support PIU.
- The CSC is responsible for day-to-day supervision of the CESMP on behalf of the Employer during execution of the project civil works and will accordingly submit periodic reports to the PIU regarding the implementation status.

**Table 2 CSC Staff for CESMP Supervision**

| **Sr. No** | **Name of Staff** | **Designation** | **Contact Number** |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

### 1.4.3 The Contractor

- Contractor will be responsible for the implementation of the CESMP as well as maintaining responsibility for environmental protection liabilities. Contractor will also be responsible for training his crew in all aspects and implementation of the CESMP.
- Contractor has prepared CESMP, which includes the Contractor's plan to implement environmental management and monitoring requirements. The CESMP has been prepared in line with ESMP. The plan shall be reviewed by CSC and approved by the PIU. The Contractor will also be responsible for site restoration.

The key positions to be filled within the Contractor's staff for implementation of the EMP include:

**Table 3: Contractor Staff for CESMP Implementation**

| **Sr. No** | **Name of Staff** | **Designation** | **Contact Number** |
|---|---|---|---|

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

# 2 PROJECT DESCRIPTION

The proposed sub-project falls in the District ------. The proposed project is aimed at the rehabilitation of the ------ roads of the district (refer Table-4 for detailed description and Figures 1 for location reference), damaged by the flood with the objective to restore the road connectivity and restoration of livelihood resources of flood-affected communities.

**Table 4: Details of Roads for Rehabilitation at The District**

| S# No | Name of Road | Location / Taluka | Existing Width (ft) | Length (in Kms) | GPS Coordinates |
|---|---|---|---|---|---|
| **1** | | | | | |
| **2** | | | | | |
| **3** | | | | | |
| | | | | | |

## 2.1 Location of the Project

Pls Insert the RD wise Location Plan of the proposed subproject.

**Figure 1: Location Plan**

## 2.2 Contract Description

Table 2.1 below, describes the brief of contract.

**Table 5: Brief Contract Description**

| | |
|---|---|
| Project Name | Sindh Flood Emergency Rehabilitation Project (SFERP) P&DD component |
| Sub-Project Name | Rehabilitation of Rain/Flood Affected Roads, District -------- |
| Project Cost | |
| Project Duration | |
| Camp Location | |
| Client/Proponent | PIU - SFERP |
| The Engineer | |
| The Contractor | |
| Focal Person Name & Number | From PIU<br>From CSC<br>From Contractor |

# 3 DESCRIPTION OF CONSTRUCTION AREA AND BOUNDARIES

## 3.1 Project Boundaries

The proposed construction area lies around them ----------. As majority of construction activities will be undertaken within ROW, therefore, it has been taken as Construction Boundaries. In addition, the construction boundaries for temporary works like Contractor's Camp have been shown in Figure - 2 below.

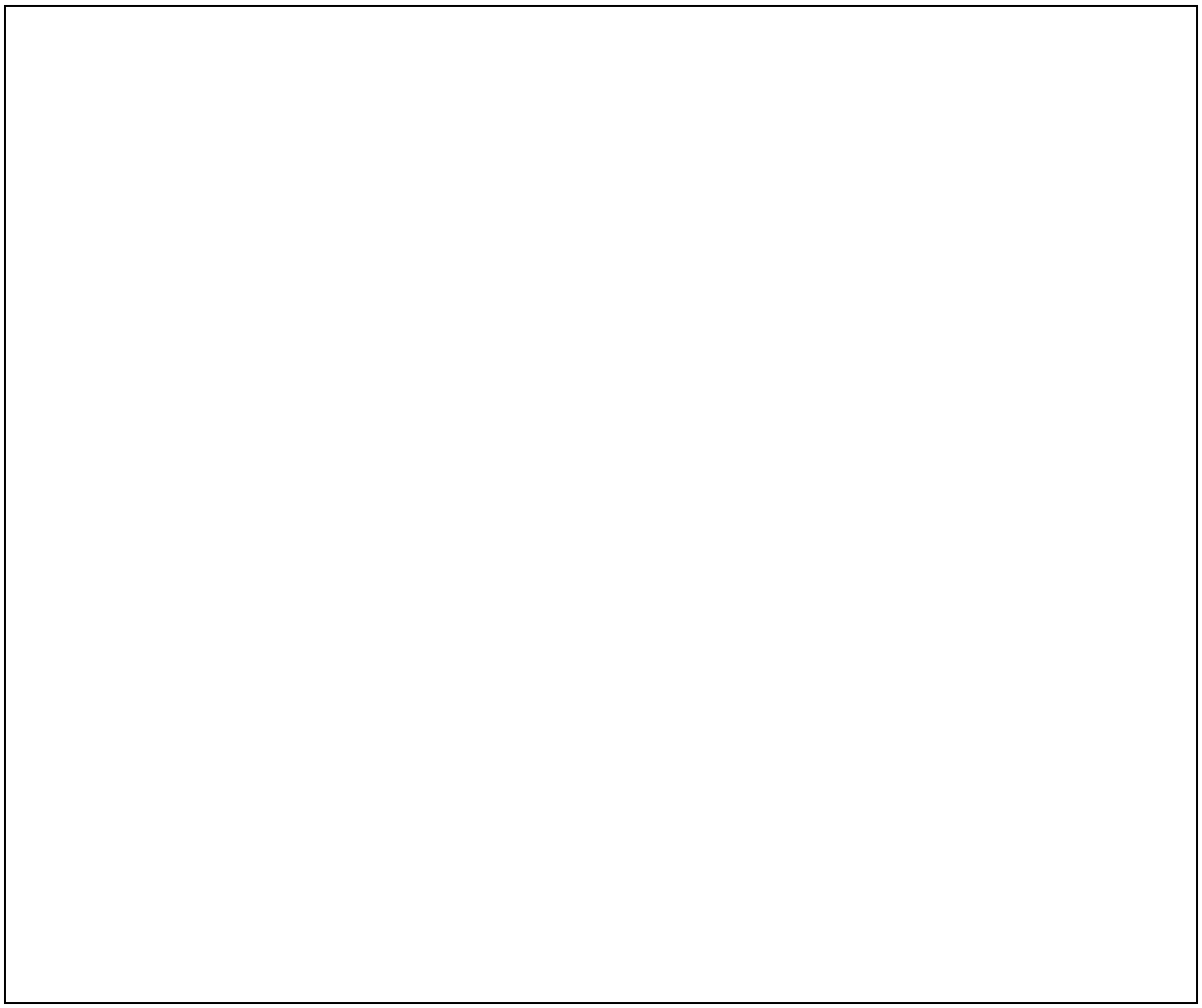


**Figure 2 Camp Location on Google Imagery**

## 3.2 Camp and Batching Plant

To minimize social impacts, campsite has been identified away from the community/settlements minimum 500 meter. Total area of the land leased for camp is ----- acres. Contractor's camp is temporarily built, will be restored to its original condition after completion of the project. Location of the campsite is shown in Figure 2 followed by layout plan of camp & batching plant in Figure - 3.

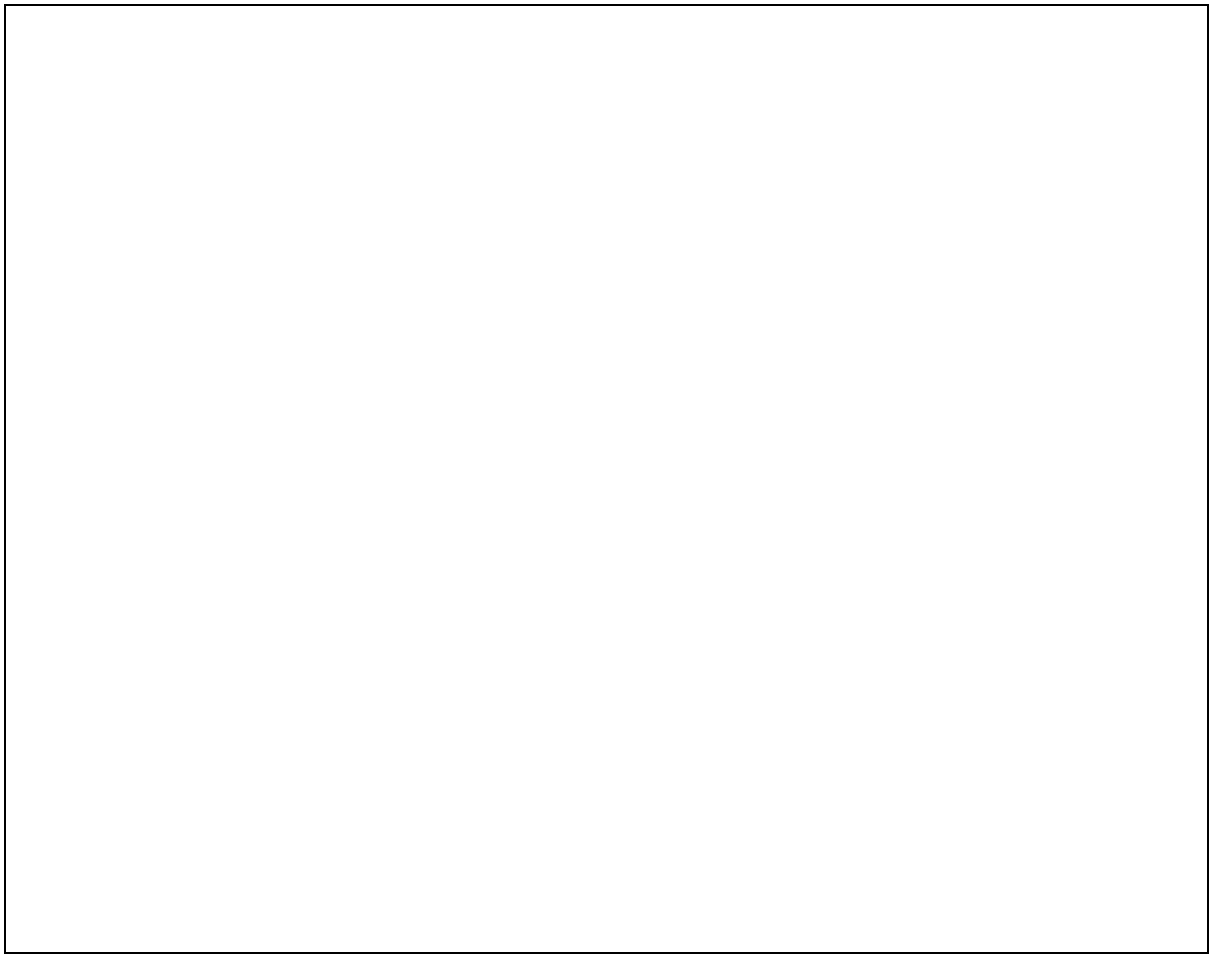
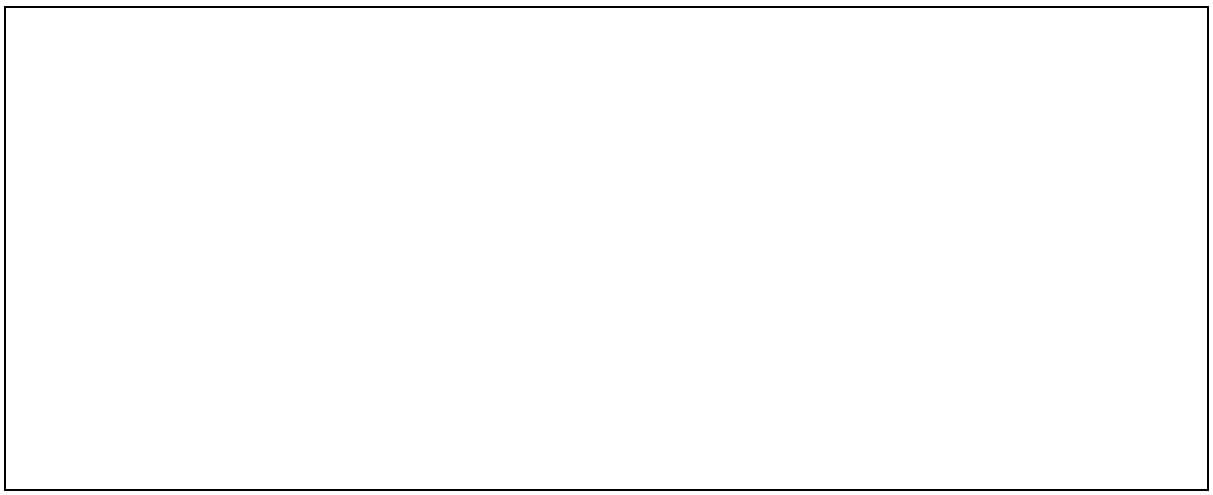


**Figure 3: Construction Camp Layout Plan**

### 3.3 Borrow Areas and Materials

For the construction activities, a borrow area has been selected for the extraction of materials which are already approved by the Engineer. The borrow areas is near -------- village -. Coordinates of the borrow areas are ----------. The area to be utilized as borrow area is --------- Acre as depicted in Figure -4:



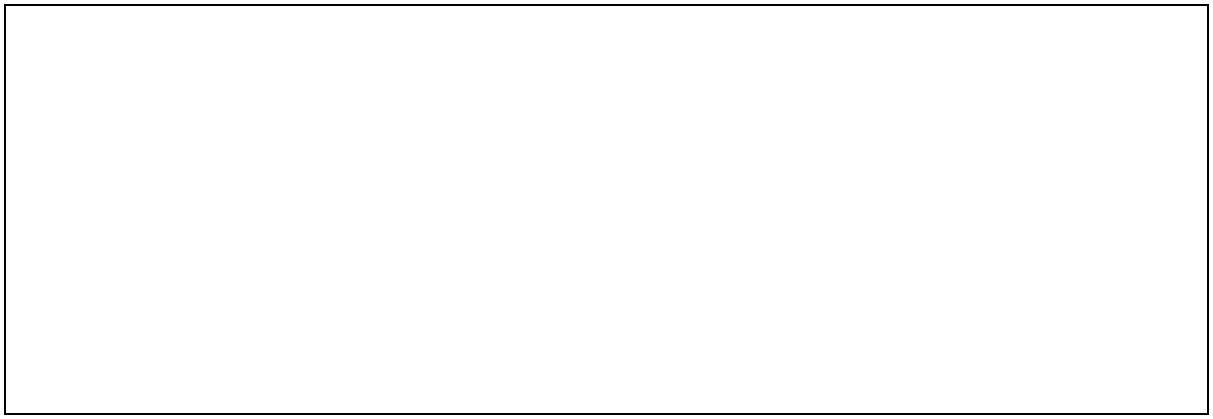


**Figure 4: Borrow Area**

# 4 RISK ASSESSMENT

Risk assessment and management techniques have been adopted so that potential hazards are identified and evaluated prior to execution of critical job or the job, which is going to be conducted first time. In the Risk Assessment Matrix, the environmental & social impacts and the control measures are explained with respect to the construction activities. Special attention needs to be paid during construction with adequate protection, to create friendly environment.

These potential risk activities can damage the community badly if not controlled. In order to prevent or mitigate any potential adverse impacts of the construction, it is necessary to implement the recommendations.

On the most common failures of environmental management is that the construction teams have no guidance as to what environmental management measures are required and so there is a high probability that environmental damage will occur. Once the damage has taken place it is often impossible to put right again, therefore the environmental management measures have failed right at the point when they are most needed. It also becomes difficult to retrofit the environmental management requirements after the construction activities have started. Proper planning is therefore essential

## 4.1 Risk Assessment and Management

Risk assessment and management are used interchangeably to describe a sequence of analysis and management activities focused on creating a project-specific response to the inherent risks of developing a new capital facility. The objectives of Risk Assessment for the construction phase CESMP is described in Table –.6 below:

**Table 6: Risk Assessment Objectives and Expected Outcomes**

| Objectives for Risk Assessment | Expected Outcomes |
|---|---|
| • Identify major design and construction risks | • Better understanding of environmental engineering, and construction issues faced by each project |
| • Identification, quantification, and likelihood of major scope, budget and schedule risks for all major project components | • List of major project risks<br>• Reasonable estimate of risk costs and probable total project costs and duration<br>• Long list of risks mitigation strategies<br>• Preliminary risk management plan focused on design and constructability risks<br>• Preliminary risk allocation planning |
| • Targeted assessment of construction problems, causes, and potential cost/schedule impacts<br>• Identification and systematic evaluation of possible corrective actions | • Analysis of specific problems<br>• Costs/Benefits of possible corrective actions that will allow project sponsors/owners to maintain (or recover) schedule and avoid cost overruns |

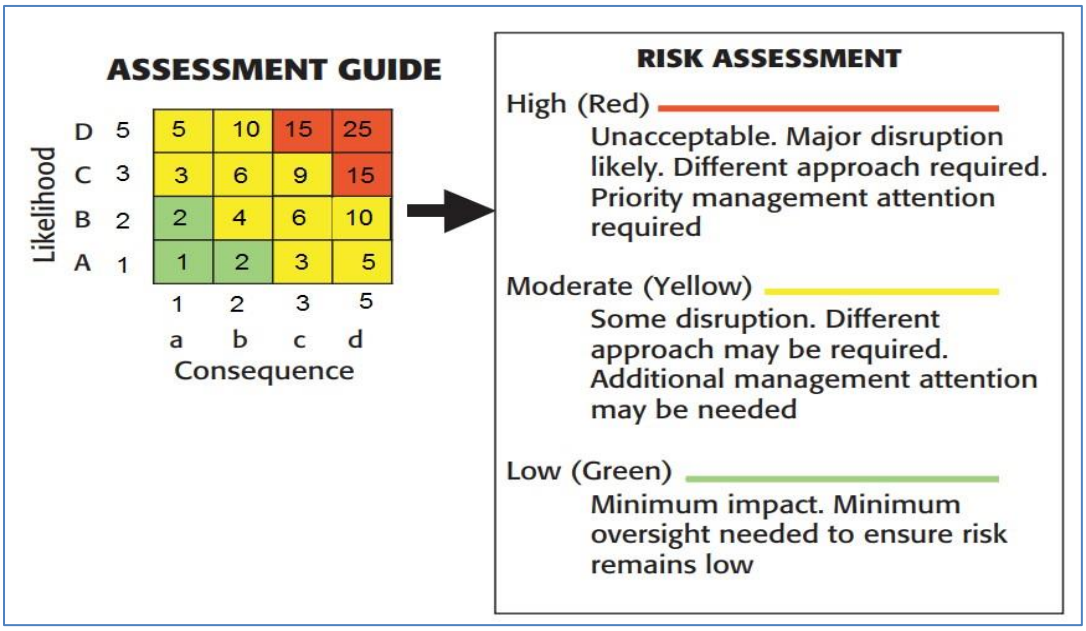
## 4.2 Risk Identification

The risk identification process identifies and categorizes risks that could affect the project. The objective of risk identification is the early and continuous identification of events that, if they occur, will have negative impacts on the project ability to achieve performance or capability outcome goals. The tools and techniques outlined in this chapter will support the risk identification process, but it will be the people involved in the exercises who are most critical to the success of the process.

## 4.3 Risk Assessment Process

Risk is assessed as the likelihood that the activity will have an effect on the environment as well as the consequence of the effect occurring, as described below.

**Risk = Likelihood X Consequence**




**Risk**

**Assessment Model**

## 4.4 Response Options

Risk identification, assessment, and analysis exercises form the basis for sound risk response options. A series of risk response actions to avoid or mitigate the identified risks is considered as follows. The likelihood scale and consequence scale is described in Table - 7 and 8 respectively.

**Table 7: Likelihood Scale**

| S/No | Likelihood | Definition | Score |
|---|---|---|---|
| A | Certain | Will certainly occur during the activity at a frequency greater than every week if preventative measures are not applied | 5 |
| B | Likely | Will occur more than once or twice during the activity but less than weekly if preventative measures are not applied | 3 |

| | | | |
|---|---|---|---|
| C | Unlikely | May occur once or twice during the activity if preventative measures are not applied | 2 |
| D | Rare | Unlikely to occur during the project. | 1 |

**Table 8: Consequence Scale**

| S/No | Consequence | Definition | Score |
|---|---|---|---|
| A | Catastrophic | Unprecedented damage or impacts | 5 |
| B | Major | Major adverse damage | 3 |
| C | Moderate | Limited adverse impacts | 2 |
| D | Minor | No or minimal adverse environmental or social impacts | 1 |

- Avoided (by taking appropriate steps).
- Reduced (by an alternative approach).
- Handled by a combination of the above.

All the assessed risks are handled by providing mitigation, management or both. Special consideration and specific management sub plans are formulated for moderate and major risks. The consideration of issues in risk assessment matrix is carried out with respect to construction activities. The risk assessment process is undertaken with a risk assessment matrix and is provided in Table - 9 below (the table will be customized as per the sites conditions). The list of construction activities involved in the project is given in Table - 11.

**Table 9: Risk Assessment Matrix**

| Construction Activity | Issues to Consider | Likelihood (Score) | Consequences (Score) | Risk: Likelihood x Consequences | Mitigation Measures |
|---|---|---|---|---|---|
| **Site Surveying, Clearing and Grubbing** | Damage to vegetation beyond project footprint | | | | • |
| | Loss of topsoil and erosion of exposed area | | | | • |
| | Deterioration of air quality due to machinery and equipment operation. | | | | • |
| | Noise | | | | • |
| **Establishment of Camp, Batching plant etc.** | Loss of vegetation | | | | • |
| | Water pollution | | | | • |
| | Noise | | | | • |
| | Traffic congestion and access for road side residents | | | | • |
| | Soil contamination due to chemical spill. | | | | • |
| | Land degradation due to Solid Waste Disposal of campsite. | | | | • |
| | Deterioration of air quality due to machinery and equipment operations. | | | | • |
| | Health and Safety issues inside the Camp | | | | • |

| Construction Activity | Issues to Consider | Likelihood (Score) | Consequences (Score) | Risk: Likelihood x Consequences | Mitigation Measures |
|---|---|---|---|---|---|
| **Dismantling of Roads and Existing Structures** | Noise | | | | • |
| | Deterioration of air quality due to machinery and equipment operation. | | | | • |
| | Community safety | | | | • |
| | Worker safety | | | | • |
| | Traffic congestion and access for roadside residents | | | | • |
| | Waste management and disposal | | | | • |
| | Deterioration of air quality due to machinery and equipment's operation. | | | | • |
| | Traffic congestion | | | | • |
| | Water contamination | | | | • |
| | Soil erosion and sediment control | | | | • |
| | Workers safety | | | | • |
| | Public safety | | | | • |
| **Earth Work** | Noise and vibration | | | | • |
| | Soil erosion | | | | • |
| | Surface water contamination | | | | • |
| | Dust generation | | | | • |
| | Deterioration of air quality due to machinery and equipment's operation. | | | | • |
| | Worker safety | | | | • |
| | Traffic congestion | | | | • |
| | Community safety | | | | • |
| **Construction of Structure** | Noise and vibration | | | | • |
| | Deterioration of air quality | | | | • |
| | Worker safety | | | | • |
| | Traffic congestion | | | | • |
| | Dust generation | | | | • |
| | Deterioration of air quality. | | | | • |
| | Traffic congestion | | | | • |
| | Community safety | | | | • |
| | Worker safety | | | | • |
| **Concrete Activity** | Noise | | | | • |
| | Air quality deterioration | | | | • |
| | Worker safety | | | | • |
| | Community safety | | | | • |
| | Traffic congestion | | | | • |
| **Removal of Temporary Works from Site** | Dust generation | | | | • |
| | Water contamination | | | | • |
| | Soil erosion | | | | • |
| | Community safety | | | | • |

| Construction Activity | Issues to Consider | Likelihood (Score) | Consequences (Score) | Risk: Likelihood x Consequences | Mitigation Measures |
|---|---|---|---|---|---|
| | Worker safety | | | | • |

The specific mitigation measures for the risks assessed in Table - 9 above, have been superimposed on the project layout as shown in Figure - 5 below, followed by details of the mitigation measures in Table - 10.

Figure - 5 and Table - 10 (both on A-3 size pages) below will be made part and parcel of the construction drawings and shall be available with the Engineer and Contractor at Site. In circumstances, where any unforeseen risk emerges during the currency of the contract, same shall be reflected with the proposed mitigation measures by updating the foregoing and shall be issued with the prior approval of the Employer.

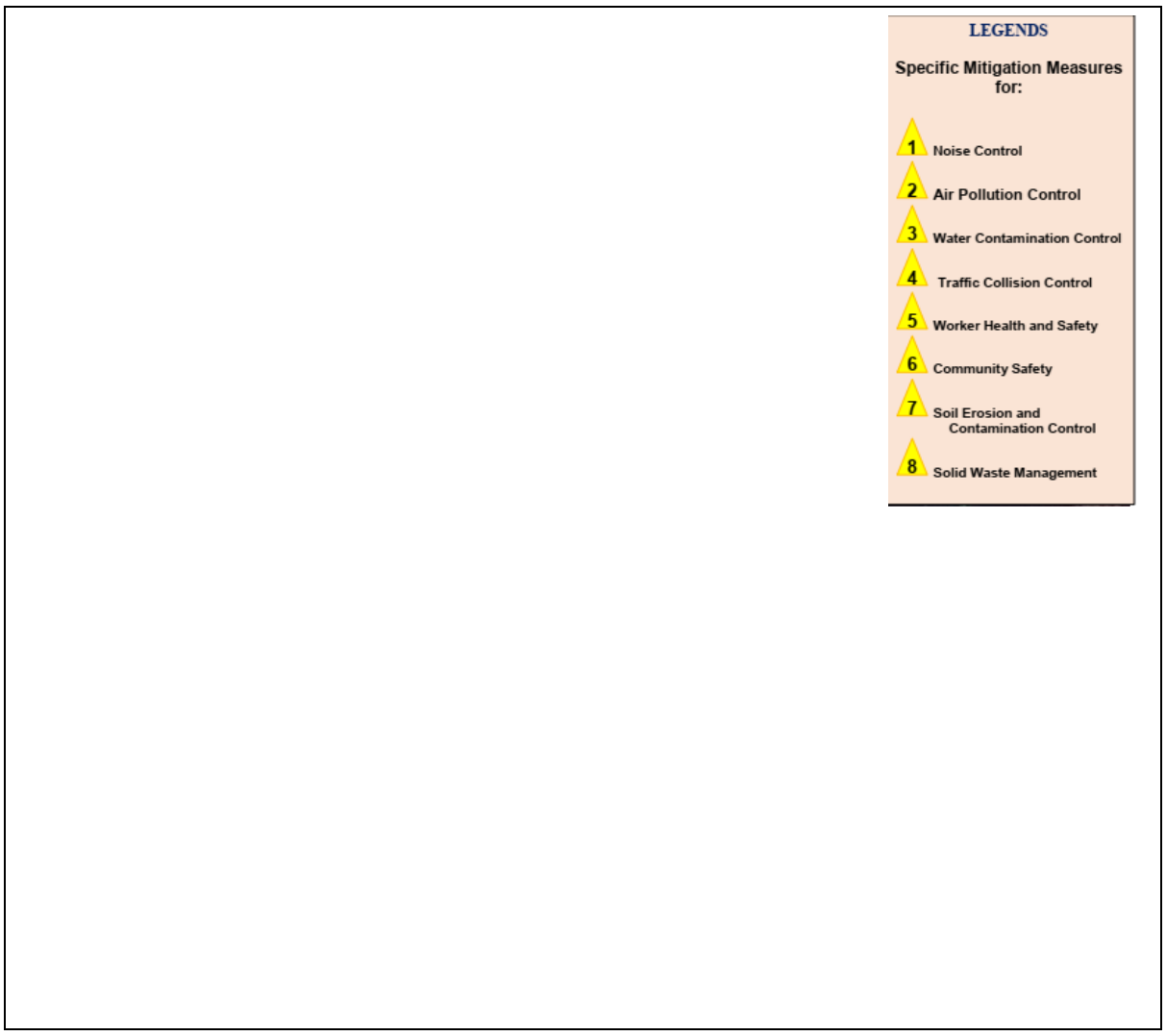



**Figure 5: Layout Showing Application of Mitigation Measures**

**Table 10: List of Issues and Mitigation Measures**

| Legends | Issues | Specific Mitigation Measures | Legends | Issues | Specific Mitigation Measures |
|---|---|---|---|---|---|
|  | **Noise Pollution** | • Avoid Night operation<br>• Inform community for unavoidable night work.<br>• Use vehicles equipped with exhaust muffler (Silencers)<br>• Inform community regarding noise generation.<br>• Provision of PPE and ensure their usage<br>• Acoustic guards and doors kept in place and usage of serviced equipment<br>• Switch off vehicles engines, while queuing<br>• Consult public with nearby schools and hospitals.<br>• Installation of temporary acoustic noise barriers |  | **Worker Health and Safety** | • Provision of safety vests, hard hats and protective footwear for workers.<br>• Usage of protective mask by machine operators.<br>• All time use of high-visibility jackets by project staff at site.<br>• Proper lighting arrangement at site particularly in case of night work.<br>• Installation of protecting fencing around the camp.<br>• Provision of fire extinguishers, sand buckets etc. near fueling facility(y)s.<br>• Isolated fuel storage area and prohibition of unauthorized entry.<br>• Toolbox talk at the start of activities.<br>• Firefighting training to the camp staff.<br>• Provision of First Aid facilities at camp and Site<br>• Provision of ambulance and dispensary at Camp.<br>• Provision of hygienic food and drinking water.<br>• Follow safety precautions while transporting, handling and storage of hazardous substance.<br>• Insulation of electrical wires, switchboards and electric equipment at camp and at site where required.<br>• Handling of used oil and chemical waste in accordance with MSDS.<br>• Provision of spill kits and spill catching trays to the mechanical workshop crew |
|  | **Air Pollution** | • Use of serviced vehicles as per manufacturer's requirements.<br>• Regular sprinkling of water on compacted access road. |  | **Community Safety** | • Isolation of work area through installation of demarcation tap.<br>• Prevention of unauthorized entry. |

| Legends | Issues | Specific Mitigation Measures | Legends | Issues | Specific Mitigation Measures |
|---|---|---|---|---|---|
| | | • Removal of excess material upon job completion.<br>• Observance of speed limit (30km/hr.) on katcha track/haulage routes/local roads.<br>• Ensured usage of PPE i.e. face mask etc. | | | • Installation of temporary hard barriers and warning sign boards etc. at work site entry.<br>• No machinery will be left unattended, particularly in running condition.<br>• Public consultation with the nearby community.<br>• Provision of night time light at work area particularly at excavated sites. |
|  | **Water Pollution** | • Avoid pollution of surface water.<br>• Disposal of unsuitable materials to approved disposal sites.<br>• Avoid disposal of materials in flood drains.<br>• Locating storage area away from watercourses drains and transport routes.<br>• Fuel storage areas having masonry and concreate secondary containment with 120% capacity of fuel stored.<br>• Daily check of fuel tanks and immediate plugging of leaks<br>• Using only designated storage areas.<br>• Proper drainages for effluent discharge into the septic tanks.<br>• Septic tanks are well lined.<br>• Provision of soakage pit for final disposal.<br>• Provision of drain for drainage of storm water from camp<br>• Runoff from refueling and wash down areas collected for treatment. |  | **Soil Erosion and Contamination** | • Ensure canal stability of vulnerable cut and fill sections.<br>• No soil will be left unconsolidated after completion of work<br>• Placement of chemicals, engine used oil etc. on the brick paved surface.<br>• Good housekeeping practices at camp and workshop areas.<br>• Handling of used oil and chemical waste in accordance with MSDS.<br>• Provision of spill kits and spill catching trays to the mechanical workshop crew |
|  | **Traffic Collision** | • Avoid traffic hampering at local/major roads.<br>• Depute Flagman<br>• Installation of proper warning signboards.<br>• Near diversion point, public consultation for road diversion |  | **Solid Waste Management** | • Provision of garbage bins for domestic waste collection within camp.<br>• Avoidance of camp waste disposal near residential areas or in agriculture fields.<br>• Lining of disposal area base in case of permeable strata.<br>• Upon usage, rehabilitation of disposal area to |

| Legends | Issues | Specific Mitigation Measures | Legends | Issues | Specific Mitigation Measures |
|---|---|---|---|---|---|
| | | • Securing proper NOC for diversion (if required)<br>• Provision of compacted diversion road | | | the baseline conditions.<br>• Locate disposal area at least 100 meter away from the settlements.<br>• Promotion of good housekeeping inside camp.<br>• Ensure construction waste disposal at approved site |

**Table 11: List of Major Construction Activities**

| S/No | Construction Activities Involved | Proposed Manpower | Equipment Needed | Proposed Schedule of activities |
|---|---|---|---|---|
| 1 | Site Surveying & clearance | Site Engineer, Supervisor, Surveyor, Helper, Labour and Operators | Grader, Excavator, Total station, and level machines | |
| 2 | Establishment of camp, batching plant, etc. | Site Engineer, Supervisor, Surveyor, Mason, Labour, Operators, Driver, and Helper | Crane, Excavator, Loader and Tractor trolley, Concrete mixer Machine | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | Removal of temporary works from the site | | | |

## 4.5 Sensitive Receptors Assessment

### 4.5.1 Sensitive Receptor Analysis

Sensitive receptors are generally considered to include those, where noise/dust exposure could result in health-related risks to individuals, as well as places where individuals expect silence to be an essential element of the location. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise and potential sleep disruptions. Additional areas, such as parks, historic sites, cemeteries, and recreation areas, are also considered sensitive to exterior noise. Schools, mosques and other places of worship, hotels, libraries, nursing homes, and other

places where low interior noise levels are essential are also considered as sensitive receptors. The majority of sensitive receptors in the study area are residential dwellings, etc.

In order to identify potentially sensitive community structures, a survey of the Project impact area was undertaken. The indirect impacts on Socially sensitive receptors have been evaluated at 200 meters/650 ft buffer zone of the proposed roads (100 meters/328 ft on each side from the center line). These were identified through direct observation and by interviewing those living within the sub-project area. Most of the structures were located near towns and settlements in rural areas. Details of Socially Sensitive Receptors along the Proposed Roads have been enumerated in tabular form in Table – 12 same has been depicted in Figure – 6.

**Table 12: Inventor for Sensitive receptor along the subproject area.**

| Sr. No | Socially sensitive receptors | Village Name | RD | Off set | Spatial Reference |
|---|---|---|---|---|---|
| | | | | | |
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**Figure 6: Photo log of Sensitive Receptors**

### 4.5.2 Impact on Sensitive Receptors Short-Term Construction Related Activities

The proposed subproject would result in intermittent construction activities near the sensitive receptors. These construction activities could potentially expose sensitive receptors to noise levels in excess of the applicable noise standards or result in a noticeable increase in ambient noise levels, or both. Impacts of construction equipment, noise, dust and construction-related traffic on exposure of sensitive receptors to temporary and short-term construction related activities are discussed below.

### 4.5.3 Impact of Construction Equipment

Construction noise levels in the study area would fluctuate, depending on the particular types of equipment, the number of equipment used and the time duration of equipment use. The effects of construction noise depend largely on the type of construction activities. Construction generally occurs in several discrete stages, each phase requiring a specific balance of equipment with varying equipment type, quantity, and intensity.

Construction equipment includes bulldozers; loaders; excavation equipment, such as graders and scrapers; and compaction equipment. Erection of large structural elements and mechanical system could require the use of a crane for placement and assembly tasks, which may also generate high noise levels.

To assess noise levels associated with the various equipment types and operations, construction equipment can be considered to operate in two modes: mobile and stationary. Mobile equipment, such as loaders, graders, and dozers, moves around a construction site, performing tasks in a recurring manner. Stationary equipment is used to perform continuous or periodic operations in each location for an extended period, such as a batching plant, pile driver etc. Thus, determining the effective acoustical center of operations for mobile equipment during the construction process or the location of stationary sources during specific activities is necessary when conducting a noise analysis. Operation of heavy construction equipment typically is characterized by short periods of full-power operation, then by extended periods of operation at lower power, idling, or powered-off conditions.

### 4.5.4 Mitigation- Measures for Noise-Reducing

Contractor will implement the following measures during construction activities when noise-sensitive receptors are located nearby.

- It will be ensured that the regular inspection, maintenance, lubrication of construction vehicles and equipment will be carried out.
- Equipment will be operated, stored, and/or maintained as far away as practical from sensitive noise receptors.
- Construction equipment will be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools will be shrouded or shielded, and all intake and exhaust ports on power equipment will be muffled or shielded.
- Substitution of high noise generating equipment with low noise generating equipment is necessary in the vicinity of sensitive receptor.
- Construction equipment operating in the vicinity of sensitive noise receptors will not be left idling for extended periods between construction activities.
- To the greatest extent feasible, construction activities will limit the use of "alarms" (e.g., backup indicators) on construction equipment in the vicinity of sensitive noise receptors.
- Construction equipment will be inspected before use at a project site located near sensitive noise receptors.
- To the extent feasible, construction outside of normal construction hours will be minimized or avoided completely when located in the vicinity of sensitive noise receptors.

- Where stationary construction equipment would result in exceedance of noise standards at a nearby sensitive receptor, temporary acoustic noise barriers or fence will be installed, where feasible, between the stationary construction operation and the sensitive receptor. Noise barriers will be 2.5m high corrugated sheets or wooden boards/sheets to avoid dispersion of noise into nearby community.
- As far as possible, nighttime traffic would be avoided. Local community will be well informed beforehand in case of night traffic is unavoidable.
- Vehicles equipped with exhaust muffler (Silencers) will be used for construction activities.

### 4.5.5 Impact of Ground borne Dust

Heavy-duty truck travel on haul routes for material transport and the use of heavy-duty equipment would cause ground borne dust during construction.

### 4.5.6 Mitigation Measures for Dust

Following are the mitigation measures for dust prevention.

- Implement a dust prevention strategy; reduction in speed limits 20km/hr. on unpaved access roads, regular water sprinkling, covered transportation of materials, access roads to be adequately compacted and regularly sprinkled to prevent dust generation, construction traffic limited to work area and established tracks.
- Take dust suppression measures, such as promptly watering exposed areas when visible dust is observed.

### 4.5.7 Impact of Operational Noise

- Some activities could result in long-term noise from operation of stationary sources (e.g., water pumps). Depending on the location of management actions and the equipment needed for long-term operation, a new source of noise could be introduced near sensitive receptors.

### 4.5.8 Mitigation-to Reduce Operational Noise

The project proponent will implement the following measures during operation.

- Stationary noise sources will be located as far away from sensitive receptors as feasible.
- Design techniques to reduce noise (e.g., structure encasing, installation below grade) will be implemented for stationary noise sources (e.g., water pumps) in the vicinity of sensitive receptors. If noise modeling indicates that noise reduction techniques are sufficient to allow the stationary noise source to be located closer to sensitive noise receptors and still not violate applicable noise standards, then the facility may be located closer to the receptor.

### 4.5.9 Impact of Air Contamination and Smoke

- There may be risk of air pollution and smoke from construction equipment near sensitive receptors.

### 4.5.10 Mitigation Measures for Smoke

- To ensure there is no health risk or loss of amenity due to emission of exhaust gases to the environment, following measures are required.
- Ensure that all vehicles and machinery are fitted with appropriate emission control equipment, maintained frequently and serviced to the manufacturers' specifications.
- Smoke from internal combustion engines should not be visible for more than ten seconds.

### 4.5.11 Impact of Traffic

- Bad traffic management and traffic may increase chance of traffic accidents near sensitive receptors.

### 4.5.12 Mitigation for Construction Traffic

- A proper traffic management plan will be in place during construction activities to overcome the problem of traffic jams causing inconvenience near sensitive receptors. In the project corridor, the impacts are temporary and minor negative in nature and will be mitigated by implementing proper alternative traffic management plan. The measures include the following:
- Traffic management plan will be prepared and get approval from the Engineer in consultation with community and local stakeholders.
- proper traffic management with marking will be done on the road crossings near proposed interchanges
- Speed limit will be reduced near sensitive receptors and speed limit boards will be installed near all sensitive receptors including, mosques etc.
- Alternative routes will be clearly defined.

# 5 CONSTRUCTION CAMP MANAGEMENT PLAN

The project Manager will ensure that all construction camps and welfare facilities shall be designed, constructed and maintained in accordance with the company set procedures. The following shall be ensured:

- General Arrangements for Camp Construction
- Construction camp hygiene
- Kitchen Areas/Food Storage & Quality
- Personal Hygiene
- Toilet Sanitary Facility and Laundry
- Temporary Electrical Facility, Internet accessibility and Installations
- Firefighting/Emergency Response System
- Insecticides/Mosquito Control
- Sewage Handling
- Evacuation Routes and Emergency Exits
- Medical Facilities
- Assembly points.
- Site office.
- Parking area

## 5.1 Drinking Water Supply

Access to a free, safe, readily available potable water source shall be provided at all times. Drinking water quality shall meet WHO standards & Sindh Environmental Quality Standards. Prior to use, the contractor shall arrange for tests on samples of each drinking water source from a SEPA certified laboratory approved by the Supervision consultant on a monthly basis. The results of these tests shall be submitted to the Supervision Consultant. Each supply of drinking water shall be conspicuously marked by an appropriate sign. All water storage tanks shall be covered to avoid the risk of contamination.

## 5.2 Room / Dormitory Facilities

Floors to rooms/dormitories shall be constructed, float finished concrete, or other similar solid, washable material. Rooms/dormitories shall be maintained to a livable standard and cleaned daily.

A minimum spacing of 1m (3.3ft) shall be provided between beds /cots and one bed/ cots should be provided per resident. The use of bunk beds shall be avoided. Each worker shall be provided with an appropriate mattress, pillow, cover, clean bedding and mosquito net. Bed linen shall be washed regularly and treated with repellents as necessary. Cupboards for residents shall be provided for personal storage, with separate storage being provided

for any clothing or Personal Protective Equipment required for staff to carry out the work assigned to them.

### 5.3 Sanitary Facilities

The contractor shall provide and maintain hygienic, well-lit and ventilated sanitary facilities. Sanitary facilities shall be provided within separate buildings in the vicinity of rooms/dormitories. Separate latrines and washing facilities shall be provided for males and females (if females working on site) with total isolation by wall or by location. A minimum of one hand wash facility, one latrine and one shower shall be provided for every ten persons'/10 Rule will be followed properly.

Latrines (Toilets) shall be clearly distinguished in a language understood by those using them to avoid miscommunication.

Washing facilities, including showers, shall be provided at readily available places within the immediate vicinity of every latrine. Washing facilities shall include a supply of clean running water, soap and clean towel.

All sanitary facilities shall be built from easily cleanable material and shall be cleaned daily. Sanitary facilities shall be built so as to provide adequate privacy. All doors shall be lockable.

### 5.4 Canteen, Cooking and Laundry Facilities

Canteen, cooking and laundry facilities shall be built from easily cleanable materials and kept in a clean and sanitary condition. All such facilities shall be cleaned daily. Adequate facilities for washing and drying clothes shall be provided.

Kitchens and other areas used for food preparation shall promote good food hygiene and protect against contamination. Kitchens shall include raised, smooth, easily cleanable, non-toxic and non-corrosive surfaces for food preparation. Wood burning will not be taken during cooking. Cooking and other activities will be done by gas provision through gas cylinder

Adequate facilities for cleaning, disinfecting and storage of kitchen utensils shall be provided throughout the Contract period. Kitchens shall provide facilities to promote good personal hygiene, such as adequate hand wash and hand drying facilities. Food waste and other refuse shall be adequately deposited in sealed containers and regularly removed from the kitchen.

Kitchens shall be sheltered and separated from living quarters. The contractor shall provide sufficient fuel for cooking inside camps, to prevent the collection of firewood.

### 5.5 Standards for Nutrition and Food Safety

The WHO safer food process shall be implemented. Food shall be made available to workers and shall contain an appropriate level of nutritional value and consider religious/cultural backgrounds.

### 5.6 Leisure, Social and Telecommunications Facilities

Basic collective social/rest/recreational spaces shall be provided. Workers shall be provided with dedicated spaces for religious observance if so warranted.

### 5.7 Parking Area

Sufficient parking area for material/equipment vehicles, and light vehicles shall be ensured

## 5.8 Types of Safety & Security Events

The variety of safety and security events, impacts, locations, levels of severity, and combinations with other elements or other emergencies makes it impossible to define and plan for every scenario however, general types of events can be identified that may be faced by the Contractors, whether natural (e.g., flooding), accidental (e.g., fall), intentional (e.g., theft), or technological (e.g., communications failure). Contractor's Plan must adequately address reasonable possibilities. Listed below are safety and security events and emergencies for which Contractor will be prepared to respond.

- Natural events such as extreme temperatures
- Structural collapse or imminent collapse of structures or buildings
- Fire or smoke at or near works areas
- Accidental or intentional release of hazardous and non-hazardous material
- Loss of power, lighting or communications at job sites
- Collision involving private vehicles and/or construction vehicles/equipment
- Person struck by vehicle or construction equipment
- Unauthorized access onto the worksite
- Theft of material or equipment from job sites
- Vandalism or criminal acts
- Response to injuries, fatalities, medical emergencies or equipment/facility damage
- Pandemic of communicable or infectious disease
- Site evacuation, including persons with disabilities; and Other scenarios deemed reasonable and appropriate

## 5.9 Signage & Access Control

- Proper signage will be placed on the exterior of each worksite so that persons approaching the site from any area, sidewalk or known or anticipated access point are sufficiently informed that they are approaching a controlled area.
- Signage must identify the site as a worksite, with restricted public entry, and warn of the potential dangers. A phone number must be provided for notification of hazardous or emergency conditions or to report suspicious or inappropriate activity.
- Signage will be placed within the site prohibiting unauthorized crewmembers from operating machinery or equipment for which they are not qualified or trained, informing site crews and visitors of PPEs requirements and any other safety or security requirements.
- Appropriate access controls will be implemented at all worksites. Access control will include barriers, fencing and gates or other methods to prevent unauthorized individuals and vehicles from entering the worksite.
- All worksites on and along public roadways will provide physical separation through traffic control and pedestrian control, using barrels, barriers, tape, signage, or other means as appropriate. Work performed in close proximity to traffic must comply with all SOPs set by the Contractor. Work zones must be adequately protected from live traffic.

- Contractor will keep entry/exit records of all construction work zone visitors. Each visitor will be briefed and trained as appropriate about concerned hazards and dangers present at the work site before they are allowed to enter. All authorized work site visitors will be required to wear PPEs.

### 5.10 Drugs and Alcohol Usage

No person will be working on or otherwise present at any of the Contractor's construction site while under the influence of alcohol or any prescription drug that was not specifically prescribed to that person and taken in the directed amounts.

No person will operate any vehicle or machinery, or work in hazardous areas while under any narcotic or drug that impairs judgment or cause dizziness or drowsiness unless there is written approval by the attending physician. Particular concern will be applied if this individual performs a safety sensitive role and or operates equipment or machinery at the job site.

Any person found in such condition must be immediately removed by the site. Contractor will enforce all alcohol and drug-free workplace policies and requirements.

The use of illegal drugs and alcohol is strictly prohibited on Contractor's construction project sites. The contractor and all subcontractors are required to have a Program that addresses the prohibited use of alcohol and drugs, including pre-placement, periodic, for cause, and post-accident/incident testing.

### 5.11 Security Risk

In view of the present security situation, the Contractor will have to make necessary security measures to avoid the risk of security. Due to the uncertainty of the attacker, the measures for security will be with the orientation of precaution. The following precaution measures will be taken strictly.

- Camp will be fenced with temporary arrangement and at the entry of camp; security guards will be deployed for the security checking. All persons who enter or exit from the camp will be asked and searched. All vehicles coming inside will be thoroughly searched to avoid taking any hazardous materials. The person, who is not cooperative with the security staff for checking, will be rejected to enter or exit from the gate.
- Coordination with local police & authorities will be done to acquire more support and facilities from these authorities.

### 5.12 Hazards and Vulnerability Identification & Management

A central element of a CESMP is the management of construction site hazards and vulnerabilities. A key tool to support this is a safety and security risk assessment, which identifies hazards and vulnerabilities for the physical construction aspects of the project and then develops methods to mitigate or control such risks to acceptable levels or to eliminate them. Contractor will perform the hazard and vulnerability assessment prior to performing work on the project. The outcome from the risk assessment and the plan for appropriate mitigations must be provided to the Site Manager for approval prior to the start of field work on the project.

# 6 POLLUTION PREVENTION AND CONTROL PLAN

The Contractor shall ensure that its construction activities do not result in the contamination of any surface water, groundwater or agricultural soil by adopting methods that will prevent entrance or accidental spillage, solid matter, contaminants, debris, and other objectionable pollutants and wasters into Indus river flowing streams, flowing or dry watercourses, and underground sources.

## 6.1 Air Pollution Control

The Contractor shall ensure that mitigation measures as defined in the ESMP are in place to minimize the impact on health and the environment. The Contractor shall arrange Emission tests of vehicles, and generators through a third party approved by Environment Protection Agency in order to ensure compliance with national guidelines on ambient air quality.

Water is to be sprinkled during the construction phase in all mixing areas where dry materials are handled and/or crushed. Temporary access roads to aggregate sites must be included in the dust suppression program.

- The Contractor shall routinely inspect generators by using a checklist and emission tests through a third party shall be done quarterly in order to ensure that emissions do not exceed SEQS.
- Materials are to be transported safely in vehicles going to and from the construction sites to reduce spills. Dust suppression measures with the spraying of water should be taken for all roads used for transport.
- Comply with the national guidelines on ambient air quality standards and shall Implement ECP (Environmental Code of Practices) on Air quality management as defined in the ESMP.
- Vehicular traffic through communities will be avoided as far as possible. Vehicle speeds will be kept low if they should pass through communities.
- Dust Control Systems are an important factor in meeting environmental, health and safety requirements. Water Bowser shall be used to suppress the dust within the construction area.

## 6.2 Noise Pollution and Control

Administration control will be applied to control noise pollution shall be:

- Warning Signs shall be affixed in noisy areas.
- Training shall be conducted to create awareness in workers about noise protection.
- PPE shall be provided for noise protection.
- Noise survey shall be conducted on regular basis to monitor the level of noise. Noise monitoring through third party SEPA certified laboratory will be carried out on quarterly basis.

- Moreover, engineering controls will also be taken to control noise and separate rooms shall be constructed for generators and other noisy equipment.
- Ear plug/ear muff shall be used if the noise level exceeds from SEQS for day and night times.
- Safety signs and other mandatory hearing protection signs shall be placed in high-noise areas.
- The Contractor shall maintain construction machinery for the purpose of minimizing construction noise on the work site.
- The Contractor shall monitor noise and vibration results and adjust construction practices if required.
- In areas where noise may interfere with communication, suitable alternative arrangements shall be in place.
- All equipment in orders to keep it in good working order shall be maintained following manufacturers' maintenance procedures.
- Unnecessary use of alarms, horns and sirens shall be avoided
- Best available work practices shall be employed on-site to minimize occupational noise levels

### 6.3 Water Pollution

The Environmental Officer shall comply with applicable regulations concerning the control and abatement of water pollution as follows

- Construction activities shall be performed by methods that shall prevent entrance or accidental spillage of solid matter, contaminants, debris and other objectionable pollutants and wastes into flowing streams, flowing or dry watercourses and underground water sources.
- Pumps shall be provided to transfer fuel from fuel drums/tanks, and manual fuel pouring shall be prohibited.
- The Contractor shall ensure that caps on drums and tanks are completely sealed after filling.
- The Contractor shall ensure that drums and tanks are in good condition.
- Regular maintenance of vehicles and water browsers/ Water Pumps shall be carried out.
- Minimal generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes), It shall be ensured that these substances must not enter into waterways All waterborne plants shall be inspected daily prior to operation.
- All fuel tanks/drums shall be shifted and not stored on barges / waterborne vessels.

- The Contractor shall provide bunding around refueling points on any waterborne vessels to contain any spilled fuel.
- The Contractor shall ensure spill kits and absorbent material is provided at refueling points on all waterborne plant and ensures that staff involved in refueling operations is trained.
- Wastewater and Drinking water testing will be carried out on quarterly basis by engaging SEPA certified laboratory
- Proper storage and disposal of waste shall be ensured.
- Handling of chemical waste through proper channels/third parties.

### 6.4 Spill Prevention and Contingency Plan

Spill Prevention and contingency plan describes planning, prevention and control measures to minimize impacts resulting from spills of fuels, petroleum products, or other regulated substances as a result of construction.

### 6.5 Plant and Vehicle Maintenance

- Vehicles shall be inspected by Equipment and Plant (E&P) department on a daily basis to check for leakages
- Vehicles found with the leakage shall not be allowed to move on site

### 6.6 Treatment of Spills

- Spill kit including absorbents, neutralizers, PPE's and tools for cleanup, oil spill boom, shovels; plastic bags shall be available to deal with spills.
- Shovels, plastic bags, and absorbent material shall be present near fuel and oil storage or handling areas to attend the spills and leaks
- All oil spills major or minor on the ground or in water shall be managed by the HSE team.
- Contaminated material resulting from spills shall be collected and declared hazardous waste.
- Contaminated material (hazard waste) shall be disposed of through proper procedure.

### 6.7 Run-off from Camps and Worksites

The campsite shall be provided with all necessary drainage of storm water from the camp, construction area and community settlement.

### 6.8 Ground Pollution

Hazardous substances shall not be discharged onto the ground

- All possible efforts will be taken to maintain the ground in a better condition & to avoid ground pollution

- Most Importantly the contractor will import monthly effects monitoring from a third party as suggested by CSC/ Client.
- The following parameters will be taken into account;
- Gaseous Emissions;
- Physical, Chemical and Biological Parameters of water being used at site;
- Noise Levels;
- Ambient air;
- Disease/Health monitoring;

# 7 EMERGENCY PREPAREDNESS & RESPONSE PLAN

## 7.1 Purpose

A good Emergency Preparedness & Response Plan (EPRP) will help people take quick and effective action in the event of an emergency. It will help in easing the severity of the situation and limit the consequences.

EPRP provides procedures and structures for response to emergencies. EPRP provides strategies to combat specific situations and assign responsibilities for implementation.

The emergencies include but are not limited to;

- Fires
- Rains/Floods
- Explosions
- Civil disturbance
- Poisoning
- Structural Failures
- Workplace violence resulting in bodily
- Harm and Tolerance
- Chemical spill

## 7.2 Emergency Drills

All site personnel/members of the public (if applicable) will follow this plan that shall be tested through exercises/drills quarterly. These drills shall be conducted on the following scenarios;

- Fire Fighting
- Medical Evacuation
- Flooding
- Thunderstorm
- Spills of hazardous material
- Work at height

### 7.2.1 Fire Fighting

The operation on Fire Extinguishers and fire buckets shall be taken according to the **"Firefighting Procedure"** laid for which training shall be given at regular intervals.

Maintenance and inspections of firefighting appliances will be ensured through the checklist and regular monitoring.

### 7.2.2 Emergency Drills

Emergency response drills shall be conducted in the camp and the work site, and the observations and debrief notes shall be recorded. HSE officer shall analyze the findings and identify any remedial actions required.

The emergency procedure shall be updated from time to time to reflect observations made. Training shall be conducted on a regular basis for emergency response teams.

The location of emergency facilities e.g. firefighting appliances shall be identified on plans displayed at conspicuous locations.

### 7.2.3 Emergency Evacuation

Activate the emergency disaster siren to evacuate the area safely and ensure that unnecessary personnel leave the site by a safe route. The PM shall assign responsible personnel to advise security to open the facility's main gate for emergency vehicles.

For emergency response activities managed by The Contractor, key roles and responsibilities are detailed below:

### 7.2.4 Roles and Responsibilities

Key roles and responsibilities are detailed below:

**Project Manager (Contractor's Representative)**

The Contractor's Project Manager shall be responsible for the implementation of all the details of Environment and Social Management activities given in this CESMP.

- Providing leadership and direction in the event of an emergency.
- Ensuring that emergency response planning, preparedness and execution are consistent with the site requirements
- Ensuring that appropriate field response teams are defined and prepared for the various emergency response scenarios identified in this plan.
- Notification to the Client of any emergency incident.
- Providing leadership and direction in the event of an emergency.
- Ensuring that emergency response planning, preparedness and execution are consistent with the site requirements
- Ensuring that appropriate field response teams are defined and prepared for the various emergency response scenarios identified in this plan.
- Notification to the Client of any emergency incident.

Following initial notification, the liaison will be made with the Client during the execution of any emergency response.

### 7.2.5 Environmental Officer (EO)

The environmental officer shall be responsible to aid with the practical implementation of CESMP. Specific responsibilities of the Environmental Coordinator officer include;

- Ensure compliance with national legislation related to the environment and with the World Bank's environmental safeguard policies
- Oversees and ensures the implementation of the environmental components of CESMP and parallel management plans
- Reports on non-compliances and promotes corrective actions.
- Conduct regular inspections to check that impact mitigation measures are being implemented properly
- When required, arrange environmental training for the relevant.
- Personnel, The Contractor staff, contractors and service provider
- Reviews environment performance and reports to the in-charge HSE.
- To ensure that workers' accommodation meets the basic environmental requirements
- Maintain Trees Inventory
- Participate in Monthly Effects Monitoring by the third party

### 7.2.6 Health, Safety Environment Officer (HSE)

HSE will be responsible for site management for the on-site implementation of the CESMP plan. HSE will specifically aid with the following;

- To ensure that worker camps & latrines shall comply with The Sindh Occupational Safety and Health Act, 2017, Labor Camp Rules, 1960 & Sindh Factories Act 2015.
- Prevention of injury to personnel and damage to equipment
- Provision and ensure the use of protective clothing and equipment
- Assessments of potential hazards on jobs before work start
- To ensure that workers' accommodation meets applicable requirements
- Carrying out hazard identification and risk assessment, in association with the Construction Manager, Civil Supervisor to decide on the best safe methods of work in operation.
- Determining the cause of any accident or dangerous occurrence and recommending means of preventing recurrence. Arrange necessary HSE training for the workers and other relevant staff

The HSE officer is responsible for ensuring at the site that provisions are in place for emergency response, including:

- Muster points.
- Arrangements for conducting head counts.
- Identification and Mobilization of the Fire Team.

- Setting up drills and exercises.
- First Aiders with Ambulance.
- Conduct TBT (Tools Box Talks)
- Conduct WSTS (Weekly Safety Talks)

In the event of any emergency the HSE officer shall take the following actions:

- Shall attend the site of the incident, assess the situation and issue directions to the concerned parties and the Fire Team.
- Ensure that messages have been communicated to The Field Response Team Leader.
- Ensure all escape routes and assembly areas are marked by respective safety signs in the field as indicated on the site plan.
- Evaluate the scale of the incident and decide whether additional resources are required to adequately deal with it.
- Ensure effective use of PPE.
- Liaise with site supervision for the mobilization of any plant and equipment necessary for dealing with the emergency
- Limit access to the area with barriers or other means to prevent unauthorized access
- Coordinate the reinstatement measures following the stabilization of the incident.
- Prepare a full report.

### 7.2.7 Community Liaison Officer (CLO)

Ensure access to information by communities and use of localized means to disseminate information.

- CLO will provide information to communities on employment opportunities, Risks, Impacts and Mitigations prior to the start and end of construction and when other changes in project activities take place
- CLO will conduct consultation meetings with community leaders
- Coordinate activities concerning social mobilization and civil society involvement in the project
- The Community Liaison Officer (CLO) will maintain the Social Complaint Register (SCR) and complain box at the site to document all complaints received from the local communities and the actions taken against each complaint
- CLO will be inconsistent liaison with management and the community
- CLO will also document oral complaints (if any) by the community
- Community Liaison Officer (CLO) shall be hired having a background in sociology Subject

Proper communication & implementation of Communication and Local Recruitment Plan

CLO will also handle the issue of resettlement due to dam work. Employment opportunities will be addressed through CLO and Village Focal Points nominated and their frequency depends upon manpower requirements at the site. Community complaints will be maintained on a register and in the complaint Box. Community issues will be communicated as part of the routine HSE meetings held with the management. Actions taken against the complaints will also be maintained to show as issue close-out evidence. the progress will be part of the monthly monitoring and implementation report of the contractor to be submitted at PIC.

### 7.2.8 Dispenser

Holding a Certificate/Degree recognized by Pakistan Medical Commission

- Able to conduct the bred examination of each patient and also to document clinical findings
- Able to screen out Blood samples
- Able to operate BP apparatus and glucometer
- Able for Main medical record and could give a complete first add before
- reaching hospital
- Able to prescribe proper medication
- Able to keep a record of all medical proceedings
- Able to communicate and report the progress as and when necessary.

## 7.3 Emergency Response Team

In the event of an emergency, the chain of command will be as follows;

| Name | Designation | Contact No. |
|---|---|---|
| | Site Manager | |
| | Environmental Officer | |
| | Health, Safety & Environment Officer | |
| | Social Expert/Community Liaison Officer | |
| | Dispenser /Paramedic | |

# 8 TRAINING PLAN

As part of the Contractor's Environmental and Social Management Plan (CESMP) the training plan including the details such as subject, attendees, duration and frequency of the training has been prepared to provide all personnel with adequate information, instruction and training on environmental and social awareness, cultural sensitivity & occupational health and safety (Please see Table 13). The Contractor shall be responsible for conducting all the specified training through its highly trained Health, Social, and Environmental Management Team with the consultation of PIU. The Contractor shall also hire the services of experts with the prior approval/consultation of PIU for more training necessary and momentous for health, safety, social & environmental particular perspective under the provision of the contract. Training activities shall be recorded and reported on a regular basis. The Contractor shall:

- Update the training plan on a need basis.
- Organize induction training for all staff.
- Ensure employees are trained in the proper use of equipment in their care to minimize the risk of accidents.

Training Plan shall include below subject training as a minimum:

- Handling, use & disposal of hazardous material
- Waste Management
- Efficient & safe driving practices, including road & vehicle restrictions
- Actions to be taken in the event of major or minor pollution events on land
- Pollution Prevention
- Refueling of waterborne plant and Vehicles
- Use of spill kits and flexible booms
- Safe way to work & hazard awareness
- Safe Use of Plant and Equipment
- Work at Height
- Use of PPE
- Emergency Procedures and Evacuation
- Fire Fighting
- Importance of Tree Plantation
- Awareness of site-sensitive areas.
- HIV/AIDS / Covid 19
- Cultural Sensitivities of the local population
- Grievance Redressal Mechanism / GBV /SEA/SH

- Social Mobilization/Consultation
- Awareness of Social and Cultural Dynamics
- Gender Issues

All trainings will be conducted by a qualified competent person familiar with the work and hazards at the job sites, and deemed competent in terms of education, relevant experience, and instructional capability

**Table 13: Environment, Social, Health & Safety Training Matrix**

| S. No. | Topics/Courses Required | To be Attended By | | | Duration | Schedule | Status | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | | PIU, CSC | Skilled Crafts | Labors | | | Completed | Outstanding | |
| **1.** | Initial Orientation | ✓ | ✓ | ✓ | 2 hrs | Once upon joining | | | |
| **2.** | Specific Orientation ( on job ) | ✓ | | | 2 hrs | On job assignment | | | |
| **3.** | Training to Staff Working within Active Process Area | ✓ | ✓ | ✓ | 2 hrs | As & when required | | | |
| **4.** | Daily Tool Box Talk | | ✓ | ✓ | | Daily | | | |
| **5.** | Safety Talks | | | | 15 min | Weekly | | | |
| **6.** | Covid-19 SOP | ✓ | ✓ | ✓ | 10 min | Daily | | | |
| **7.** | Task-Specific Training Course | ✓ | ✓ | ✓ | | | | | |
| **8.** | Environmental Issues | 2 hours As & when required | | | | | | | |
| **9.** | PPEs on Site | | | | 2 hour | Weekly | | | |
| **10.** | Driving Rules and Driver's Training | For Any Category | | | 2 hour | - Do - | | | |
| **11.** | Risk Assessment | | | | 1/2 day | - Do - | | | |
| **12.** | Accident/Incident Reporting | | | | 1/2 day | - Do - | | | |
| **13.** | Emergency and Evacuation Drills & Exercises | | | | 1/2 day | - Do - | | | |
| **14.** | Scaffolding and Ladders | | | | 1/2 day | - Do - | | | |
| **15.** | Fire Fighting | | | | 1/2 day | - Do - | | | |
| **16.** | Hazardous Material Handling | | | | 1/2 day | - Do - | | | |
| **17.** | First Aid | | | | 1/2 day | - Do - | | | |
| **18.** | Working at Heights | | | | 1/2 day | - Do - | | | |
| **19.** | Wastes and Spills | | | | 3 hours | - Do - | | | |
| **20.** | Air/Water Emissions | | | | 3 hours | - Do - | | | |
| **21.** | Grievance Redressal Mechanism | | ✓ | | ½ hour | As & when required | | | |
| **22.** | Community Mobilization/Consultation | | ✓ | ✓ | ½ hour | Once in month | | | |
| **23.** | Social and Cultural Dynamic | | ✓ | ✓ | ½ hour | Once in month | | | |
| **24.** | Gender Issues | | ✓ | ✓ | ½ hour | Once in month | | | |

On-site induction, TBT and trainings will be organized by the Emergency Response Coordinator/ HSE Officer/ Engineer regarding the health & Safety measures from potential and existing hazards, environmental protection, etc. New workers and staff will be orientated regarding their work and the potential hazards, and safety from them. All trainings will be recorded and communicated to the Supervision Consultant.

# 9 COMPLIANCE AND EFFECTS MONITORING PLAN

## 9.1 General

Monitoring Plan is an essential part of the CESMP. It is Contractor's contractual obligation to implement the CESMP. In this regard, Contractor has engaged full time technical staff capable of carrying out the suggested measures in the CESMP.

## 9.2 Objectives of the Monitoring

The main objectives of the Environmental Monitoring will be to:

- Monitor the actual project impact on physical, biological and socio-economic environment.
- Check the implementation status of CESMP and EMP.
- recommend mitigation measures for any unexpected impact or where the impact level exceeds SEQS that anticipated in the CESMP and EMP
- Ensure compliance with legal and community obligations including safety on construction sites.
- Ensure compliance of provisional obligation and condition laid down in NOC of Initial Environmental Examination (IEE).

## 9.3 Compliance and Effects Monitoring

### 9.3.1 Compliance Monitoring:

The contractor shall carry out compliance monitoring within the sub-project area using the monitoring checklists as annexed in the Annexure 1 to be prepared based on this CESMP to aid the monitoring process:

Frequency of anti-dust water sprays during construction period;

Installation of signage regarding community health and safety

Safety at workplaces and working hours during construction;

Incidence of liquid/solid waste in the vicinity of work camps (type and amount of waste, amount, interference with local residents, fauna, flora and crops);

Arrangements made at construction sites for protection of floral and faunal resources

- Assurance of installation of signage regarding community health and safety

### 9.3.2 Environmental Effects Monitoring

The Monitoring tests outlined in Table - 14 below shall be performed through Sindh EPA certified environmental laboratory and reports of monitoring tests would be shared with supervisory consultant for further guidance.

**Table 14: Environmental Monitoring Plan**

| Environmental Quality | Parameters | Standards/ Guidelines | Location | Monitoring period/ Frequency | Responsibility | |
|---|---|---|---|---|---|---|
| | | | | | Implementation | Monitoring |
| **Pre-Construction Stage** | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Air Quality | $SO_2$, NOx, CO, $PM_{10}$, $PM_{2.5}$, Humidity, Wind direction, Wind speed, Temperature etc. | Air quality standard by SEQS | Throughout the project areas particularly at: Camp and Batching plant site. Sensitive receptors at active construction site | Before start of civil work | Contractor | CSC and PIU |
| Water Quality | Water quality standard by SEQS | SEQS | Drinking water source at camp area | Quarterly | Contractor | CSC and PIU |
| | | | Surface water near project corridor and camp site | Quarterly | Contractor | CSC and PIU |
| | | | Ground water near project corridor particularly of sensitive receptors | Quarterly | Contractor | CSC and PIU |
| Noise Level | dB(A) | Noise pollution Control SEQS | Throughout the project areas, particularly near sensitive receptors | Quarterly (24 Hours Duration) | Contractor | CSC and PIU |
| **Construction Stage** | | | | | | |
| Air Quality | $SO_2$, NOx, CO, $PM_{10}$, $PM_{2.5}$, Humidity, Wind direction, Wind speed, Temperature etc. | Air quality standard by SEQS | Throughout the project areas particularly at: Camp and Batching plant site. Sensitive receptors at active construction site | Quarterly (24 Hours Duration) | Contractor | CSC and PIU |
| Dust | Dust control | Air quality standard by SEQS | Throughout the project areas, particularly near sensitive receptors | Quarterly (24 Hours Duration) | Contractor | CSC and PIU |
| Noise Level | dB(A) | Noise pollution Control SEQS | Throughout the project areas, particularly near sensitive receptors | Quarterly (24 Hours Duration) | Contractor | CSC and PIU |
| Water Quality | Water quality standard by SEQS | SEQS | Drinking water source at camp area | Quarterly | Contractor | CSC and PIU |
| | | | Surface water near project corridor and camp site | Quarterly | Contractor | CSC and PIU |
| | | | Ground water near project corridor particularly of sensitive receptors | Quarterly | Contractor | CSC and PIU |
| Noise monitoring | dB(A) | SEQS | Throughout the Project areas and campsite. | Monthly | Contractor | CSC and PIU |
| Light monitoring | (Lux Level) | Monitoring | Throughout the Project areas and campsite. | Fortnightly (Weekly during Monsoon) | Contractor | CSC and PIU |
| Waste Management | Check storage, transportation, disposal, handling of hazardous waste; Waste and effluents to be collected and disposed safely from camps; Waste and garbage from bridge/Aqua duct site. | Monitoring | Throughout the project areas and camp site | Weekly | Contractor | CSC and PIU |
| Health and Safety | Check quality of food and accommodation at construction camp. | Monitoring | Construction sites, labour camps | Regularly | Contractor | CSC and PIU |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Safe water supply, hygienic toilet at camps and construction of drain at campsites. Toilets are closely located to construction site and separate toilet for female workers; First-Aid kit; personal protective equipment (PPE) for worker at the Sites. | | | | | |
| Traffic Safety | Record of accidents, and implementation of the traffic Management plan prepared by the Contractor. | None Specific | Throughout the project corridor | Throughout the construction periods | Contractor | CSC and PIU |
| Socioeconomic issues | Local people recruited for all manual laborer and other jobs for which local skill are available; grievances of and conflicts with communities | ; | At project locations; settlements | Throughout the construction periods | Contractor | CSC and PIU |

### 9.3.3 Social Effects Monitoring

The social effects monitoring shall be the responsibility of Contractor social expert as well as CSC.

- Number of local people recruited on project works.
- Incidence of child labour and disproportionate wages
- Conflict at community level
- Chance find archaeological site
- Grievance redressal mechanism is in place
- Health screening of labour at site
- Contractor's staff sensitized on Gender base violence (GBV).

Both approaches will be conducted using the monitoring parameters by visual observation, photographic documentation, and measurement where necessary. A record of events and surveys will be maintained

## 9.4 Role & Responsibilities

The Contractor Environmental & Social Officer (E&S Staff) shall be responsible for day-to-day monitoring of compliance with the environmental and social requirements of this specification as well as the requirements of the CESMP.

The Contractor's E&S Staff shall prepare a monthly report to the Engineer. The format of the monthly report shall mutually be finalized however; it shall be ensured that the requirement of CESMP has been incorporated in the monthly report. The report shall also provide detailed

actions taken or proposed by the Contractor in response to any non-compliance identified the report shall be submitted not later than the third of each month.

The Environmental Officer shall be available to attend monthly meetings (when and where arranged by the Employer) to discuss environmental and social performance on Site. When instructed by the Employer or Engineer, any other member of The Contractor staff shall be available to attend such meetings.

### 9.5 HSE Inspections

The Contractor shall utilize a number of inspections not only to ensure compliance with the requirements of the CESMP but also to get feedback for the improvement of the CESMP

- The HSE Officer shall conduct inspections on day to day basis
- The HSE Officer shall be responsible to identify noncompliance and report it to the Site Manager/Project Manager
- Construction Managers and the area in charge shall be responsible for rectification of highlighted non-compliance

# 10 Reports

## 10.1 General

The E&S staff of the contractor and Supervision Consultant shall produce periodic reports as well as inspection notes based upon the implementation and monitoring of CESMP. All reports shall be location and activity specific. The reports shall especially identify areas of contractor's non-compliances with the EMP and provide guiding remarks on actions to be taken. The significance of the non-compliances shall also be noted. Copies of these reports shall be sent to the Resident Engineer (RE) who shall forward them to the Team Leader, then PD (E&S staff of PIU) and the Contractor for their action(s).

The RE will include in his routine reports a summary status of activities relating to the CESMP. Supplemental reports on issues should also be prepared as and when required. The reports will be prepared, reviewed and distributed according to reporting mechanism provided in Table - 15.

**Table 15: Periodic Reports**

| Report | To be Prepared by | To be Reviewed by | Distribution |
|---|---|---|---|
| Daily | -Contractor's E&S officers | -Contractor environmental officer<br>-Consultant's E&S | -Resident Engineer |
| Monthly | - E&S officers of the Contractor | -Consultant's E&S officers | -Resident Engineer<br>-PIU E&S officers |
| Quarterly | - E&S officers of the Construction Supervision Consultants | - E&S officers PIU | -Resident Engineer<br>-PIU<br>-WB<br>- SEPA |
| Bi-Annual Environmental Monitoring Report | E&S officers of the Construction Supervision Consultants | - E&S officers PIU | -Resident Engineer<br>-PIU<br>-WB<br>- SEPA |
| Final | E&S officers of the Construction Supervision Consultants | - E&S officers PIU | -Resident Engineer<br>-PIU<br>-WB<br>- SEPA |

## 10.2 Complaint Register

The contractor will maintain a complaint register at the construction site(s), document all complaints received from the public or government organizations by whatever medium. The register will also record the measures taken to mitigate the reported concerns. All of these concerns shall be documented in the monthly reports. The status of the closeout concern shall be verified and counter signed by the designated official.

Complaints received shall be recorded in complaint register in tabulated form, which should concisely list the following information:

- Date of the complaint
- Name and contact address of the complainant
- Brief description of the complaint, with a reference number to any correspondence from the complainant

- Brief description of the action taken by the CLO to investigate the cause of the complaint and bring about corrective action, if justified
- Date of reply to the complainant, with a file reference to any correspondence.

# 11 PHYSICAL CULTURAL INFRASTRUCTURES (PCIS)

No archaeological site was observed near (within 500 meters) the project area and no physical cultural resources at or near the proposed sub-project; sites are observed that may likely be affected by construction activities.

In case of discovery of an unidentified graveyard or sensitive area, The Contractor shall notify the Engineer and the following Chance Find Procedure will be adopted:

- On discovery of archeology resources, all work in the area shall be stopped
- The engineer shall be informed about the discovery
- A brief report with photo, plan and location shall be submitted to the client and Engineer
- Work shall commence again according to the recommendations and comments provided by the Engineer.

# Annexure 1: Compliance & Effect Monitoring Checklists (Daily & Weekly)

## DAILY ENVIRONMNETAL INSPECTION CHECKLIST.

| | | | |
|---|---|---|---|
| **Contractor :** | | **Date of Inspection:** | |
| **Location:** | | **Last Inspection:** | |
| **Time:** | | **Climatic Conditions:** |  |
| **Accompanied By:** | | **Report By:** | |

**ENVIRONMENTAL INSPECTION CHEK ITEMS**

| Sr. No. | Parameters | Yes | No | Credit | Remarks |
|---|---|---|---|---|---|
| 1 | Labour Camp Location & Management in order | | | | |
| 2 | Drinking water facilities for Labour | | | | |
| 3 | Burning of Wood in Camp | | | | |
| 4 | Pollution from Concrete Mixer | | | | |
| 5 | Oil Diesel Spills on land or Water | | | | |
| 6 | Soil Erosion | | | | |
| 7 | Traffic Control good & Sinology functional | | | | |
| 8 | Vehicle with Smoke and Noise | | | | |
| 9 | Vehicle with in Speed Limit | | | | |
| 10 | Water Sprinkled on Approach Road | | | | |
| 11 | Correct Disposal of Waste Water | | | | |
| 12 | Correct Disposal of Construction Solid Waste | | | | |
| 13 | All materials safely stock piled | | | | |
| 14 | Health Precautions taken for workers/first aid kits | | | | |
| 15 | Proper PPEs available/used | | | | |
| 16 | Threat cause to any endanger Species | | | | |
| 17 | Dispensary working, doctor present | | | | |
| 18 | Ambulance functional | | | | |
| 19 | No loss of Flora and Fauna | | | | |
| 20 | No Social issue Created | | | | |
| 21 | The location of firefighting equipment identified | | | | |
| 22 | Are accident/incident reported, preventive? | | | | |
| | | **TOTAL CREDIT** | | **0** | **% of compliance** **0.0** |

I, the undersigned, have been notified of the job site hazards and will take the necessary measures to correct the noted hazards immediately.

| | |
|---|---|
| **Signed/Date:** | **Signed/Date:** |
| Environmentalist (**Contractor**) | Assistant Resident Engineer/Inspector(**ARE-CSC**) |

**Notes:** Key for Climate conditions-Forenoon=FN, Afternoon=AN, Evening=E, Night=N. Weather, Sunny=S, Partly cloudy=PD, Cloudy=C, Rainy=R

Scoring Guide: Full Compliance = 10, Partial Compliance = 5, No Compliance = 0, Not Applicable (NA)

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## WEEKLY ENVIRONMNETAL INSPECTION CHECKLIST

| | | | |
|---|---|---|---|
| **Contractor :** | | **Date of Inspection:** | |
| **Location:** | Chainage=<br>Coordinates= | **Last Inspection:** | |
| **Time:** | | **Weather Conditions:** |  |
| **Accompanied By:** | | **Report By:** | |

**ENVIRONMENTAL INSPECTION CHEK ITEMS**

| Theme | Sr. No. | Parameters | Yes/No | Credit | Remarks | Actioner | Action Deadline |
|---|---|---|---|---|---|---|---|
| CAMP SITE | 1 | Is the labour camp properly organized in Blocks, Lanes and Barracks? | | | | | |
| | 2 | Is the drinking water supply to the camp available? | | | | | |
| | 3 | Is building / camp arrangement fit to guard off the weather effects? | | | | | |
| | 4 | Is the camp drainage system appropriate and effective? | | | | | |
| | 5 | Is the waste disposal hygienic? | | | | | |
| | 6 | Is the food cooked in a proper kitchen? | | | | | |
| | 7 | Has plantation been carried out to beautify the camp and surroundings? | | | | | |
| | 8 | the labour camp is not causing a social problem (specify as note)? | | | | | |
| | 9 | the labour camp is not causing any problem to Biota, (specify as a note)? | | | | | |
| | 10 | Has proper signology / warning signs been displayed? | | | | | |
| | 11 | there a no problem which has not been specified in the above question 1-10 (if yes, please specify)? | | | | | |
| | 12 | there is any violation of any clause of the contract (if yes, please specify as a note)? | | | | | |
| | | **SCORE CREDIT - CAMP SITE** | | **0** | **% of compliance** | **0** | |
| MATERIAL DUMPS | 13 | Is material dump suitably located? | | | | | |
| | 14 | Has the material dump been properly fenced and a gate provided? | | | | | |
| | 15 | There are any leakages (if so specify their extent and nature in a separate note)? | | | | | |
| | 16 | Is storage and transaction of material causing any type of pollution to land, nearby water, or air (if so specify)? | | | | | |
| | 17 | Has proper sinology been displayed? | | | | | |
| | | **SCORE CREDIT - MATERIAL DUMPS** | | **0** | **% of compliance** | **0** | |

| Theme | Sr. No. | Parameters | Yes/No | Credit | Remarks | Actioner | Action Deadline |
|---|---|---|---|---|---|---|---|
| MACHINERY YARD | 18 | Is machinery yard suitably located? | | | | | |
| | 19 | Is dust, smoke or any air pollutant being added to atmosphere? | | | | | |
| | 20 | Are there any POL leakages (if so specify their size, location and nature)? | | | | | |
| | 21 | Is the parking, haulage and movement of machinery causing any type of pollution to land nearby water, or air (if so specify)? | | | | | |
| | 22 | Has proper signology been displayed? | | | | | |
| | | **SCORE CREDIT - MACHINERY YARD** | | **0** | **% of compliance** | **0** | |
| WATER SUPPLY | 23 | Is adequate clear drinking water available for labour and other staff? | | | | | |
| | 24 | Is adequate and clean water available for other uses in the contract area? | | | | | |
| | 25 | Is adequate water available for construction? | | | | | |
| | 26 | In case of fire, is there an adequate water availability for use in fire extinguishers? | | | | | |
| | 27 | Is there a water storage facility available at a suitable place? | | | | | |
| | 28 | Is there any violation to any clause of the contract while using the water supply source (If yes, please specify as a note)? | | | | | |
| | 29 | Has proper signology been displayed? | | | | | |
| | | **SCORE CREDIT - WATER SUPPLY** | | **0** | **% of compliance** | **0** | |
| VEHICAL EQUIPMENT MANAGEMENT | 30 | Do all fuel operated stationary equipment have spill try? | | | | | |
| | 31 | Are spill try clean & well maintained? | | | | | |
| | 32 | Is equipment free of leaks? | | | | | |
| | 33 | Is maintenance conducted in approved area? | | | | | |
| | 34 | Is vehicles equipment fit for purpose? | | | | | |
| | 35 | Is there any spill of liquid waste into a water body? | | | | | |
| | 36 | Spill kits available in designated area. | | | | | |
| | 37 | Is any of the contract clauses being affected / violated due to waste disposal system? | | | | | |
| | 38 | Has proper signology been displayed? | | | | | |
| | | **SCORE CREDIT - VEHICAL EQUIPMENT MANAGEMENT** | | **0** | **% of compliance** | **0** | |

| Theme | Sr. No. | Parameters | Yes/No | Credit | Remarks | Actioner | Action Deadline |
|---|---|---|---|---|---|---|---|
| NUISANCE & EMISSION- Dust & Noise | 39 | Are stockpiles dumped covered/control to minimize dust? | | | | | |
| | 40 | Are vehicle speed controlled? | | | | | |
| | 41 | Is the machinery being used new or in best condition so as not to cause noise? | | | | | |
| | 42 | Is there any spot where excessive noise is being produced (specify in a note)? | | | | | |
| | 43 | Is there a hospital, road or any other sensitive place along the route? | | | | | |
| | 44 | Is there any violation to any clause of the contract related to Air pollution or Noise pollution? | | | | | |
| | 45 | Has proper sinology been displayed? | | | | | |
| | | **SCORE CREDIT - NUISANCE & EMISSION** | | **0** | **% of compliance** | **0** | |
| WASTE DISPOSAL | 46 | Is there a proper method of disposal of Solid waste in the Camp? | | | | | |
| | 47 | Is there a proper method of disposal of liquid waste in the Camp? | | | | | |
| | 48 | Is general waste free of chemicals /POL waste? | | | | | |
| | 49 | Is hazardous waste stored/removed within reasonable timeframe? | | | | | |
| | 50 | All are bin properly labelled? | | | | | |
| | 51 | Is there any spill of solid or liquid waste into a water body, clean living area, building or graveyard? | | | | | |
| | 52 | Is the smell from solid or liquid waste being added to a living area? | | | | | |
| | 53 | Is any of the contract clauses being affected / violated due to waste disposal system? | | | | | |
| | 54 | Has proper signology been displayed? | | | | | |
| | | **SCORE CREDIT - WASTE DISPOSAL** | | **0** | **% of compliance** | **0** | |
| ECOLOGY | 55 | Is the labour and other workers of contractor aware of their limits towards the Protected Area? | | | | | |
| | 56 | Has the project labour been made aware that they will not<br>(a) Disturb any other biotic life<br>(b) Cut trees or bushes for fuel | | | | | |
| | 57 | Is there a record that shows that plant and machinery has arrived and departed clean and free of debris? | | | | | |
| | 58 | Due to activity of any one, is any clause of the contract being affected or has it been affected (If yes, specify in a note) | | | | | |
| | 59 | Has proper signology been put up? | | | | | |
| | | **SCORE CREDIT - ECOLOGY** | | **0** | **% of compliance** | **0** | |

| Theme | Sr. No. | Parameters | Yes/No | Credit | Remarks | Actioner | Action Deadline |
|---|---|---|---|---|---|---|---|
| SOCIAL CONTROL | 60 | Has the SFA been explained to labours and all classes of contractor's workers by the contractor? | | | | | |
| | 61 | Has the SFA been explained to the nearby members of the public by the contractor? | | | | | |
| | 62 | Has proper signology, Directions and Warnings been displayed at all suitable places? | | | | | |
| | 63 | Is there a check and control system to control the Labourers from disturbing the nearby villages and their folks especially for HIV / AIDS and other communicable diseases? | | | | | |
| | 64 | Is there a violation to any of the clauses of the contract due to any social infringement by anyone in the Project Area? | | | | | |
| | | **SCORE CREDIT - SOCIAL CONTROL** | | **0** | **% of compliance** | **0** | |
| HOSPITAL / MEDICAL AID | 65 | Is there a Hospital/ Medical Aid centre in the area (If yes, specify site, size, location and distance? | | | | | |
| | 66 | Is the medical facility available to all classes of workers in the project Area? | | | | | |
| | 67 | Is the medical facility available to members of the public also? | | | | | |
| | 68 | Is there an awareness programme for making labour, other workers and members of public run by the contractor, especially HIV/ AIDS, Cholera, Malaria, Dengue and other infectious diseases? | | | | | |
| | 69 | Is there any violation to any other clause of the contract related to Medical field? | | | | | |
| | 70 | Does the mess hall have adequate bins? | | | | | |
| | 71 | Has proper sinology been displayed? | | | | | |
| | | **SCORE CREDIT - HOSPITAL / MEDICAL AID** | | **0** | **% of compliance** | **0** | |
| RESOURCE & ENERGY CONSERVATION | 72 | Is exassive waste minimized? | | | | | |
| | 73 | Is fuel waste prevented? | | | | | |
| | 74 | Are energy conservation practices observed? | | | | | |
| | 75 | Is wastage of water prevented- Behavior? | | | | | |
| | 76 | Is wastage of water prevented- Equipment/system? | | | | | |
| | | **SCORE CREDIT - RESOURCE & ENERGY CONSERVATION** | | **0** | **% of compliance** | **0** | |
| WELFARE & LAYDOWN | 77 | Is the laydown area litter free? | | | | | |
| | 78 | Are the toilets adequate? | | | | | |
| | 79 | Are the toilets free of leak? | | | | | |
| | 80 | Is the septic tank in good conditions? | | | | | |
| | 81 | Is sewage spillage is prevented? | | | | | |
| | 82 | Does the mess hall have adequate bins? | | | | | |

| Theme | Sr. No. | Parameters | Yes/No | Credit | Remarks | Actioner | Action Deadline |
|---|---|---|---|---|---|---|---|
| | 83 | Is the area clean? | | | | | |
| | 84 | Is the pest control effective? | | | | | |
| | 85 | Are environmental awareness material displayed? | | | | | |
| | 86 | Is there an environmental notice board? | | | | | |
| | 87 | Is the site currently operating within normal working hours? | | | | | |
| | 88 | Is the monthly environmental score displayed? | | | | | |
| | | **SCORE CREDIT - WELFARE & LAYDOWN** | | **0** | **% of compliance** | **0** | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TOOL BOX TALK & INCIDENT / NEAR | 89 | Have appropriate toolbox talks been delivered for the works? | | | | | |
| | 90 | Have incidents or near misses reported previously been adequately mitigated? | | | | | |
| | 91 | Are accident/incident reported, preventive? | | | | | |
| | | **SCORE CREDIT - TOOL BOX TALK & INCIDENT / NEAR MISS** | | **0** | **% of compliance** | **0** | |

**ENVIRONMENTAL SCORE**

| | SUMMARY | TOTAL SCORE | SCORE CREDIT | % | Relative % |
|---|---|---|---|---|---|
| 1 | **CAMP SITE** | 120 | 0 | **0** | 0 |
| 2 | **MATERIAL DUMPS** | 50 | 0 | **0** | 0 |
| 3 | **MACHINERY YARD** | 50 | 0 | **0** | 0 |
| 4 | **WATER SUPPLY** | 70 | 0 | **0** | 0 |
| 5 | **VEHICAL EQUIPMENT MANAGEMENT** | 90 | 0 | **0** | 0 |
| 6 | **NUISANCE & EMISSION- Dust & Noise** | 70 | 0 | **0** | 0 |
| 7 | **WASTE DISPOSAL** | 90 | 0 | **0** | 0 |
| 8 | **ECOLOGY** | 50 | 0 | **0** | 0 |
| 9 | **SOCIAL CONTROL** | 50 | 0 | **0** | 0 |
| 10 | **HOSPITAL / MEDICAL AID** | 70 | 0 | **0** | 0 |
| 11 | **RESOURCE & ENERGY CONSERVATION** | 50 | 0 | **0** | 0 |
| 12 | **WELFARE & LAYDOWN** | 120 | 0 | **0** | 0 |
| 13 | **TOOL BOX TALK & INCIDENT / NEAR MISS** | 30 | 0 | **0** | 0 |
| | | **910** | **0** | **0** | 0 |

This checklist does not include all hazards on every job, but should serve to all concerned you to general hazards.

I, the undersigned, have been notified of the job site hazards and will take the necessary measures to correct the noted hazards immediately.

| **Signed/Date:** | **Signed/Date:** | **Signed/Date:** |
|---|---|---|
| Environmentalist (**Contractor**) | E&S Staff/Resident Engineer (CSC) | Project Supervisor(**Contractor**) |

**Notes:** Key for Climate conditions-Forenoon=FN, Afternoon=AN, Evening=E, Night=N. Weather, Sunny=S, Partly cloudy=PD, Cloudy=C, Rainy=R

Scoring Guide: Full Compliance = 10, Partial Compliance = 5, No Compliance = 0, Not Applicable (NA)

# Annexure VII: Contractor's Health Safety & Environment (C-HSE)

## DRAFT-SAMPLE
## CONTRACTOR'S HEALTH SAFETY & ENVIRONMENT (C-HSE)
## FOR
**Rehabilitation of Rain/Flood Affected Roads**

| S. NO | DATE | PREPARED BY | CHECKED BY | APPROVED | REMARKS |
|---|---|---|---|---|---|
| **1.** | | The Contractor | CSC | PIU | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# 1. INTRODUCTION

The contractor has produced this document to meet the project requirements for HSE. This plan has been established to identify the strategy of the contractor towards the management of safety, health and environment.

This document describes the policy in line with the contract provisions and statutory requirements to be observed when working on site. The purpose of this plan is to identify the potential impacts and to develop a mechanism for the better management of HSE issues relating to the project.

This plan will define the HSE guidelines established by the Contractor to provide all personnel with safe operating practices and awareness for the work they perform in the course of their duties during construction activities.

## 1.1 Requirements of C-HSE

Rehabilitation/restoration works are limited to the existing Right of W ay (RoW) hence, the proposed project will have some medium -minor adverse environmental impacts that are reversible in nature and site-specific with short duration. Therefore, this sub-project falls under the moderate risk category under the ESMF of the SFERP. The ESMP has been prepared accordingly to meet the moderate risk level requirements.

This CESMP has been prepared by (The Contractor) E&S Staff in line with guidelines provided in ESMP document

## 1.2 Aims and Objectives of C-HSE

The main objective of this plan is to strictly enforce the provisions and mitigation measures for potential impacts throughout the entire construction period. Other objectives are:

- Preventing accidents, diseases and harmful impacts on the health of workers arising from employment in construction areas.
- Providing means of analyzing from the point of view of safety, health and working conditions, construction processes, activities, technologies and operations, and of taking appropriate measures of planning, control and enforcement
- Implement training programs that support the achievement of the personnel competency in relation to health, safety and environment.

## 1.3 HSE Policy

PIs insert HSE Policy of the contractor.

## 1.4 HSE Roles and Responsibilities

For the proper execution and implementation of HSE Management Plan, roles and responsibilities have been defined for everyone. Brief discussion of roles and responsibilities being fulfilled is given as under;

### 1.4.1 Project Manager (PM)

- Under the corporate leadership, the Project Manager faithfully implement the corporate HSE policies and aim to attain set goals, set up concrete measures, and ensures the measures strictly implemented by all project staff.
- Acquire and keep up to date knowledge of HSE matters.
- Check the environmental planning of the project and considering realities of the project, the Project Manager establishes a healthy project organization and put in place a well-functioning resource deployment system.

### 1.4.2 HSE Officer

- Implementation of mitigation measures and CESMP, ESMP, and ESMF recommendations at construction sites.
- Plan, manage, monitor and coordinate the entire construction phase in term of HSE.
- Take account of health and safety risk to every one effected by the work.
- Liaise with the CSC & PIU for the duration of the project, to ensure that all the risks are effectively managed.
- Maintain and practice good housekeeping and keep everything at work in its proper place.
- Coordinate with the site in-charge, store in-charge, workshop in-charge, administration manager, site engineers, Doctor/Paramedic, in-charge Security & other heads of departments.
- Ensure the provision of suitable welfare facilities are provided inside the Contractor's camp, from the start of project and maintained throughout the construction phase.
- Ensure the provision of Personal Protective Equipment (PPE), organize regular safety meetings, arrange trainings of first aid and inculcate safety consciousness among the officers, supervisory staff and work force through safety lectures, instruction, safety weeks, safety checks and drills and sign boards in local and English language and coordinate with E&S staff of CSC.

### 1.4.3 In charge Earthwork / Stone / Infrastructural Work / Care & Handling

- Take the leadership of on-site operations of the project.
- Responsible for construction on-site control, implement all protection measures, and directly accountable for environmental protection at the construction site.
- Responsible for the on-site coordination and apply deployment optimization and dynamic management on production factors on the construction site.

- Scientifically and reasonably, plan production and construction, with environment and social protecting considerations in line with CESMP and other safeguard document, based on construction schedule.

### 1.4.4 Site Engineers / Supervisors

- Site Engineers coordinate with HSE staff to communicate the scheduled and ongoing construction activities.
- Coordinate with HSE staff for the implementation of HSE plan and maintain the work sites according to the site-specific HSE rules.
- Well trained to respond in any type of emergency, incident or accident.

### 1.4.5 Flagmen

- They shall be responsible for the implementation of the Traffic Management Plan formulated by the E&S staff of contractor/In charge Safety and ensure that any vehicles of the Contractor as well as other agencies move across the subproject area without any disruption.
- They will help drivers to move safely in the working zone, avoid hazards and potential of hitting/colliding with people and other equipment.

### 1.4.6 Firemen

- They will be responsible for all precautions & preventive measures to be adopted at Site, site offices, residences, plant area, store, fuel station and workshop.
- They will educate project staff about combustible & flammable objects in their working premises.
- They will train the project staff to combat the situation in case of fire incident.
- They will educate project staff how to rescue people & property in case of fire incident

The key positions to be filled within the Contractor's staff for implementation of the CEMP and E&S safeguards include:

**Table 1: Contractor Staff for C-HSE Implementation**

| Sr. No | Name of Staff | Designation | Contact Number |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

# 2. PROJECT DESCRIPTION

The proposed sub-project falls in the District ------. The proposed project is aimed at the rehabilitation of the ------ roads of the district (refer Table-4 for detailed description and Figures 1 for location reference), damaged by the flood with the objective to restore the road connectivity and restoration of livelihood resources of flood-affected communities.

**Table 2: Details of Roads for Rehabilitation at The District**

| S# No | Name of Road | Location / Taluka | Existing | Length (in | GPS Coordinates |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| | | | | | |

## 2.1 Location of the Project

Pls Insert the RD wise Location Plan of the proposed subproject.

**Figure 1: Location Plan**

## 2.2 Contract Description

Table 2.1 below, describes the brief of contract.

**Table 3: Brief Contract Description**

| | |
|---|---|
| Project Name | Sindh Flood Emergency Rehabilitation Project (SFERP) P&DD component |
| Sub-Project Name | Rehabilitation of Rain/Flood Affected Roads, District -------- |
| Project Duration | |
| Camp Location | |
| Client | PIU - SFERP |
| The Engineer | |
| The Contractor | |
| Focal Person<br>Name & Number | From PIU<br>From CSC<br>From Contractor |

# 3. RISK MANAGEMENT AND HAZARD IDENTIFICATION

Risk management and hazard identification is a key part of this plan. Risk assessment and management techniques will be adopted so that potential hazards are identified and evaluated prior to execution of critical job or the job which is going to be conducted first time. The hazard analysis will be done by HSE Manager and Job relevant supervisor in coordination with site Engineer.

## 3.1 Hazard Control

The hierarchy of Risk/Hazard Control is used to determine risk reduction measure in order of their effectiveness, as follows in Figure - 2:

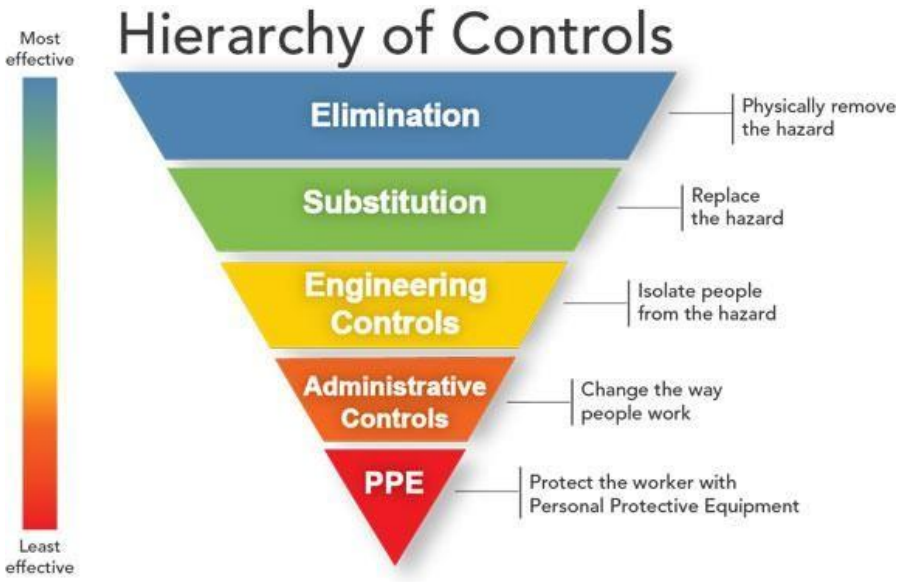
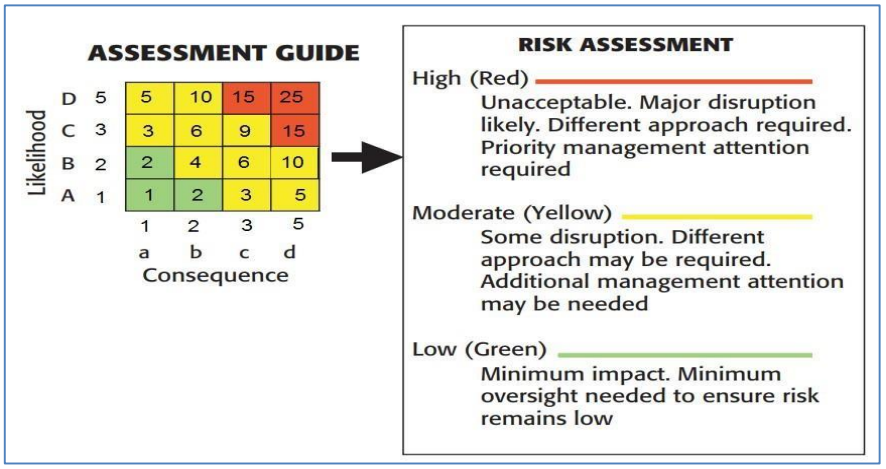



Figure 2: Hierarchy of Hazard Control

## 3.2 Risk Assessment Process

Risk is assessed as the likelihood that the activity will have an effect on the environment as well as the consequence of the effect occurring, as described below.

**Risk = Likelihood X Consequence**




**Risk Assessment Model**

## 3.3 Response Options

Risk identification, assessment, and analysis exercises form the basis for sound risk response options. A series of risk response actions to avoid or mitigate the identified risks is considered as follows. The likelihood scale and consequence scale is described in Table - 4 and 5 respectively.

**Table 4: Likelihood Scale**

| S/No | Likelihood | D | Score |
|---|---|---|---|
| A | Certain | Will certainly occur during the activity at a frequency greater than every week if | 5 |
| B | Likely | Will occur more than once or twice during the activity but less than weekly if preventative | 3 |
| C | Unlikely | May occur once or twice during the activity if preventative measures are not applied | 2 |
| D | Rare | Unlikely to occur during the project. | 1 |

**Table 5: Consequence Scale**

| S/No | Consequence | Definition | Score |
|---|---|---|---|
| A | Catastrophic | Unprecedented damage or | 5 |
| B | Major | Major adverse damage | 3 |

| | | | |
|---|---|---|---|
| C | Moderate | Limited adverse impacts | 2 |
| D | Minor | No or minimal adverse environmental or social impacts | 1 |

- Avoided (by taking appropriate steps).
- Reduced (by an alternative approach).
- Handled by a combination of the above.

All the risks assessed are handled by providing mitigation, management or both. The identification of hazards in the risk assessment matrix is associated with respect to construction activities inside the camp and construction sites.

The risk assessment process is undertaken with a risk assessment matrix and is provided in

Table - 6 below (the table will be customized as per the sites conditions).

**Table 6: Risk Assessment Matrix**

| S/ No | Hazard | Consequence (C) | Likelihood (L) | Risk (R) R=C*L | Risk Ranking | Control Measures | Residual Risk |
|---|---|---|---|---|---|---|---|
| 1 | Mobile equipment failure e.g. lifting gears, Hydraulic failure etc. | Fatality or serious injury (3) | 3 | 9 | Moderate | • Inspection of mobile equipment including mobile crane, lifting chains, ropes and mobile concrete pumps will be carried out prior to the start of the work. | Low |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | Oil, chemical spills, | Contaminate land, control water bodies and ground water. (3) | 3 | 9 | Moderate | • Selection of fuel storage area will be away from water bodies.<br>• Hydraulic & Mobil oil will be kept in closed drums over brick paved bottom.<br>• Contractor will ensure good housekeeping.<br>• Loading and unloading of material will be managed by a competent person.<br>• Spill catching trays will be used to collect used Mobil oil.<br>• Top soil will be removed and disposed of properly where spillage occur.<br>• Spill kit will be available to deal with small spills<br>• Fire Extinguisher will be placed near chemical and oil storage and working areas | Low |
| 3 | Concrete Batching Plant operations and use of hazardous chemical. | Deteriorate ambient air quality or mechanical failure. Cause ingestion of chemical through skin cuts, skin rashes and | 3 | 9 | Moderate | • Batching plant will be located away from the camp colony and also away from nearby local community.<br>• Water sprinkling will be carried out before concrete batching operation to | Low |

| S/ | Hazard | Consequence | Likelihood | Risk (R) | Risk | Control Measures | Residual |
|---|---|---|---|---|---|---|---|
| | | | | | | • Regular inspection of plant and equipment's will be carried out to keep the workers safe due to mechanical failure.<br>• Training and toolbox talks will be provided to all concrete labor and laboratory staff regarding their safety at work.<br>• Safety drills will be conducted regularly | |
| 4 | Accident due to collapsing of Farm work, working platform, steel cutting & bending, concrete pouring etc. | Casualty and serious injury, (5) | 3 | 15 | High | • Provide work specific training and supervision of construction crew.<br>• Provision of Toolbox Talks with respect to the activity carried out at site.<br>• Regular inspection and monitoring of construction activities will be carried out to ensure safety of workers.<br>• Work specific PPE will be provided to the construction workers. | Low |
| 5 | Accident due to movement of vehicles. | Causalities, serious injury and property damage. (3) | 3 | 9 | Moderate | • Flagman will be deputed at required location to regulate vehicular movement in construction vicinity.<br>• Vehicular movement will be kept at well-defined haul roads.<br>• Necessary training regarding defence driving will be provided to all the drivers regarding safe and defence driving. | Low |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | Road dismantling | Deteriorate ambient air quality, and damaged underground utilities.<br>(3) | 3 | 9 | Moderate | • Pre demolishing survey will be carried out.<br>• Necessary instruction and information will be provided to the related staff.<br>• Work Specific PPE will be provided to the workers.<br>• TBT will be given from time to time during demolishing operations. | Low |
| 7 | Smoke from burning | Cause suffocation smog, and diseases of respiratory | 2 | 6 | Moderate | • Cutting and burning of trees shall be prohibited.<br>• Burning of waste will be prohibited. | Low |
| 8 | Project related vehicles | Soil erosion, toppling over, collision and overloading of vehicles.<br>(3) | 3 | 9 | Moderate | • Warning signs should be placed at work places.<br>• Contractor will ensure safe load limit.<br>• Inspection of vehicles will be ensured regularly. | Low |

| S/ | Hazard | Consequence | Likelihood | Risk (R) | Risk | Control Measures | Residual |
|---|---|---|---|---|---|---|---|
| | | | | | | • Vehicles will be parked at designated parking areas.<br>• Training regarding safe driving will be provided to the drivers. | |
| 9 | Fire at camp and site | Skin burns and fatalities. (3) | 3 | 9 | Moderate | • Prohibition of smoking and flame near fuel storage or generators areas.<br>• Provision of fire extinguishers and sand buckets will be ensured.<br>• Awareness training, firefighting and emergency response training will be provided to the workers. | Low |
| 10 | Electricity | Cause high risk if not attended i.e. Electric shock, cardiac arrest, muscular contraction and death. (3) | 3 | 9 | Moderate | • Contractor will insure insulation of electric wires and equipment casing.<br>• Regular inspection of electrical equipment and cables will be carried out.<br>• Insulation work and electrification will be prohibited on live distribution network<br>• Provision of training and regular inspection will be ensured.. | Low |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11 | Electric grinder and cutters. | May cause abrasion, deep skin cut, puncturing and stabbing due to raptured cutting disc and grinding activities. | 3 | 9 | Moderate | • Pre use inspection will be carried out.<br>• Training of workers will be ensured regarding the use of such equipment's.<br>• Necessary clothing, gloves face mask and shield will be provided to the workers. | Low |
| 12 | Noise | Hearing loss, headache and interference in actions (3) | 2 | 6 | Moderate | • It will be ensured that regular inspection, maintenance and lubrication of plant, equipment and vehicles will be carried out.<br>• Vehicles equipped with exhaust muffler will be used for the execution of construction works.<br>• Provision of Ear plugs and ear muffs and their use will be ensured by the workers. | Low |
| 13 | Dehydration | Dizziness, unconsciousness, fatigue and stress (3) | 2 | 6 | Moderate | • Provision of fresh drinking water facilities will be ensured at camp and construction sites.<br>• Provision of sheds at sites for frequent rest breaks. | Low |
| 14 | Slip & trip | Scorching, fractured and broken bones. 3) | 2 | 6 | Moderate | • Contractor will ensure good housekeeping at camp and construction site. | Low |

| S/ | Hazard | Consequence | Likelihood | Risk (R) | Risk | Control Measures | Residual |
|---|---|---|---|---|---|---|---|
| | | | | | | • Spills and leaks will be clean immediately to avoid slip hazards.<br>• Training and supervision will be ensured. | |
| 15 | Improper solid waste management | Ill health and damage aesthetic values of camp & construction site environment. (3) | 3 | 9 | Moderate | • Daily sweeping and cleaning will be ensured at camp and construction sites.<br>• Primary & Secondary waste storage facilities will be provided inside the camp.<br>• Necessary Training, instruction will be given to workers to promote good housekeeping. | Low |
| 16 | Ergonomic | Muscles, back injuries, fatigue and stress. (3) | 2 | 6 | Moderate | • Substitute manual handling by using manual handling aids and mobile shovel or loaders.<br>• Modifying the work process to minimize repetitive movement. | Low |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17 | Environmental issues | Loss of flora and fauna. (3) | 3 | 9 | Moderate | • Un necessary cutting of tree will be avoided.<br>• Approval will be taken from concerned department and the Engineer.<br>• Hunting of local fauna will be prohibited. | Low |

# 4. SAFETY REQUIREMENT

## 4.1 General

### 4.1.1 Personnel Requirement

- Construction of camp and offices, drainage of sewage water, washing & bathing places, adequate drinking water and provision of facilities for the work force will conform to the Government laws/regulations pertaining to hygiene & sanitation.
- GRC shall take all reasonable precautions to prevent any unlawful conduct by or amongst his staff/labour and protection of persons and property in the neighborhood of the workers against the same.
- Employees will be issued with protective equipment and clothing like safety belts, harnesses, goggles, helmets, masks, in accordance with the nature of their job whereas their use shall be made mandatory.
- Necessary instructions pertaining to camps, work site and weather will be issued separately and their implementation ensured.

### 4.1.2 Transportation Facilities and Vehicles

- Drivers and operators will observe and obey instruction contained in the Traffic Management Plan.
- Speed limits, which are safe for those vehicles as per its make, will be enforced in all working areas.
- To eliminate accidents, special provisions will be made for vehicles meant for transportation of personnel.
- Instructions pertaining to safe operation of vehicles including cars and trucks, watercrafts, crossing of roads and transportation of personnel will be issued separately and their implementation strictly monitored.

### 4.1.3 Temporary Installation

- All temporary electrical installation for the light and power will conform to the safety requirements.
- All temporary wiring will be properly supported and insulated. Wooden poles will be used to fix the lose electric cables. No bare conductor will be permitted in the working premises.
- No shovel, excavator, loader, dozer and any other machine, which has long boom will be operated in the vicinity of high voltage lines unless the power is off or necessary precaution taken before work.

- Scaffolding subjected to heavy use will be inspected each working day and necessary maintenance will be performed immediate. Scaffolds and platform will be kept free of oil, mud and any other material that create a hazard. Excessive storage of material or tools on installed scaffoldings will not be permitted.

- Material used in the fabrication of construction equipment such as ladders will be of appropriate structural grade and strength and free of defects, which will reduce strength. Each metal ladder will be marked in bold bright letters to show hazard of use around the electrical equipment. Workers performing vigorous jobs will not use stepladders, but appropriate platforms or scaffolds will be provided.

### 4.1.4 Construction Machinery and Equipment.

- Safety of worker will be ensured during repair and maintenance.
- Safety instructions as written in the instruction manuals will be written in English and Urdu and will be hung at proper places in the workshops.
- Equipment that has been raised by cranes etc. will be securely blocked.
- Only qualified personnel at safe speed mentioned in instruction manuals will operate all machinery.
- All welding and cutting operations will be performed by experienced personnel only. W elders & helpers will be properly protected. Welding screens will be provided to workmen to protect their eyes and body.
- Instructions will be issued separately for safe operation of each machinery or

  equipment and their implementation strictly
  ensured.

### 4.1.5 Excavation

- Each earthmoving equipment shall only be occupied by the operator while carrying out excavation.
- Movement of vehicles near the edges of excavation will be strictly prohibited.
- Excavation work will be carried out in the presence of competent person.
- Excavation will be barricaded to minimize fall in hazards.
- Deep excavation will be carried out in the form of slopes to minimize collapsing hazard.
- Instructions for safe excavation will be issued separately and their implementation

  ens
  ure
  d.

### 4.1.6 Concrete Operations

- When conditions require, all related workmen will wear protective devices like helmets, gloves, safety shoes, goggles etc.
- Precautions will be taken by workmen to prevent cement and concrete from contacting the skin by wearing hand gloves and long rubber shoes. Such workers will be provided facility for changing clothes and taking showers.
- During the periods of normal operation, repair or maintenance, concrete and

  aggregate processing plants will incorporate the use of alerting alarms and other measures necessary to ensure the safety of the employees in and about the equipment.
- Pump concrete pipelines will be adequately anchored at all bends.

### 4.1.7 Storage & Handling of Materials

- All construction materials will be stored in an orderly manner in safe stocks to facilitate handling and loading. Materials in storage will be placed within six (06) feet of doorways or hoist-ways. Where required, warning signals, lights and barricades will be provided.
- Unauthorized persons will be prohibited from entering storage areas and buildings and provisions will be made to guard against theft. Men working in the manual handling and storage of materials and equipment will be instructed to lift properly by keeping the ergonomic hazard.
- Workers, handling cement or chemicals, will wear protective clothing, gloves etc.

  Materials will not be piled against walls that will be endangered by the thrust etc. All wood and flammable material in storage will be protected from fire.
- Workers handling reinforcing steel will be required to wear heavy gloves. Structural

  steel will be carefully piled to prevent sliding or tripping. Pipe will be stocked according to the size and will be supported to prevent spreading.

Storage of flammable liquids and materials will be in accordance with the Government regulations. Daily inspection will be made of all areas where flammable liquids and materials are stored or handled. Storage areas will be kept free of rubbish, bushes or like combustible materials.

### 4.1.8 Fire Protection

- Smoking will be prohibited in buildings/areas where there are extreme fire hazards like fuel stations, storage of bituminous materials, paint or gas etc. “NO SMOKING” signs will be posted and the prohibition enforced.
- Workers, working with flammable materials, will be instructed on precautions and

  will be trained in use of fire extinguishing equipment.

- Training in fire-fighting will be at sufficiently frequent intervals to ensure familiarity with the equipment and methods.
- Fire-fighting equipment i.e. fire extinguisher will be provided and installed.
- Extinguishers will be conveniently placed and distinctly marked & will be inspected according to the manufacturer's recommendation.
- Fire barrels will be kept full at all times. Buckets will be painted red and marked "FOR FIRE ONLY".

## 4.2 Site Specific HSE Rules

All workers will go through HSE orientation session before starting a new job and directed to:

- Understand the provisions of SSEMP regarding the specific job.
- always use work specific PPE
- understand and follow safety board's installed at sites
- In case of any emergency alarm, do not create panic and follow company emergency preparedness instructions.
- Access the first aid facility in case of any injury.
- Report promptly all accidents to the site in charge and HSE Manager.
- During night shifts, never work in darkness or dim light.
- Scraps, waste materials and garbage must be dumped in prescribed drums.
- Follow good housekeeping and prevent accidents.
- Do not remove Barricade tapes rather ensure its presence at vulnerable places.
- Never insert direct cables in electric sockets.
- Work at heights is strictly prohibited without safety harness. Ensure presence of strong side railings and toe boards at platforms.
- Do not smoke or produce naked flame in no smoking areas i.e. fuel storage area.
- Park vehicles at parking areas only & follow speed limit of 20 km/hr within project area.

### 4.2.1 Health Care and First Aid

Contractor will provide medical facility with ambulance and qualified doctor (as per EMP requirements) in the form of dispensary at the main camp. Weather proof first aid boxes will be available at each construction site. The first aid kit must consist of items approved by the consulting physician. The items of first aid kit will be checked before being sent out at each construction site and will be checked on weekly basis. The basic items of first aid kits are given belo
w.

- Basic medicines
- Cotton
- Cotton and antiseptic Bandages
- Pain Relief Gel / Creams
- Payodine
- Spirit
- Scissor

### 4.2.2 PERSONAL PROTECTIVE EQUIPMENT

The use of PPE depends upon the hazards present in the work area. Site supervisor and HSE Manager are responsible to provide PPE to all workers. With respect to hazard identification on working site,

The employees have a responsibility to:

- take reasonable care of the PPE provided
- use PPE in accordance with the training and instruction given
- to keep the PPE clean and return it to its place of storage after use and report any loss or defect immediately.

HSE Manager will organize orientation session regarding the importance and use of PPE. A partial list of protective gears to be worn by the workers at designated work areas is given below;

**i. Head Protection**

Protective helmets will be put all times mainly at the working sites, under scaffolds, erection etc., where there are possibilities of head injuries from falling/flying objects.

**ii. Hearing Protection**

Earplugs or earmuffs will be worn in areas where exposure to high noise level is expected. Examples of such activities include different machinery operation for construction activities.

**iii. Eye and Face Protection**

Spectacles, Goggles and Face Shield whichever is appropriate, will be used at times when welding; spray painting or similar activities are in progress at the field.

**iv. Respiratory Protection**

In work areas like concrete batching, concrete pouring and earthwork areas where exposure to harmful or toxic fumes and dust is likely to be, then the workers shall wear dust mask.

**v. Hand and Arm Protection**

In the work involving piercing, cutting or vibration hand protection gloves will be provided to the workers for protection against toxic chemicals. Special chemical resistant gloves should be worn. Over sleeves must be worn to protect one's arms.

**vi. Foot Protection**

To prevent from sharp and falling objects hazards i.e. working on or under scaffolds, roof works, formwork erection and dismantling, safety shoes/boots are essential protective measures.

# 5. SAFE WORKING PROCEDURES

During the execution of construction activities, the workers should be keenly aware of the hazards of their job, as well as the simple safety precautions that could help prevent an accident. Here are some ways to prevent hazards.

## 5.1 Promoting Safety First Mind-set

Ensuring workplace safety of workers and local community particularly, while executing earth works, structural works, concrete batching, lifting and rigging operations, must be a top priority that embodies the mind-set, attitude and Behaviour of workers, supervisors, drillers, and managers alike. Promoting personnel with a safety-first mindset, proactively keep an eye out for safety issues for maintaining a safe work environment, which includes adopting all safety rules and regulations and keeping alert to possible hazards.

## 5.2 Require Orientation and inductions

All site workers, mechanical, civil electrical teams and machinery operators, will undergo a mandatory orientation/induction, before being allowed to execute their specific work. Such orientation helps employees and sub-contractors become familiar with company and construction operational policies, expectations and worksite rules, thus producing a safer work environment.

## 5.3 Workers Training

Contractor will conduct the orientation trainings, which include instructions on the machinery and equipment in use, as well as on safety procedures. Refresher trainings for workers will also be conducted to remind their duties and responsibilities. Providing consistent trainings to employees demonstrates our commitment to safety and is yet another way to instil a safety-first mind set.

## 5.4 Provision of Required PPE

Contractor will provide mandatory PPE, including safety glasses, hard hats, gloves, safety shoes, and dungarees. Contractor will encourage workers for the use of PPE and will train them regarding their use and requirement.

## 5.5 Implement a Positive Reporting Process

A positive reporting process will be developed, through which, employees feel the freedom to report complaints and workplace hazards. Complaint register is present inside the camp office. Signboards have been also installed regarding the location of complaint office. Instead of responding negatively (or even acting punitively) to employees, who report potential hazards, Contractor will praise them for their efforts.

## 5.6 Communicate Safety Regularly

Contractor will carry out weekly safety talks, an excellent way to instil a safety mind set among workers. Rather than just lecture, use interactive small group discussions to involve everyone, and allow time for questions.

## 5.7 Educate Sub-Contractors

HSE practices will be a chief concern for the workers of Contractor or Sub-contractor. Contractor will educate sub-contractors regarding workplace activities, hazard related to working activities and execution of HSE practices at work place.

## 5.8 Routine Housekeeping

Housekeeping is the act of keeping the working environment cleared of all unnecessary waste and material, thereby providing a first-line of defense against accident and injuries. Housekeeping will be the responsibility of all site personnel, line management commitment will be demonstrated by the continued efforts of the supervisory staff towards this activity. Contractor will maintain routine housekeeping and keep the floors, walkways and work areas clear of unnecessary items to prevent trips, falls and struck-by hazards.

## 5.9 Machinery Maintenance

Contractor's Mechanical team will conduct regular maintenance checks of machinery to prevent premature failure, which could present potential hazards, and then repair or replace damaged or inoperable parts and equipment quickly. Maintenance record will be maintained as routine activity. Contractor will ensure integrity of the equipment and safer work environment.

## 5.10 Incident and Injury Management

Contractor will strive to ensure its operations reduce the levels of risk of personal injury, damage to health and damage to a level which is as low as reasonably practicable.

# 6. Reports

## 6.1 Communication

Communication means to inform workers and community to realize them that they are our development partners, our problem and issues can only be minimized by our collective efforts. Communication includes all types of trainings, banners, sign boards, warnings and precautions. All communication material being used is in English / Urdu languages.

## 6.2 Documentation

This step is mandatory for monitoring and progress evaluation. Following documents will be maintained, while execution of construction activities:

- Monthly HSE Progress Report
- CESMP, HSE Management Plan, Waste Management Plan, Traffic Management Plan and Emergency Preparedness Plan.
- Quarterly Environmental Monitoring Reports
- Daily, Weekly, Monthly Environmental Monitoring Checklists
- Material Safety Data Sheets (MSDS)
- Safety Violation Forms
- Toolbox Talk Forms
- PPE Record Register
- Environment and Social Complaint Register.
- HSE Training Participation Sheet

Formats of HSE Training Participation Sheet, TBT Forms, PPE Record Performa and Safety Violation Form have been furnished as attachments to the HSE Plan.

## 6.3 Hazard Reporting

Immediate reporting mechanism has been developed which allow the employees to report hazardous condition or practice as they notice them. Onsite workers or employees will directly report any hazardous condition or practice to their concern supervisor, then the supervisor will report to the HSE Manager/Supervisor. Hazard will be communicated verbally or either by filling form provided as Attachment-06**.** This procedure will allow for prompt reporting and subsequent corrective action without waiting for the next round of regular inspection.

### 6.3.1 Incident and Injury Management

In case of fire, explosion, falls from heights, electrocutions, cave-ins, etc., casualty(s); the Emergency Response Team (ERT) shall be activated; they shall provide first aid and transport causality to the nearest emergency medical facility or the concerned nearest camp / first aid post. Transportation arrangements must be made immediately and the concerned Emergency

Response Coordinator (ERC) or person in-charge must be informed immediately. The happening must be recorded and reported to PIC. The incident must be investigated, findings recorded, control measures devised; and communicated to all concerned, in order to avoid such happenings in future.

In case of any emergency, following contact information of ERT have already been shared with the camp staff and construction crew to communicate quickly and accurately through mobile phones, internally within the project area:

**Table 7: Emergency Contact Numbers**

| Name | Designation | Contact |
|---|---|---|
| | *Site Manager* | |
| | *HSE In-charge/ Environmentalist* | |
| | *Project Coordinator* | |
| | *Paramedic* | |

## 6.4 Monitoring

Monitoring will be carried out through daily, weekly and monthly checklists by both the Contractor and Consultant's HSE staff. It helps in understanding the prevailing conditions of health and safety of workers, safety of workplace and environment of the project area. This also leads to analyse the mitigation measures for continuous improvement.

## 6.5 Orientation & Training

Contractor's HSE staff recognizes the critical impact of the safety training in ensuring safe performance and is always executing a comprehensive training program. Safety trainings will be delivered by HSE Manager to ensure that it achieves its objectives. Safety sign boards are displayed on the work sites to aware / train local community and workers about safety rules. HSE meetings are being conducted on monthly basis with top management so that the solution of the problems can be sorted out on prior basis.

Trainings /Awareness campaigns are being conducted at site for capacity building of employees / workers / labour to make them well effective to respond in any kind of emergency situation. Following trainings will be imparted at regular intervals.

- HSE Plan Implementation
- Importance of PPE
- Fire Fighting
- First Aid
- Good Housekeeping
- Health, Hygiene and Communicable Disease
- Work at Height
- Electrical and Mechanical Safety

- Road Safety
- Camp Operations and related HSE issues
- Trainings on adaptation of preventive measures communicable diseases.

Training frequency will depend upon the complexity of the job and the identification of new hazard. These trainings are conducted in a realistic way, such that an artificial emergency situation is created & all the participants are trained about how to deal with such situation.

Above mentioned topics are repeated on demand so that new entries may get the knowledge shared in such meetings / trainings. They will be also instructed that they should avoid panic condition in any emergency.

## 6.6 Management of Sub-Contractor

Each Sub-contractor will be obligate to comply with all safety requirements, Site-Specific plans/procedures and any other contractor safety requirements. All sub-contractors will adhere to these requirements for the performance of their work to promote the safe completion of project.

## 6.7 Incident Investigation & Reporting

Contractor will properly and thoroughly investigate the incident / accident cause, damages to property or more serious injury and / or ill-health to workforce at construction site. Contractor shall promptly take a reasonable action on the event of incident / accident and shall prepare incident / accident report after proper investigation. The format of incident / accident report is provided as Attachment-07.

## 6.8 Preventive Measures for Communicable Disease

In compliance of SOPs, the following preventive measures have been adopted at camp and construction sites:

- At camp, all the personnel, workers and visitor go through temperature check via noncontact infrared thermometer at time of arrival and departure.
- Entry of unauthorized person is strictly prohibited inside the camp and sites.
- Sanitizers have been provided at work places i.e. Office, Laboratory, Store, Kitchen and construction work site.
- Hand washing facilities is available at camp site.
- Sharing of utensils etc. is discouraged.
- Limited passengers while traveling is maintained.
- Disinfection of the residential as well as workplace is regularly done.
- Awareness banners regarding preventive measures will be displayed at different location inside the camp.

## Annexure 1: HSE Training Participation Sheet

| **Health, Safety & Environment Training Participation Sheet** | | | |
|---|---|---|---|
| Site Address | | Training Date: | |
| Training Topic: | | | |
| Trainer: | | Signature: | |
| Site Engineer: | | Signature: | |
| Remarks: | | | |
| S/No | Name | Designation | Signature |
| | | | |
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## Annexure 2: Toolbox Talks Form

| | | | |
|---|---|---|---|
| Toolbox talk: | | | |
| Project title: | | | |
| Topic: | | | Date: |
| Workplace: | | | |
| Delivered by: | | | Time: |
| Persons present | | | |
| Name | Signature | Name | Signature |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Topics Discussed: | | | |
| Comments/Feedback: | | | |

## Annexure 3: PPE Assessment Form

| Personal Protective Equipment Assessment Criteria | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S.NO | Activity | PPE REQUIRED | | | | | | | | | | | |
| | | Helmet | Coverall | Safety Shoes | Safety Goggles | Facesheild | Hand Gloves | Earmuff | Earplug | Reflective Vest | Welding Helmet | Face Mask | Respiartor Mask | Full Body Harness |
| | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Work At Height | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✘ | ✘ | ✔ | ✘ | ✔ | ✘ | ✔ |
| 2 | Confined Space | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✘ | ✔ | ✔ | ✘ | ✘ | ✔ | ✘ |
| 2 | Welding Process | ✘ | ✔ | ✔ | ✘ | ✘ | ✔ | ✘ | ✔ | ✔ | ✔ | ✔ | ✘ | ✘ |
| 4 | Chemical Handling/Mixing | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✘ | ✘ | ✔ | ✘ | ✔ | ✔ | ✘ |
| 6 | Material Handling | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✘ | ✘ | ✔ | ✘ | ✔ | ✘ | ✘ |
| 6 | Forklift Operation | ✔ | ✔ | ✔ | ✘ | ✘ | ✔ | ✘ | ✔ | ✔ | ✘ | ✔ | ✘ | ✘ |
| 7 | Overhead Crane Operation | ✔ | ✔ | ✔ | ✘ | ✘ | ✔ | ✘ | ✘ | ✔ | ✘ | ✔ | ✘ | ✘ |
| 8 | Grint/Sand Blasting Operation | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✘ | ✘ |
| 9 | Painting Process | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✘ | ✘ | ✔ | ✘ | ✔ | ✘ | ✘ |
| 10 | Electrical Maintenance | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✘ | ✔ | ✔ | ✘ | ✔ | ✘ | ✘ |
| 11 | Mechanical Maintenanace | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✘ | ✘ |
| 12 | Visitors | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✘ | ✔ | ✔ | ✘ | ✔ | ✘ | ✘ |
| 13 | Drivers | ✔ | ✔ | ✔ | ✘ | ✘ | ✔ | ✘ | ✘ | ✔ | ✘ | ✔ | ✘ | ✘ |
| 14 | Excavation Work | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✘ | ✔ | ✔ | ✘ | ✔ | ✘ | ✘ |
| 15 | Housekeeping Work | ✔ | ✔ | ✔ | ✔ | ✘ | ✔ | ✘ | ✘ | ✔ | ✘ | ✔ | ✘ | ✘ |

## Annexure 4: PPE Record Form

| S/No | Name | Designation | Safety Helmet | Safety Gloves | Life Jacket | Safety Shoes | Work Wear | Face Mask | Goggles | Signed | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Issued | Returned |
| | | | | | | | | | | | |
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## Annexure 5: Safety Violation Form

### Employees Safety Violation Form

Employee Name _____

Designation _____

Site Location _____

Site Supervisor _____

Violation details:

_____
_____
_____
_____

Note:

The person has found doing violation of HSE SOPs and because of the above mentioned violation, this person has been fined PKR _____ by the site HSE officer and has been warned not to commit such violation again.

# Annexure 6: Incident / Accident Report Form

Project Title : _____ Project # : _____

Near Miss / Incident:- Title _____ Report No.: _____

| **Report of Incident – Section I** | | | | | | |
|---|---|---|---|---|---|---|
| **Responsible Contractor / Dept. :** | | | | | | |
| **Short Description of Incident:** | | | | | | |
| **Report Prepared By:** | *Name:* | *Job Title:* | *Contact Details:* | | | |
| **Responsible Supervisor:** | *Name:* | *Job Title:* | *Contact Details:* | | | |
| **Incident Owner:** | *Name:* | *Job Title:* | *Contact Details:* | | | |
| **Where did the incident occur?** | | | | | | |
| **Location:** | | | | | | |
| **Specific Location:** | | | | | | |
| **What were the conditions like?** | | | | | | |
| **Weather:** | | | | | | |
| **Lighting:** | | | | | | |
| **Road Surface:** | | | | | | |
| **When did the incident occur?** | | | | | | |
| **Date Occurred:** | *(day/month/year)* | | | **Time:** | *24 hour* | |
| **Date Reported:** | *(day/month/year)* | | | **Time:** | *24 hour* | |
| **Who or What was involved?** | | | | | | |
| **Employee:** | *Name:* | *Job Title:* | *Contact Details:* | | | |
| **Contractor:** | *Name:* | *Job Title:* | *Contact: Details:* | | | |
| **Witnesses:** | *Name:* | *Job Title:* | *Contact Details:* | | | |
| **Vehicle / Equipment Involved:** | *Description and Number:* | | | | | |

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| **Event Type:** | | | | | |
|---|---|---|---|---|---|
| **Incident resulting in personnel injury** | ☐ | | **Non-conformance** | ☐ | |
| **Incident resulting environmental damage** | ☐ | | **Public complaint** | ☐ | |
| **Incident resulting in asset damage** | ☐ | | **Potential incident** | ☐ | |
| **Near miss** | ☐ | | **Unsafe act** | ☐ | |

**Type of Hazard: * Encircle any of the following hazard types.**

| **A. Health hazards** | **B. Safety hazards** | **C. Environment hazards** |
|---|---|---|
| 1. Hazardous Material | 1. Fire and Explosion | 1. Airborne Emission |
| 2. Asphyxiation | 2. Flammable Properties | 2. Underground Equipment Failure |
| 3. Radiological | 3. Ignition Sources | 3. Surface water Run-off |
| 4. Lightning | 4. Opening Equipment for Maintenance | 4. Process Water Effluents |
| 5. Burns | 5. Process Hazards | 5. Separators |
| 6. Noise | 6. Entry into Confined Spaces | 6. Waste Generation Disposal |
| 7. Microbiological | 7. Hot Work | 7. Sludges |
| 8. Hygiene/Cleanliness | 8. Machinery | 8. Refrigerants |
| 9. Health | 9. Electricity | |
| 10. Physical Damage | 11. Excavations | |
| | 12. Working at Height | |
| | 13. Road Operations | |
| | 14. Falling Objects | |

| **Associated Risk:** |
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| **Enter any illness or injury information:** |
|---|
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| **Enter any spill information:** |
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| **Enter full description of this incident:** |
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| **Enter any immediate corrective actions taken:** | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| **Actual Incident Risk Assessment:** See IRAM (Annexure A) *(Please circle)* | | | | | | | |
| **Likelihood:** | **People** | | **Asset** | | **Environment** | | **Reputation** |
| A, B, C, D, E | 0, 1, 2, 3, 4, 5 | | 0, 1, 2, 3, 4, 5 | | 0, 1, 2, 3, 4, 5 | | 0, 1, 2, 3, 4, 5 |
| **Risk Classification:** | **Red** | ☐ | **Yellow** | ☐ | **Green** | ☐ | |
| | | | | | | | |
| **Potential Incident Risk Assessment:** See IRAM (Annexure A) *(Please circle)* | | | | | | | |
| **Likelihood:** | **People** | | **Asset** | | **Environment** | | **Reputation** |
| A, B, C, D, E | 0, 1, 2, 3, 4, 5 | | 0, 1, 2, 3, 4, 5 | | 0, 1, 2, 3, 4, 5 | | 0, 1, 2, 3, 4, 5 |
| **Risk Classification:** | **Red** | ☐ | **Yellow** | ☐ | **Green** | ☐ | |
| | | | | | | | |
| **Section II - Root Cause Analysis** | | | | | | | |
| 1. Substandard Action | | | 2. Substandard Condition | | | | |
| 3. Personnel Factor | | | 4. Job Factor | | | | |
| **CAUSES CHECKLIST** | | | | | | | |
| **IMMEDIATE CAUSES** | | | | | | | |
| **SUBSTANDARD ACTIONS** | | | **SUBSTANDARD CONDITIONS** | | | | |
| [] 1.Operating equipment without authority | | | [] 1. Inadequate guard or barriers | | | | |
| [] 2. Failure to secure | | | [] 2. Improper protective equipment | | | | |
| [] 3.Failure to warn | | | [] 3. Defective tools, equipment | | | | |
| [] 4.Operating at improper speed | | | [] 4. Conjunction or restricted action | | | | |
| [] 5.Making safety device inoperable | | | [] 5. inadequate Warning System | | | | |
| [] 6.Using Defective equipment | | | [] 6. Fire & Explosion Hazards | | | | |
| [] 7.Using Equipment improperly | | | [] 7. Poor Housekeeping | | | | |
| [] 8.Failure to properly use PPE | | | [] 8. Environmental conditions | | | | |
| [] 9.Improper loading/placement/lifting | | | [] 9. Noise/Radiation Exposures | | | | |
| [] 10.Improper position for task | | | [] 10. Inadequate Ventilation | | | | |
| [] 11.Servicing equipment in operation | | | [] 11. High or low temperatures | | | | |
| [] 12. Horse play | | | [] 12. Inadequate illumination | | | | |
| **UNDERLYING CAUSE / BASIC CAUSE** | | | | | | | |
| PERSONAL FACTORS | | | JOB FACTORS | | | | |
| [] Inadequate capability | | | [] Inadequate Leadership supervision | | | | |

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| | |
|---|---|
| [] Lack of knowledge<br>[] Lack of skill<br>[] Stress<br>[] Improper motivation | [] Inadequate Engineering<br>[] Inadequate Purchasing<br>[] Inadequate Tools/Equipment<br>[] Inadequate Maintenance<br>[] Inadequate Work standards<br>[] Wear & Tear<br>[] Abuse or misuse |

| **Conclusion** |
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| **Preventive Actions** |
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| |

| **Recommendations by Investigator** | **Responsibility** | **Closing Date** |
|---|---|---|
| | | |
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| | | |
| | Date | Area lead Incharge |

**Report Distribution:** *Note: * select amongst the following. PM, SM, Head QHSE, Head BA, CEO, construction mgr., Comm. mgr., HSE incharge, subcontractor.*

| | | |
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|---|---|---|
| **Report Entered By:** | *Name:* | **Date:** |
| **Incident Report No.:** | | |

SM / Incident Owner
Date:

Site I/C HSE
Date:

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## Annexure 7: Hazard Reporting Form

| | |
|---|---|
| Name: | |
| Location: | |
| Equipment: | |
| Description of Hazard: | |
| Supervisor Remark: | |
| Corrective Action Taken: | |
| Signature of Supervisor: | Date: |
| Suggested Corrective Action: | |
| Signature of HSE Manager / Supervisor | Date: |

## Annexure 8: Non-Compliance Reporting Sheet

| Sr. # | Non-Compliance | Reported Date | Compliance Status | Compliance Date |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

# Annexure VIII: Contractor's Labour Management Plan (LMP)

## DRAFT-SAMPLE
## CONTRACTOR'S LABOUR MANAGEMENT PLAN (LMP)
## FOR
**Rehabilitation of Rain/Flood Affected Roads**

| S.NO | DATE | PREPARED BY | CHECKED BY | APPROVED BY | REMARKS |
|---|---|---|---|---|---|
| **1.** | | The Contractor | CSC | PIU | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# ABBREVIATIONS / DEFINITIONS

| | |
|---|---|
| CoC | Code of Conduct |
| ESCP | Environmental and Social Commitment Plan |
| ESF | Environmental and Social Framework |
| ESMF | Environmental and Social Management Framework |
| ESMP | Environmental and Social Management Plan |
| ESS | Environmental and Social Standards |
| GBV | Gender Based Violence |
| GRC | Grievance Redress Committees |
| GRM | Grievance Redress Mechanism |
| HSE | Health Safety and Environment |
| ILO | International Labor Organization (ILO) |
| PIU | Project Implementation Unit |
| PPEs | Personnel Protective Equipment |
| SEA | Sexual Exploitation and Abuse |
| STD | Sexually Transmitted Disease |
| STI | Sexually Transmitted Infection |

# 1. INTRODUCTION

## 1.1 Project Background

The Federal Government of Pakistan requested the global community and development partners for assistance to respond to the flood disaster following the Flood 2022 emergency. Subsequently, the World Bank (WB) task team visited the province and had a series of meetings with the provincial Govt. During the discussions held with the WB Mission, a two-pronged strategy was agreed i.e.

- Restoration/Rehabilitation of Rural (Farm to Market) Roads in affected districts, talukas and UCs.
- Restoration of water supply, drainage and sanitation schemes in affected districts, Talukas and Union Councils.
- Provision of immediate financial assistance, cash for work is proposed to rehabilitate small community structures like rural roads, watersheds, watercourse (s) to carry irrigation water to Farm(s), Rehabilitation of village streets and restoration of village sanitation work including removal of stagnant water in villages. The exact number to be arrived at after assessment.
- Expansion of the Emergency Rescue Service (Sindh Emergency Rescue Services-1122) to 09 districts i.e. Jamshoro, Dadu, Sajawal, Badin, Qambar Shehdadkot, Shikarpur, Jacobabad, Thatta, Ghotki. The Provincial Government has already launched Sindh Emergency Rescue 1122 in Six Districts HQs – Karachi, Hyderabad, Mirpurkhas, Shaheed Benazirabad, Sukkur, and Larkana.

## 1.2 Project Components

The proposed Sindh Flood Emergency Rehabilitation Project – SFERP falls into four main components.

i. Component--1 Infrastructure Rehabilitation:

ii. Component--2 Livelihoods Restoration

iii. Component--3 Institutional Strengthening for Resilience and Technical Assistance

iv. Component--4 Project Management

## 1.3 The Proposed Sub–Project

The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas of the province.

The present Labor Management Plan (LMP) represents the risks and impact associated with workers of Component- 1: Infrastructure Rehabilitation, Sub-component 1.2: Restoration of Roads and Allied Infrastructure:

Administratively, this reconditioning work fall in --------- Rural Taluka of the district --------.

## 1.4 Labour Management Plan (LMP)

This Labor Management Plan (LMP) was developed by the Construction Contractor (CC) under the supervision of Construction Supervision Consultant (CSC) with the endorsement of Project Implementation Unit (PIU) - SFERP for Restoration of Roads and Allied Infrastructure. It identifies labor requirements and sets out the procedures for addressing labor conditions and risks associated with the proposed project during construction, which is aimed at helping the project to determine the resources necessary to address project Labor issues. The LMP is enshrined within the context of the World Bank Environmental and Social Standards (ESS) 2: Labor and Working Conditions as well as Labour Management Procedure prepared for SFERP.

The World Bank has rated the risks and impact associated with workers as well as community health and safety, and the risk associated with Labor impact as moderate due to the nature of rehabilitation activities which are well understood and expected to have limited impacts as they can largely be avoided, minimized or managed through procedures, including procedures set out in this LMP. The LMP will be reviewed continually during project implementation and adequate measures and procedures to manage negative impacts will be put in defined.

The objectives of the LMP include:

- To protect project workers including vulnerable workers such as women and girls, transgender, differently abled person/persons with disabilities, children of working age, migrant workers, contracted workers, community workers and primary supply workers
- To promote safety and health at work.
- To promote the fair treatment, non-discrimination
- To prevent the use of all forms of forced labor and child labor.
- To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with The Sindh Occupational Safety and Health Act, 2017.
- To provide project workers with accessible means to raise workplace concerns.

## 1.5 Scope of The Labour Management Plan

This LMP describes the requirements and expectations in terms of compliance, reporting, roles, supervision and training with respect to labor and working conditions, including camp accommodation. The LMP will cover all categories of workers. The LMP will set out the following procedures.

- How workers will be managed in accordance with the national law requirement
- Guidelines for the different categories of project workers
- Terms and conditions of Employment
- Child Labor
- Forced Labor
- Non-discrimination and equal opportunity
- Protecting the Workforce
- Grievance Mechanism
- Occupational Health and Safety

# 2. OVERVIEW OF LABOUR USE IN THE PROJECT

## 2.1 Type of Workers

ESS-2 categorizes the workers into direct workers, contracted workers, community workers, and primary supply workers. The categories for which the project workers have been defined are provided below.

**a)** Direct workers: Direct workers will comprise a mix of government civil servants from various relevant line ministries and those deployed as technical consultants" – full and part-time by the PIU-SFERP – under the project. The former will be governed by a set of public service rules, the latter by mutually agreed contracts. The officers in the PIU who will serve as Procurement Officer, Monitoring & Evaluation Officer, Gender Officer, Environmental Safeguard Officer, Social Safeguard Officers and Communications Officer.

The PIU will implement day-to-day coordination, management and monitoring of the project components.

**b)** Contracted workers: Two broad categories of contracted workers are expected. First is Consultant service providers who will provide construction supervision services to the PIU. Second is the staff of civil works contractors to be subcontracted to arrange for civil works act as Construction contractor/the Contractor under the subproject.

**c)** Community Workers: The labor will be sourced locally for skilled and unskilled labor.

**d)** Primary Suppliers are likely to include suppliers of construction materials for any civil works to be supported by the project.

## 2.2 Number of Project Workers

Table 1 below provides labour requirement for rehabilitation of roads.

**Table 1: Estimated labour requirements for Contract workers for the Proposed Subproject (for one road)**

| Project Phase | Proposed Intervention Works | | Activities | Staffing per road | Support Activities | Schedule (Months) |
|---|---|---|---|---|---|---|
| **Pre-construction** | Rehabilitation | **Preparatory Works:** Land clearing, excavation of materials (sand), Creation of burrow pits, | Assessment of existing Project location<br>Preparation of staging area | Skilled Labor: = ?<br>Unskilled Labor: ? | Camp area | |
| | | | Mobilization of equipment & personnel to the site | | | |

| Project Phase | Proposed Intervention Works | | Activities | Staffing per road | Support Activities | Schedule (Months) |
|---|---|---|---|---|---|---|
| | | Mobilization of workers | Siting and Preparation of staging areas camp/s including sanitary & allied facilities | | | |
| **Construction** | | **All Civil works** | Enlist main activities relating to the scope of work<br>1<br>2<br>3<br>4<br>5 | Skilled Labor: = ?<br><br>Unskilled Labor: ? | Burrow pit | |
| | | | Construction of structures, water sanitation and hygiene and facilities; | Labor: ? | | |
| | | | Disposal of construction wastes | Unskilled = ? | Temporary construction waste collection areas | |
| **Demobilization/ Restoration** | | **Closure Works: Site demobilization/restoration activities** | Removal of constructed/rehabilitated structures;<br><br>Disposal of construction spoil and waste in general;<br>• Dismantling of temporary work camp of the contractor (where available); and waste management | Skilled Labor: = ?<br><br>Unskilled Labor: ? | Landscaping services | |

## 2.3 Project Implementation Schedule and Activities

The direct workers will be required full time and around the year for the project duration. Consultant Services workers will be required full time and on intermittent basis for the project duration.

Civil works contracted workers will be required, as per the need. Construction season typically starts from March to November but can vary depending on the weather conditions. It will be up to the contractors to mobilize labor force to coincide with the type of works and the season. The rehabilitation works are estimated to be implemented over a --------- period. This is the maximum timeline required. It is envisaged that most of the roads may require less work.

# 3. ASSESSMENT OF KEY POTENTIAL LABOUR RISKS

This chapter outlines the potential Labor risks and impacts associated with the Rehabilitation of Rain/Flood Affected Roads, District ----------.

## 3.1 Potential Risks and Impacts

Some of the potential labour risks and impacts associated with the subproject include:

- Unfair recruitment and selection practices which could discriminate against women, transgender and vulnerable groups.
- Exploitative wages.
- Over-stretched working hours – no break periods.
- Poor work safety culture, accidents/incidents, Lack of provision of PPEs.
- Perception that wages, salaries and benefits are poor or that foreigners are treated better and receive better conditions of employment.
- Forced Labor.
- Child Labor.
- Gender-based violence (GBV) risks as a result of contractor workforce during civil works.
- Workplace sexual harassment and sexual exploitation and abuse.
- Lack of female security and privacy mechanism
- Lack of provision of basic facilities – water, food, toilets, washing hand facilities, separate space for feeding, and medical aid.
- Sub-standard campsite facilities and campsite management.
- Hostility and security threats from host community.
- Cultural differences may cause conflicts.
- Lack of unified rules and regulations for all workers.
- Favoritism.
- No grievance redress channel for workers.
- Dismissal from work.

- Boredom and lack of recreational activities.
- Search for access to religious practices.

### 3.2 Labour Management Plan

Table 2 below presents a plan to be adopted in the management of Labor risks for the subproject. The Contractor/s will be responsible for making provisions to ensure implementation of the LMP and develop corrective action for any default and non-compliance. The CSCwill monitor contractor's compliance to the LMP with the help of PIU.

**Table 2: Labour Management Plan**

| Risk/Impact | Analysis (Magnitude, Extent, Timing, Likelihood, Significance) | Mitigation |
|---|---|---|
| Arbitrary decisions by contractors on Terms and Conditions of employment | • The duration of the contracts offered to contractor workers are short and may not allow employees adequate time andinformation for meaningful collective bargaining, leading to discontent ofemployees and disputes.<br>• Project workers may not be provided with information and documentation that is clear and understandable regarding their terms and conditions of employment. | • The CSC will closely supervise the Contractor Recruitment Plan and ensure fairness of Employment Terms and Conditions against the applicable and prevailing National requisites.<br>• All information and documentation must be provided at the beginning of the working relationship and when any changes to the terms or conditions of employment occur.<br>• Where applicable, project workers will receivewritten notice of termination of employment and details of severance payments in a timely manner. |
| Poor working conditions (unsafe work environment, underpayment, lack of workers' rights, etc.) | • The Rights of workers under national labor and employment law (which will include any applicable collective agreements), may be abused.<br>• Workers payment may be delayed,irregular, or may be underpaid.<br>• Campsites may be poorly managed, inconducive for workers, insecure, poor sleeping conditions, lack of access to basic amenities like water, toilets, healthcare etc.<br>• The general appearance of the campdeteriorates making camp life unpleasant. | • Project workers will be paid on a regular basis as required by Sindh Minimum Wage Notification with a principle of "equal pay forequal work"<br>• In the case of subcontracting, the Borrower will require such third parties to include equivalent requirements and non- complianceremedies in their contractual agreements with subcontractors.<br>• The CSC & PIU shall inspect the campsites to ensure workers have appropriate living quarters, sanitation facilities separate for male and female, basic amenities.<br>• All project workers will be provided with adequate periods of rest per week, annual holiday and sick leave, as required by |

| **Risk/Impact** | **Analysis (Magnitude, Extent, Timing, Likelihood, Significance)** | **Mitigation** |
|---|---|---|
| | | national law.<br>• Ensure that camp grounds and common areas are routinely cleaned and organized with appropriate signage in place, and that grounds are maintained (e.g., grassed areas are regularly mown).<br>• See **Annexure 1** for sample campsite management framework. |
| Non-discrimination and equal opportunity | • Decisions relating to the employment or treatment of project workers may discriminate against certain classes of workers including women, vulnerable groups amongst others.<br>• Payment of workers may be based on discrimination e.g. male may be paid higher than women even on the same level of job schedule. | • The employment of project workers will be based on the principle of equal opportunity and fair treatment, and there will be no discrimination with respect to any aspects of the employment relationship, such as recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment, or disciplinary practices. |
| Sexual Harassment and Sexual Exploitation & Abuse | • Risks of sexual harassment and SEA are possible | • Training should include protocols on how sexual harassment and SEA will be prevent and addressed.<br>• All workers should also be aware for the GBV/SH/SEA-GRM for the project |
| Child Labor | • There is a risk that children (below the age of 18) will be used as Labor in the subproject area.<br>• Under aged persons within the community may disguise as above 18 to enable them work and get paid. | • The minimum age of eighteen (18) will be enforced at recruitment and in daily staff team talks by Contractors. CSC & PIU will also supervise this through the Contractor HR record.<br>• Contractors will liaise with community liaise to attest to the age and conduct of all local hires, and maintain a list of same. |
| Forced Labour | There is a risk that there could be involuntary or compulsory Labor, such as indentured Labor, bonded Labor, or similar Labor-contracting arrangements. | • It will ensure that no forced Labor exists in the subproject by gathering documents and appropriate proof. Written Particulars of Employment as mentioned in the Annexure 2 must be filled by the Contractor and submit to CSC for PIU endorsement.<br>• A consent section will be part of the employee signed employment contract. It will ensure that |

| Risk/Impact | Analysis (Magnitude, Extent, Timing, Likelihood, Significance) | Mitigation |
|---|---|---|
| | | if Labor is sourced from any sub-contracting agency, the workers are not subject to coercion and forced Labor conditions. |
| Labor Influx | • The project may face influx of Labor to local communities especially where skilled Laboure's are not available in some subproject area. This could lead to Increase in potential spread of STIs/STDs, HIV/AIDs due to workers on site, increase in GBV/SEA, sexual relations between contractors and minors.<br>• This could also lead to competition for resources like water, health facilities, electricity in the sub project locations | • Encourage hiring of Labor from the host communities. Maintain Labor relations with local communities through a code of conduct (CoC) (see sample CoC in Annex 3)<br>• The Code of Conduct must be signed by all categories of workers. Workers must be trained on the provisions of the CoC about refraining from unacceptable conduct toward local community members, specifically women and informed of the sanctions for non- compliance. Training must be conducted for all new hires including sub-contractors.<br>• Contractors should make resources available for their workers especially where stated in the ESMP. |
| Grievance Redressal Mechanism | • Workers may be aggrieved due to unfair treatment, poor working conditions, conflicts, poor pay, overstretched working hours amongst other things.<br>• Project GRM will be surely integrated with a specific contractor's GRM will be designed to address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned in a local language, without any retribution, and will operate in an independent and objective manner.<br>• The grievance redressal mechanism will not impede access to other judicial or administrative remedies that might be available under the law. | • It shall comply with the Grievance redress mechanism defined to handle worker's grievances in a fair and timely manner.<br>• The CSC & PIU shall provide oversight to ensure effective implementation of the GRM. |
| Occupational Health and Safety | • Site workers will be exposed to risks of accidental collisions with moving vehicles, strains, and ergonomics from repeated movements or from lifting and heaving of heavy objects, slips and falls. Accidental cuts from tools and machines are also safety risks.<br>• Dust and particulate emissions and welding works from rehabilitation site | • HSE training/s shall be provided for all workers before commencement of work and periodically (see sample training plan in Annexure 4)<br>• A full time HSE officer/s shall be hired.<br>• PPEs shall be made available |

| Risk/Impact | Analysis (Magnitude, Extent, Timing, Likelihood, Significance) | Mitigation |
|---|---|---|
| | may cause respiratory and eye impairment health concerns for workers and the public<br>• Movement of trucks carrying sand and materials, lack of road safety measures may also cause risk of accident, injury and death<br>• Contractors should comply with Provincial and international labor legislations.<br>• Every site will have emergency preparedness and response arrangements to emergency situations.<br>• Maintain a safe working environment including workplaces, machinery, equipment and processes under their control are safe and without risk to health, including by use of appropriate measures relating to chemical, physical and biological substances and agents.<br>• Where required, hire security for workers. | for all workers and the HSE officer should enforce compliance.<br>• First aid boxes should also be provided at construction site, staging area and mobile.<br>• It is obligatory to report HSE accident/incidents to the CSC & PIU promptly, and the PIU should report this to the Bank within 48hrs (in accordance with the Environmental and Social Commitment Plan (ESCP)<br>• It should be ensured that training for their drivers and liaise with the local Traffic Management Agency to control traffic during project implementation. |
| Right of Association and Collective Bargaining | • Workers have the right to freely form, join or not join a trade union for the promotion and protection of the economic interest of that worker.<br>• Workers have a right to organize and collective bargaining, and representation. | • The CSC & PIU will ensure that workers are informed of their right of association and collective bargaining.<br>• The CSC & PIU should also inform workers of the workers GRM and their right to utilize the system. |
| Contractors Management | • Records of workers engaged under the subproject, including contracts must be kept.<br>• Records of all training attended by workers including CoC, HSE, STIs/STDs, GBV etc.<br>• Accidents/ incidents and corresponding root cause analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and remedial and preventive activities required (Corrective Action Register)<br>• Records of strike actions, reasons and resolution reached.<br>• Records of grievances and how they were resolved.<br>• Records of all sanctions, punishments and terminations with reasons and follow-up actions taken. | • Documents should be kept at the site office with the site engineers and CSC office.<br>• The PIU team should check these records during monitoring visits. |

| **Risk/Impact** | **Analysis (Magnitude, Extent, Timing, Likelihood, Significance)** | **Mitigation** |
|---|---|---|
| Primary Suppliers | Primary suppliers could also have occupational injuries, incident/accidents while performing project related functions | Primary suppliers should maintain records related to occupational injuries, illness and lost time accident, which should be reviewed by the contractor every quarterly and report to CSC for information. |

# 4. ROLES AND RESPONSIBILITIES FOR MANAGING THE LMP

## 4.1 CSC & PIU

The Project Implementation Unit (PIU) have the overall responsibility to oversee all aspects of the implementation of the LMP including occupational safety, health and welfare of workers, and ensure contractor compliance with the assistance of CSC. This role will primarily be part of the responsibilities of the Environmental and Social Specialists of the CSC & PIU, however, they will be required to liaise with other staff of the PIU and report frequently to the Project Coordinator on all LMP matters.

## 4.2 The Contractor

The Contractors will be responsible for implementation of the plan on a daily basis and providing the required human, financial and training resources for effective compliance.

Specific roles are outlined below:

### 4.2.1 Occupational Health and Safety

Contractors must engage a minimum of one Health Safety and Environment (HSE) officer to ensure the day-to-day compliance with specified health and safety measures and records of any incidents. Minor incidents and near misses will be reported to the CSC & PIU (through the Environmental Specialist) on a monthly basis, serious incidents should be reported immediately and not later than 24hrs. Minor incidents will be reflected in the quarterly reports to the World Bank, while major accidents/deaths should be flagged to the World Bank within 48hrs.

### 4.2.2 Labour and Working Conditions

The Contractors will keep records in accordance with specifications set out in this LMP. The CSC & PIU may at anytime require records to ensure that Labour conditions are met. Where issues are spotted, the PIU will ensure that immediate remedial actions are implemented. A summary of issues and remedial actions will be included in quarterly reports to the World Bank.

### 4.2.3 Worker Grievances

Contractors must engage a minimum of one social officer/Social Expert/Labour Officer to handle issues relating to social risks. The CSC (through the counterpart) will review the effectiveness of the workers grievance redress mechanism as stipulated in section 4 and ensure that all complaints by workers are resolved. The CSC will report to PIU as part of the quarterly E&S reports for onward submission to WB.

### 4.2.4 Additional Training

The contractor will set up a system of daily HSE PEP talks, routine safety trainings and specialized job trainings for workers. Trainings will form part of the contractor's responsibility. The contractors HSE officers will provide safety instructions to contractor staff. The CSC will liaise with contractors to deliver trainings to address risks associated with Labor influx including GBV/SEA with endorsement of PIU. The contractor will be obligated to make staff available for this training, as well as any additional mandatory trainings requiredby the PIU, as specified by the contract.

### 4.2.5 Occupational Health and Safety compliance

The contractor shall comply with all provisions of the LMP, contractors ESMP that will be prepared, including occupational health and safety plans, emergency plans amongst others. In addition, contractorsshall procure the identified PPE and First Aid kit for use during project implementation. The Contractor shall organize training for workers on the use of PPE and First Aid kit.

# 5. GRIEVANCE REDRESS PROCEDURES FOR WORKERS

## 5.1 Introduction

This procedure requires to have a Formal Grievance Procedure which should be known and explained to the employee:

- Who the employee should report to;
- Time frame for addressing grievances at each level should be specified;
- Opportunity to report to a higher-level authority if grievance is not resolved at within thestipulated time;
- Right to seek judicial redress

The grievance process shall be guided by the following principles:

- Transparency
- Confidentiality
- Non-retribution practices
- Non-vindictive
- Right to representation
- Proper documentation

It is recommended that since the nature of civil works for the project is minor-moderate, workers should adopt the existing Grievance Redress Mechanism defined for the subproject as summarized below:

## 5.2 Establish a GRM

Grievance Redress Mechanism (GRM) will be implemented to ensure that all complaints from workers are dealt with appropriately, with corrective actions being implemented, and the complainant being informedof the outcome.

## 5.3 Grievance Redress Committees

Grievance Redress Committees (GRCs) shall be constituted at various levels to implement the GRM for the project including community level, CSC, PIU level, Judiciary as shown in Table 3 below.

**Table 3: Levels of Grievance Redress Committees**

| GRC Level | Redressal Mechanism |
|---|---|
| First Level GRM: GRC at the Site/Community Level | Composed at the community level and easily accessible to workers. This committee will comprise of community liaison officers, supervision consultant site engineer, representative of CSC management among other identified persons. In addition, complaint box will be placed in appropriate place that will encourage aggrieved workers drop their complaints. This should be checked regularly (at least twice weekly) by a designated person in the committee. This committee will be expected to report to the PIU. |
| Second Level of GRM: GRC at the PIU Level | This committee shall comprise of PIU members including the Project Coordinator, Social Officer/Expert among others, and other department level representative from within the Project Monitoring Committees. If the complainant does not accept the solution offered by the PIU-GRC, then the complaint is referred by the Project Coordinator to the court |
| Third Level of GRM: Project Steering Committee (PSC) Redress of Grievances | While the purposes of GRM put in place by this Project is to resolve all issues caused by the project implementation out of PSC and to save time which is usually involved in litigation matters, it is not out of place to anticipate a scenario where aggrieved person is not satisfied with the process and judgment given by the grievance redress committee(s). Therefore, PIU shall inform aggrieved persons of their right to seek for redress in the PSC law as the final resort. |

## 5.4 Roles of the GRCs

The Grievance Redress Committees will be responsible for:

- Communicating with the Affected persons (AP's) and evaluate if they are entitled to recompense;
- Making the list of affected persons public and the established grievance redress procedure.
- Recommending to the Social Safeguard Specialists of the CSC & PIU solutions to such grievances from affected persons; Communicating the decisions to the AP's; to acknowledge appeals from persons, households or groups who rightfully will not be affected by the project, but claim to be, and to recommend to the PIU whether such persons should be recognized as AP's, and to communicate back the decisions to the Claimants.

## 5.5 Expectation When Grievances Arise

When workers present a grievance, any of the followings is or are expected from the project management/channel of grievance resolution:

- acknowledgement of their problem;
- an honest response to questions/issues brought forward;
- an apology, adequate compensation; and

- Modification of the conduct that caused the grievance and some other fair remedies.

## 5.6 Typical Grievance Redress Process

The process of grievance redress will start with registration of the grievance(s) to be addressed, for reference purposes and to enable progress updates of the cases. Thus, the aggrieved worker will file a complaint/ fill a grievance form with the Grievance Redress Committee. The compliant should contain a record of the person responsible for an individual complaint, and records dates for the date the complaintwas reported; date the Grievance Log was uploaded onto the project database; date information on proposed corrective action sent to complainant (if appropriate), the date the complaint was closed out and the date response was sent to complainant.

The officer receiving the complaint (part of the GRC member) will ensure that each complaint has an individual reference number and is appropriately tracked, and recorded actions are completed. The response time will depend on the issue to be addressed but it should be addressed with efficiency. The Grievance committee will act on it within 10 working days of receipt of grievances. If no amicable solutionis reached, or the affected person does not receive a response within 15 working days, the affected personcan appeal to the PIU, which should act on the grievance within 15 working days of its filing.

## Annexure 1: Workers Campsite Management Framework

Elements for managing risks associated with the Workers Campsite under the proposed projectinclude:

- **Location**: The Contractor shall ensure to site workers camp at a designated location approved by thePIU. The location was determined during the preliminary design preparation in conjunction with thelocal communities/authorities with the following criteria:
  - ✓ Be located outside the protection zone of watercourses (100 m) and wetlands;
  - ✓ Be located within an acceptable distance from existing residential areas;
  - ✓ Not located in areas with intact vegetation
  - ✓ The contractor must first obtain the necessary licenses and consents from the local authoritiesor from the owner of the needed area; Although it is the contractor's decision, it is recommended that whenever possible the camps should be handed over to the administrative or community authorities for future use;
  - ✓ The contractor must submit for the prior approval of the Resident Engineer, the implantationdesign and other project structures and specifications related to the camps and sites that areintended to be built;
  - ✓ The contractor shall take all necessary measures and precautions to ensure that the executionof the works is carried out in accordance with environmental, legal and regulatory requirements, including those set out in this document; The contractor shall take all measuresand precautions to avoid any disturbance in the local communities and among the users of the road, as a result of the project execution;
  - ✓ The contractor shall, whenever possible, apply measures to reduce or eliminate any sources of disturbances. The contractor shall follow the provisions of this document, as well as the applicable legislation and standards, during the use, operation and maintenance of the campsand sites, in particular with regard to water supply and sanitation, solid waste management, handling and storage of dangerous substances, etc.;
  - ✓ The areas occupied by the camps and sites must be recovered at the end of the project, whenthe contractor is demobilized, through the replacement of previously existing conditions, unless other uses are intended
- **Accommodation, Hygiene and Sanitation**: The Contractor will ensure that all necessary sanitary facilities shall be provided for workers expected on site: separate rooms will be provided for male andfemale workers, all necessary sanitary facilities complying with World Health Organization (WHO) regulations will be provided for workers including:
  - ✓ Separate toilets for male and female
  - ✓ Portable water with well-placed overhead tanks
  - ✓ Wash basins
  - ✓ Concrete and covered septic tanks
- **On-site Social and Health Care Facilities:** Provision of basic on-site social and medical facilities such as first aid, basic health care center, recreational center, food service, etc. in order to reduce pressureon community facility.
- **Campsite Safety and Security:** Provision of 24 hours security stationed at the

Campsite to ensure thesecurity and safety of construction workforce and construction equipment.

- **Campsite Waste Management:** Adequate waste management of sewage and other forms of waste within the campsite. The Campsite shall be equipped with independent toilet facilities for male and female workers respectively, in order to discourage irregular waste disposal. Furthermore, standardsmust be instituted for personal and public hygiene among project workers. Additionally, project workers shall be properly trained on personal hygiene.
- **Establishment of and Training on Workers on Code of Conduct:** The Supervising Engineer and Safeguards Unit shall ensure that Contractors establish a workers' Code of Conduct (CoC). The CoC will help mitigate some of the social and environmental impacts of labour influx such as risk of socialconflict, Increased risk of illicit behavior and crime, Increased burden on and competition for public service provision, Wastewater discharges, Increased demand on freshwater resources, and Inadequate waste disposal and illegal waste disposal sites etc., will help keep workers (local/foreign)in check on the rules and regulations binding their engagement. Contractors to ensure provision of training to workforce on code of conduct and ensure strict compliance. Measures provided for in theESMP to deter illicit behavior and other social vices are adequately enforced.
- **Training programs:** Conduct and ensure key staff, including contractors, receive training regarding thelikelihood, significance and management of influx-related issues such as HIV/AIDS, GBV, SH, SEA, VAC etc.
- **Carry out Regular Monitoring:** The CSC shall monitor and report to PIU for change throughout the project cycle to ensure compliance and on mitigation effectiveness from contractor. Ensure a documentedmonitoring program that tracks key social outcomes, changes and issues at regular intervals throughout the project lifecycle.

## Annexure 2: Written Particulars of Employment

1. Name of Employer
   ……
2. Name of Employee
   ……
3. Date Employment began
   ……
4. Wage and Method of Calculation
   ……
5. Interval at which wages are paid
   ……
6. Normal Hours of work
   ……
7. Short description of employee's work
   ……
8. Probation Period
   ……
9. Annual Holiday Entitlement
   ……
10. Paid Public Holiday
    ……
11. Payment during sickness
    ……
12. Maternity Leave (if employee female)
    ……
13. Nursing Break Entitlement (for female employee)
    ……
14. Notice employee entitled to receive
    ……
15. Notice employer required to give
    ……
16. Any other matter either party wishes to include
    ……

Notes:

(a) An employee is free to join a trade union or staff association, which is recognized by the undertaking. The address of the Trade Union or Staff Association is:

(b) The grievance procedure and disciplinary procedure in this undertaking requires to be followed when a grievance arises or disciplinary action needs to be taken.

(c) When any heading is inapplicable, enter NIL.

……

| | |
|---|---|
| Employer's signature | Witness |
| …… | …… |
| Employee's signature | Witness |
| …….. | …… |
| Date | Date |

# Annexure 3: Sample of a Contractors Code of Conduct

## 1. Aim of The Code of Conduct

The main aim of the Code of Conduct is to prevent and/or mitigate the social risks within the context of Rehabilitation of Rain/Flood Affected Roads. The Codes of Conduct are to be adopted by contractors. The socialrisks that may arise include but not limited to Gender Based Violence (GBV), Violence Against Children (VAC), HIV and AIDS infection/spread, and occupational health and safety.

## 2. Codes of Conduct

This chapter presents three Codes of Conduct (CoC) for use (note all COC must be translated into Sindhi as well):

i. **Contractors Code of Conduct**: Commits the contractor to addressing GBV and VAC issues;

ii. **Construction Site Supervisor /Manager's Code of Conduct**: Commits managers to implementing the Code of Conduct,as well as those signed by individuals; and

iii. **Individual Code of Conduct**: Code of Conduct for each individual working on project fundedprojects

### 2.1 Contractors Code of Conduct

Contractors are obliged to create and maintain an environment which prevents social risks. They have theresponsibility to communicate clearly to all those engaged on the project the behaviors which guard against any form of abuse and exploitation. In order to prevent Social risks, the following core principles and minimum standards of behavior will apply to all employees without exception:

i. GBV or VAC constitutes acts of gross misconduct and are therefore grounds for sanctions,penalties and/or termination of employment and/or contract. All forms of Social risks including grooming are unacceptable be it on the work site, the work site surroundings, or at worker's camps of those who commit GBV or VAC will be pursued.

ii. Treat women, children (persons under the age of 18) and people with disability with respect regardless of race, colour, language, religion, political or other opinion, national, ethnic, cultural beliefs/practices, or other status.

iii. Do not use language or behaviour towards men, women or children that is inappropriate,harassing, abusive, sexually provocative, demeaning or culturally inappropriate.

iv. Sexual activity with children/learners under 18 (including through digital media) is prohibited.Mistaken belief regarding the age of a child and consent from the child is not a defense.

v. Exchange of money, employment, goods, or services for sex, including sexual favours or otherforms of humiliating, degrading or exploitative behaviour is prohibited.

vi. Sexual interactions between contractor's employees and communities surrounding the work place that are not agreed to with full consent by all parties involved in the sexual act are prohibited. This includes relationships involving the withholding, promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex.

vii. Where an employee develops concerns or suspicions regarding acts of GBV or VAC by a fellow worker, whether in the same contracting firm or not, he or she must report such concerns in accordance with established Grievance Redress Mechanism (GRM) that protects the identities ofvictims and whistle-blowers.

viii. All contractors are required to attend an induction prior to commencing work on site to ensure they are familiar with the social risks and Codes of Conduct.

ix. All employees must attend a mandatory training once a month for the duration of the contract starting from the first induction prior to commencement of work to reinforce the understanding of the institutional social risks and Code of Conduct.

x. The Contractor shall ensure provision of financial resources and support compliance to occupation health and safety requirements for all workers. The Contractor shall ensure that workers dress appropriately i.e. dress in a way that:

- Is unlikely to be viewed as offensive, revealing, or sexually provocative.
- Does not distract, cause embarrassment or give rise to misunderstanding.
- Is absent of any political or otherwise contentious slogans.
- Is not considered to be discriminatory and is culturally sensitive.

xi. The Company shall ensure provision of financial resources and trainings to prevent spread of communicable disease including Covid 19, HIVand AIDS.

xii. The company shall comply with all the applicable provincial legislation includinggiving terminal benefits to workers who have served for at least three months;

xiii. All contractors must ensure that their employees sign an individual Code of Conduct confirmingtheir agreement to support prevention of social risks activities.

xiv. The contractor should ensure equitable access to limited natural resources (e.g. water points) toavoid conflicts with local communities.

xv. Where possible, the contractor should ensure employment of local workforces especially whereunskilled labour is required to mitigate social risks

*I do hereby acknowledge that I have read the foregoing Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities. I understand that any action*

*inconsistent with this Code of Conduct or failure to take action mandated by this Code of Conduct may result in termination of the contract.*

FOR THE CONTRACTOR

Signed by:

Signature:_____

Title:_____

Date_____

## 2.2 Construction Site Supervisor/Managers Code of Conduct

Site Supervisors at all levels play an important role in creating and maintaining an environment, which prevents workers misconduct. They need to support and promote the implementation of the ContractorsCodes of Conduct and enforce Workers Codes of Conduct. Construction site supervisor must adhere to this Code of Conduct. This commits them to develop and support systems, which maintain a safe workingenvironment. Construction Site Supervisor responsibilities include but are not limited to:

i. Where possible, ensure employment of local workforces especially where unskilled labour isrequired to mitigate social risks;

ii. Ensure there is zero tolerance to child labour practices;

iii. Promote gender inclusion at all levels;

iv. Establish a workers' committee to oversee issues of workers' misconduct including GBV and VAC;

v. Ensure compliance to occupation health and safety requirements for all workers;

vi. Ensure that workers dress code is adhered to appropriately;

vii. Ensure that access to construction sites is restricted to authorized persons; hoarding is provideand that there is proper signage to construction site(s);

viii. Facilitate workers training and capacity building on social, environmental and health and safety;

ix. Ensure that all workers are sensitized on HIV and AIDS issues;

x. Ensure that fundamental workers' rights (e.g. working hours, minimum wages, etc) are protected;

xi. Ensure that possession of alcohol and illegal drugs and other controlled substances in the workplace and being under influence of these substances on the job and during workings hours should be strictly prohibited;

xii. Ensure compliance to all legal requirements;

xiii. Supervisors failing to comply with such provision can be in turn subject to disciplinary measures including termination of employment; and

xiv. Ultimately, failure to effectively respond to some provisions of the code of conduct may provide grounds for legal actions by authorities.

xv. Ensure that every employee under his/her supervision has been oriented on the Code of Conductand has signed.

*I do hereby acknowledge that I have read the foregoing Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to comply to all rules of this code of conduct. I understand that any action inconsistent with this Code of Conduct or failure to take action mandated by this Code of Conduct may result in disciplinary action.*

Signed by:_____

Signature:_____

Date:_____

FOR THE EMPLOYER

Signed by:_____

Signature:_____

Date:_____

### 2.3 Workers Code of Conduct

I,_____, acknowledge that preventing any misconduct as stipulated in this code of conduct, including gender based violence (GBV), child abuse/exploitation (CAE) are important. Any activity, which constitute acts of gross misconduct are therefore grounds for sanctions, penalties or even termination of employment. All forms of misconduct are unacceptable be it on the work site, the work site surroundings, or at worker's camps. Prosecution ofthose who commit any such misconduct will be pursued as appropriate

I agree that while working on this project, I will:

i. Consent to security background check;

ii. Treat women, children (persons under the age of 18) and persons with disability with respect regardless of race, colour, language, religion, political or other opinion, national, ethnic or social origin, property, birth or other status;

iii. Not use language or behaviour towards men, women or children/learners that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate;

iv. Not participate in sexual activity with children/learners—including grooming or through digital media. Mistaken belief regarding the age of a child and consent from the child is not a defense;

v. Not exchange money, employment, goods, or services for sex, with community members including sexual favours or other forms of humiliating, degrading or exploitative behaviour;

vi. Not have sexual interactions with members of the communities surrounding the work place, worker's camps and fellow workers that are not agreed to with full consent by all parties involvedin the sexual act (see definition of consent above). This includes relationships involving the withholding, promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex - such sexual activity is considered "non-consensual" within the scope of this Code;

vii. Attend trainings related to HIV and AIDS, GBV, CAE, occupational health and any other relevant courses on safety as requested by my employer;

viii. Report to the relevant committee any situation where I may have concerns or suspicions regarding acts of misconduct by a fellow worker, whether in my company or not, or any breachesof this code of conduct provided it is done in good faith;

ix. With regard to children (under the age of 18):

x. Not invite unaccompanied children into my home, unless they are at immediate risk of injuryor in physical danger.

xi. Not sleep close to unsupervised children unless absolutely necessary, in which case I mustobtain my supervisor's permission, and ensure that another adult is present if possible.

xii. Refrain from physical punishment or discipline of children.

xiii. Refrain from hiring children for domestic or other labour, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.

xiv. Comply with all relevant local legislation, including labour laws in relation to child labour.

xv. Refrain from any form of theft for assets and facilities including from surrounding communities.

xvi. Remain in designated working area during working hours;

xvii. Refrain from possession of alcohol and illegal drugs and other controlled substances in theworkplace and being under influence of these substances on the job and during workings hours;

xviii. Wear mandatory PPE at all times during work;

xix. Follow prescribed environmental occupation health and safety standards

xx. Channel grievances through the established grievance redress mechanism.

I understand that the onus is on me to use common sense and avoid actions or behaviours that could be construed as misconduct or breach this code of conduct.

I acknowledge that I have read and understand this Code of Conduct, and the implications have been explained with regard to sanctions on-going employment should I not comply.

Signed by: _____

Signature: _____

Date: _____

FOR THE EMPLOYER

Signed by: _____

Signature: _____

Date: _____

# Annexure 4: Training Plan

| S/N | Training Title | Description | Timing | Who to Deliver the Training |
|---|---|---|---|---|
| 1 | Sensitization on the HSE Manual | To train all workers on all the provisions in the HSE Manual and the company's HSE Policy (use local language as necessary) including the right use of PPEs | Upon mobilization of every worker to site | HSE Expert |
| | | | Refresher on a monthly basis | Contractor HSE Officer |
| 2 | First Aid administration/ Use of First Aid Box | To train selected officers (Contractor HSE Officer, Site Manager, Yard Manager, Team leaders, Female workers representative) on the right first aid administration for different scenarios including demonstrations | Upon mobilization to site and after every 6 months | First Aid Care Giver |
| 3 | Protocol for construction site, staging areas, borrow pits and campsite | To ensure all workers understand the protocol to adopt at the construction site, staging areas, borrow pits and campsite | Upon mobilization to site<br>Refresher every 3 months | Site Manager |
| 4 | General Training on site work | Right procedures for: manual handling, electrical safety, emergency procedures, work at height, confined spaces, underground construction, cofferdams etc. | Upon mobilization to site Refresher every 2 months | Site Manager/ Project Manager/ Engineer/ HSE Officer |
| 5 | Daily HSE Pep Talks | To provide daily reminder on safety precautions and acceptable environmental and social protection including do's and don'ts for all workers | Daily | Contractor HSE Officer |
| 6 | Community Health and Safety Training | To train all workers and project management on:<br>• Sexual Exploitation and Abuse/ Gender Base Violence Training<br>• Code of Conduct Training<br>• Sensitization on STDs/STIs<br>• Grievance Redress Mechanism | Upon mobilization of every worker to site<br>Refresher every 3 months | Social Safeguard Expert |
| 7 | Drivers Training | To train all project drivers on safety and acceptable conduct | Upon employment<br>Daily Monitoring<br>Monthly Refresher | Site Incharge |

# Annexure IX: Draft-Sample Contractor's Traffic Management Plan (TMP)

## DRAFT-SAMPLE
## CONTRACTOR'S TRAFFIC MANAGEMENT PLAN (TMP)
## FOR
**Rehabilitation of Rain/Flood Affected Roads**

| S.NO | DATE | PREPARED BY | CHECKED BY | APPROVED BY | REMARKS |
|---|---|---|---|---|---|
| **1.** | | The Contractor | CSC | PIU | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# 1. INTRODUCTION

## 1.1 Project Background

The Federal Government of Pakistan requested the global community and development partners for assistance to respond to the flood disaster following the Flood 2022 emergency. Subsequently, the World Bank (WB) task team visited the province and had a series of meetings with the provincial Govt. During the discussions held with the WB Mission, a two-pronged strategy was agreed i.e.

- Restoration/Rehabilitation of Rural (Farm to Market) Roads in affected districts, talukas and UCs.
- Restoration of water supply, drainage and sanitation schemes in affected districts, Talukas and Union Councils.
- Provision of immediate financial assistance, cash for work is proposed to rehabilitate small community structures like rural roads, watersheds, watercourse (s) to carry irrigation water to Farm(s), Rehabilitation of village streets and restoration of village sanitation work including removal of stagnant water in villages. The exact number to be arrived at after assessment.
- Expansion of the Emergency Rescue Service (Sindh Emergency Rescue Services-1122) to 09 districts i.e. Jamshoro, Dadu, Sajawal, Badin, Qambar Shehdadkot, Shikarpur, Jacobabad, Thatta, Ghotki. The Provincial Government has already launched Sindh Emergency Rescue 1122 in Six Districts HQs – Karachi, Hyderabad, Mirpurkhas, Shaheed Benazirabad, Sukkur, and Larkana.

## 1.2 Project Components

The proposed Sindh Flood Emergency Rehabilitation Project – SFERP falls into four main components.

v. Component--1 Infrastructure Rehabilitation:

vi. Component--2 Livelihoods Restoration

vii. Component--3 Institutional Strengthening for Resilience and Technical Assistance

viii. Component--4 Project Management

## 1.3 The Proposed Sub–Project

The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas of the province.

The present Traffic Management Plan (TMP) represents the risks and impact associated with workers of Component- 1: Infrastructure Rehabilitation, Sub-component 1.2: Restoration of Roads and Allied Infrastructure:

Administratively, this reconditioning work fall in Hyderabad Rural Taluka of the district Hyderabad

### 1.4 Traffic Management Plan (TMP)

This TMP was developed by the Construction Contractor (CC) under the supervision of construction Supervision Consultant (CSC) with the endorsement of Project Implementation Unit (PIU) - SFERP for Restoration of Roads and Allied Infrastructure.

This plan has been prepared to fulfill a contractual obligation, provide guidelines and set criteria for the safety of the personnel, assets, general public and environment being affected by the movement of vehicles and equipment for the construction of the proposed subproject.

The following details based on the Environmental Code of Practice shall be considered

- Access routes for material deliveries to storage areas shall be ensured that it will not impact local traffic.
- Material-carrying vehicles will not disturb local traffic. Delivery vehicles should not be allowed to queuing on the local road.
- Loading / unloading points for deliveries are in the storage areas and shall not impact local routes and traffic.
- Appropriate warning signs should be displayed at different locations near the main barrage e.g. crossing points, pedestrian walkways, diversions, etc.
- Several flagmen shall be assigned to control and guide delivery vehicles to ensure smooth traffic flow.
- The contractor shall minimize traffic disruption by selecting non-peak hours for its vehicle’s operation if possible
- The contractor shall ensure that high traffic flow is prohibited during working hours
- The contractor shall closely monitor the Traffic control management plan and ensure its implementation.
- Local authorities/District Management and traffic police shall be involved in handling traffic flow while the flow is at peak if required.

- They shall ensure regular sprinkling of water on hall routes to minimize dust/erosion.

- Speed limit signs shall be placed, and speed limits shall be followed and monitored regularly.

- Safe & defensive driving training sessions shall be conducted regularly.

The World Bank has rated the risks and impact associated with workers as well as community health and safety, and the risk associated with Labor impact as moderate due to the nature of rehabilitation activities which are well understood and expected to have limited impacts as they can largely be avoided, minimized or managed through procedures, including procedures set out in this TMP. The TMP will be reviewed continually during project implementation and adequate measures and procedures to manage negative impacts will be put in defined.

### 1.4.1 Introduction

Pursuant to ESMP, Traffic Management Plan (TMP) preparation and submission is one of the Contractor's contractual obligation. This document has been prepared for management of traffic during the construction activities of the proposed subproject. Purpose of TMP is to provide guidelines and set the criteria for safe movement of traffic during the execution of construction works for safety of transporters, road users, assets and general public. It also provides guidelines regarding conservation of environment and will take into account the related social and cultural issues of local community.

Contractor is well aware of the various legislations and regulations relevant to traffic and transportation in subproject area and is committed to the safe operation of transportation and traffic management, providing clear operating procedures and standards, which shall be observed and adhered to. As far as traffic environment is concerned, the strategy to organize the traffic in order to ensure least passage closures is demonstrated in next sections of this document.

### 1.4.2 Objective and Target of TMP

For effective implementation of TMP, the objectives are to:

- Provide safe working environment.
- Ensure smooth traffic movement during construction activities.
- Avoid social issues during traffic movement.
- Provide public awareness through public consultation.
- Ensure traffic diversion as per designated route(s).
- Ensure working within allowed period of time.
- nullify or minimize the risk of accidents to avoid injuries and casualties
- Enhance the capacity of the workers to response in ambiguous situations.
- Save maximum lives and assets.

Following targets will be set to achieve the above mentioned objectives:

- Ensure deployment of sufficient manpower in the shape of Flagmen / Traffic controllers etc. for TMP implementation.
- Ensure maintenance of diversion routes.
- Ensure management of off-site and on-site traffic appropriately.
- Ensure no or least impacts of TMP on local residents and local road network as far as possible.
- Set out mitigation measures to reduce impact on health, safety and environment pertinent to traffic management and transportation.
- Ensure organization of TMP in such a way to reduce the risk of accidents by providing an accident / incident free workplace.

## 1.5 Scope of The Traffic Management Plan

The intention of TMP is to ensure effective implementation and continued improvement in traffic flow in the project area. Contractor is committed to:

- Ensure that vehicular movement will not result in irreversible adverse impacts.
- Ensure that vehicular movement will not result into disturbances for the local community residing in the vicinity of the project as far as possible.
- Ensure the site activities as per guidelines of TMP and all regulatory requirements.

# 2. ROLES AND RESPONSIBILITIES

## 2.1 Project Manager (PM)

Under the corporate leadership, Project Manager/Site Manager faithfully implements the corporate environmental policies and aim to attain set goals, set up concrete measures, and ensure the measures strictly carried out by all Project staff. Project Manager/Site Manager at Site shall be responsible to:

- Ensure effective running and implementation of TMP with the assistance of HSE/OHS staff.
- Establish a healthy project organization and put in place a well-functioning resource deployment system.
- Inspect implementation procedures and operating facilities for effective TMP compliance.

## 2.2 In charge Structural Work

He will establish and maintain the practical aspect of TMP. He will be responsible for the following duties.

- Takes the leadership of traffic management and operations.
- Take radical measures for on-site coordination; apply deployment optimization and dynamic management.
- Scientifically and reasonably, plan TMP with environment protection considerations.
- Maintain coordination with the HSE Manager/Environmental Specialist regarding the TMP matters.

## 2.3 HSE Manager/Environmental Specialist

- HSE Manager will be responsible for the following duties.
- Prepare and submit the TMP for approval from the Engineer.
- Establish and maintain practical setup of TMP with coordination of PM and in charge of sites without any compromise over health and safety of workers / local community / transporters.
- Supervise the duties of his (HSE) team.
- Arrange meetings with HSE staff and other construction staff as per requirement
- Guide, monitor controlling, and precautionary measures for effective implementation of TMP.
- Training of concerned management staff and workers.
- Report the PM on the implementation of TMP and its lapses-if any.

- Conduct investigation in case of any incident / accident to identify its immediate root causes.
- Prepare and submit reports including Incident Report (IR) to the Engineer.
- Identify and implement the control and proactive measures to avoid recurrence.
- Organize his team to inspect regularly the transportation / movement of equipment / vehicles as per communicated plan.

## 2.4 Traffic Controller and Flagman

Contractor will depute a person as traffic controller who will ensure smooth traffic flow during construction and will perform the following duties.

- Allocate the flagmen at their required designated places.
- Perform all tasks associated with traffic management during working hours.
- Inform all project stakeholders.
- Maintain traffic diversion point(s).
- Display banners at diversion points or other required locations.
- Complete site checks and monitor traffic behavior accurately and regularly.
- Ensure safety is maintained at all times during the flow of traffic.
- Give special consideration to pedestrians and cyclists.
- Establish and maintain strong coordination with HSE Manager regarding TMP implementation.

## 2.5 Capacity Building Of Workers

Arrangements will be made by the Contractor's HSE team, for the capacity building of workers involved in the TMP. Trainings will be conducted by the HSE Manager for Traffic controllers, Flagmen, In-charge Earthwork, Site Supervisors and Site In-charges to make them aware about the guidelines of TMP. HSE supervisors will also deliver frequent toolbox talks at work sites to ensure safe and streamlined traffic flow.

Road Safety training will be conducted for the project staff including Machinery Operators and Divers to make them well aware regarding project specific and other traffic regulatory rules and regulations. Symbols and signs will be used to make these training sessions more effective. Consequences of fast / rash driving will also be explained to them so that they may remain most careful while driving a vehicle or operating a machinery. Different safety guidelines for different sort of heavy machinery i.e. crane; excavator etc. will be explained separately.

## 2.6 Public Feedback

- Complaint registers will be maintained at the Contractor's camp to get public feedback wherein every single complaint will be registered and adhered timely.
- Contractor's HSE staff will take strict notice of these complaints and mitigate the social problems on priority basis.
- Public consultations will be conducted at required locations to get feedback of local community and to make them well aware about different scope of work at different times.

# 3. PROVISION OF DIVERSION ROUTE

Diversion route will be provided at crossing points of different public passages. Temporary diversion routes will be provided for public facilitation and flagman will be deployed on diversion routes for safe vehicle movement.
Salient features of the temporary diversion route are:

- diversion route will be constructed for LTV and HTV traffic
- width of temporary diversion route will be 24ft at minimum.
- top level of diversion route will be provided with 1 feet compacted sub-base material.

## 3.1 Arrangement for Traffic Control

Contractor will ensure following arrangements for controlling traffic on diversion route.

- Colored concrete post will be installed at the edges of diversion route to restrict and indicate the traffic flow in safe area.
- Soft and hard barricading will be provided along the edges of diversion route to restrict the traffic flow in safe area.
- Top level of diversion route will be provided with 1 feet compacted sub-base material on which traffic will ply.
- Specific signboards, caution / awareness boards and banners / flexes will be installed at different required locations of traffic diversion route.
- It will ensure that there may not be any chance for traffic stoppage and will take all necessary measures for smooth traffic flow. Traffic flow will be regulated by deploying flagmen at junction points of diversion route.
- Water sprinkling will be done twice a day to avoid dust pollution. No. of trips of water sprinkling per day can be increased or decreased as per requirement.
- Road will be closed from both sides, which will be clearly marked with installation of barriers and signpost.
- No, unauthorized person will be allowed to enter the working area.

## 3.2 Project Specific Traffic

Since project under discussion have scattered sites. Therefore, project specific traffic includes both light & heavy traffic.

### 3.2.1 Light Traffic Vehicles (LTV)

Light Traffic Vehicles include cars, jeeps, tractor trolleys, diesel vans and pickups. These vehicles are used for:
Inspection & execution of site activities by Civil, Mechanical, or HSE staff.
Shifting of construction crew from campsite to work sites or from one site to other.
Delivery of fuel from camp to active work sites.
Shifting of form work material from camp sites to active work sites or from one site to other.

### 3.2.2 Heavy Traffic Vehicles (HTV)

There is wide variety of heavy traffic being used within the project area. Heavy traffic vehicles include dumpers, transit mixtures, mobile concrete pumps, graders, excavators etc. These are involved in:

- Transportation of construction material from supplier to the campsites or from camp sites to active construction sites where required.
- During concrete pouring activities, transit mixtures, concrete pumps etc. are mobilized from camp to required site.
- For earth work activities, HTV equipment excavators, water bowsers, rollers, graders, dumpers, loaders and dozers are mobilized from camp to the site. After the completion of shift, all the equipment remains at site to minimize fuel consumption and roadside accident.
- Shifting of form work material from camp sites to active work sites or from one site to other (on large scale)

## 3.3 Traffic Arrangements for Different Project Activities

### 3.3.1 Transportation of Manpower and Machinery

Campsite is inter linked with the active sites. Labor and staff is mobilized through Contractor's bus from camp to sites and vice versa. For Earth work activities, once this equipment i.e. water boozers, graders, rollers, dozer, dumpers are mobilized from camp then these will remain at sites after the completion of shift to minimize fuel consumption and risk of road side accident. Non-crawling and slow crawling equipment are shifted from camp to active worksite through low bed trailer. Machinery movement will be kept safe by adopting the informed haulage routes. Haulage routes are also kept as minimum & are selected by keeping in view of low impact on nearby residents / local community. In case of dust pollution due to mobilization operation, water sprinkling will be carried out.

### 3.3.2 Transportation of Construction Material

Transportation of construction material from supplier to camp or site is usually carried out during day & night times. Every kind of construction material is transported in closed or properly covered vehicles such that there is no chance of leakage / spreading during haulage. Proposed routes for transportation of construction material are given below.

#### 3.3.2.1 Cement Carrying Bulkers and Trailers

To be filled as per the site specific situation. The location map of these routes need to be attached as Attachment-01.

#### 3.3.2.2 Aggregate/Sand Carrying Trailers

To be filled as per the site specific situation. Location maps of these routes needs to be attached as Attachment-01.

# 4. TRAFFIC PROTOCOL FOR EMERGENCY SITUATION

## 4.1 Introduction

In case of emergency, incident will be immediately communicated to the Emergency Response Team (ERT). Special care will be taken to avoid any hindrance at points where traffic is likely to be stuck. Communication will be done through mobile phones with Internal and External bodies: Incident /accident shall be documented as given in Annexure 2: Incident / Accident Investigation Report Format.

## 4.2 Internal Alerting

In case of emergency, following contact information of ERT have already been shared with the camp staff and construction crew to communicate quickly and accurately through mobile phones, internally within the project area:

**Table 1: Internal Contacts Information**

| Name | Designation | Contact |
|---|---|---|
| TBN | Site Manager | |
| TBN | HSE In-charge/ Environmentalist | |
| TBN | Project Coordinator | |
| TBN | Paramedic | |

## 4.3 External Alerting

Following contact information of external agencies have been shared within the subproject area.

**Table 2: External Contacts Information**

| External Agencies | Contact Number |
|---|---|
| Rescue Department | |
| Nearby Hospital | |
| RHC | |
| THQ | |

## 4.4 Accident and Incident

All types of traffic accidents / incidents will be reported to HSE Manager by Transport Supervisor. HSE Manager will submit Incident report to the Engineer. In case of roadside traffic accident, it will be advised not to move the vehicle unless the investigation is over. In case of minor accident, vehicle shall be moved at side to avoid traffic blockage. Equipment like crane, loader and excavator will be available at site to deal with any kind of vehicle related

emergency. Passengers will be moved away from vehicle / road and will be advised to stay at scene but at a safe place. Contractor's Emergency Response Team (ERT) will do the following:

- Assist any injured and give first aid if competent to do so.
- Call ambulance / police for immediate assistance.
- Take all necessary details such as, date, time and location of accident of, number of persons in vehicle, type of vehicle etc.
- Record details of eye witness, if any.
- Only give statement to police and do not accept any liability unless responsible person from company advises to do so.
- Complete all formalities before moving from the location.
- Ask transport supervisor to arrange recovery if vehicle cannot be driven.
- Provide medical arrangements to cope with emergencies.
- Suggest the proactive measures to avoid recurrence in future.
- Initial Incident Report format is attached as Attachment-02.

# 5. GENERAL CONSIDERATION

General but site-specific considerations have been developed and will be implemented during construction activities.

## 5.1 Transportation of Construction Material

Transportation of construction material, plant and equipment will be well planned and executed safely.

- Experienced drivers will be assigned for transportation of heavy equipment / material to and from work site.
- All loads will be properly tied down to the transporting vehicles and will be checked prior to start and during the journey.
- Backs man will be deputed with all heavy vehicles and moving equipment.
- Project vehicles will be passed on priority from stoppage points.
- Close coordination, between I/C store / warehouse and Transport Supervisor, will be established and maintained.

## 5.2 Traffic Management During Rain

Diversion route is provided with 1 ft. compacted sub base material to avoid any kind of traffic disruption during rainy days. Furthermore, for emergency purposes, appropriate machinery, such as grader and loader will be available at site round the clock to maintain the roads for smooth flow of traffic.

## 5.3 Road Safety Guidelines

Following guidelines will be followed and practiced by the project personnel at all levels:

- Traffic and mobility of the local community will be kept un-interrupted.
- In case of any accident, emergency plan will be followed and treatment will be given on time
- Use of radio / tape recorder will be prohibited and- if allowed- low volumes will be ensured.
- Vehicles will be properly and regularly maintained so that noise and emission levels could be reduced.
- Water will be sprinkled (as per requirement) on earthen routes to control dust emissions.
- No private land / property without prior permission from the owner will be used for transportation routes.

### 5.3.1 Speed Limit

Speed limit will be ensured as 20 km/h within the subproject area. This limit will be applicable to all kind of vehicles. Speed limit signs will be displayed near and on the diversion routes. On main roads, traffic assigned speed limits will be strictly followed by all drivers.

### 5.3.2 Road Safety Sign

HSE Manager will ensure that all required road safety signs are displayed at all required locations; are kept quite visible and in good condition. Road safety signs will be shifted according to progress in the construction phases. Signboards will be erected at all the required locations and nodal points for smooth entry / exit of vehicles to and from the project area.

Besides signboards, different notice boards, banners and flexes will be displayed at the desired locations showing diversion routes or any other important information related to traffic flow, as and when required.

### 5.3.3 Emergency Vehicles

Access will be provided immediately for emergency vehicles including the following.

- Ambulance
- Vehicles having patient
- Fire brigade
- VIPs
- Army Convoy / Vehicles

## 5.4 Communication and Complaints

Contractor and Consultant representatives will arrange coordination / consultation meetings on monthly basis or as required, with all parties / stakeholders involved in the construction activities of the project in order to regulate public transport in an orderly manner. Complaint registers will be maintained at the camp to register complaints of local community, transporters and other stakeholders.

## 5.5 Safe Drug and Alcohol Policy

- Drivers, on prescribed drugs by a physician due to ailment / sickness, will inform Transport Supervisor so that their work schedule can be adjusted.
- Driver or any other machine operator will be checked for fitness by the concerned supervisor to ensure that they are not under the influence of alcohol or drugs.
- Strict disciplinary action, up to immediate termination, will be taken against the drivers / operators who consume drugs / alcohol and operate machinery or any vehicle under its influence.

## 5.6 Defensive Driving

- Defensive driving will be encouraged and ensured / practiced. Any kind of violation will not be compromised at any level.
- Use of seat belts will be ensured.
- Speed limit of 20 km / h will be strictly implemented within Project area.
- Use of mobile phones will be prohibited during driving.
- Overtaking, wrong parking and fast crossing will be strictly prohibited and controlled.

## 5.7 Pollution Control

### 5.7.1 Noise Pollution Control

- Playing tape recorders will be strictly prohibited in the project area.
- Use of pressure horns will not be allowed.
- Machinery, plant and equipment will be inspected regularly and maintained to avoid producing loud noise beyond SEQS.
- Silencers will be fitted and maintained in every plant, machinery and equipment, where required.
- Noise level monitoring will be conducted for heavy machinery on diversion route with the help of Noise Meter as part of monthly environmental monitoring.

### 5.7.2 Air Pollution Control

- Machinery, plant and equipment will be inspected regularly and maintained to avoid producing excessive gaseous emissions.
- Dust emissions will be controlled by regular water sprinkling on diversion route and other routes / access roads within the Project area.
- Speed limit as 20/h will be implemented as fast driving vehicles / machinery can be a cause of dust pollution.

## 5.8 Driving Conditions

If, due to weather or other conditions, it is unsafe to drive, then Transport Supervisor will issue instructions to suspend construction machinery movement. All drivers will be alerted of the unsafe situation.

### 5.8.1 Fog, Smog and Reduced Visibility

The acceptable visibility for driving in fog or related condition of reduced visibility is 50 meters of clear vision. In case of poor visibility (less than 50 meters), construction traffic movement will be stopped until visibility is improved. If fog or reduced visibility is encountered during a journey, following precautions will be taken by the drivers.

- Reduce speed
- Used Hazard Light / Double Indicators
- Increase the distance from front vehicle
- Switch on the head lights (low beam only)
- No heavy braking
- No frequent lane changing
- If visibility is too poor, stop at a side and inform the immediate supervisor.

### 5.8.2 Driving During Rain

Following actions will be taken by the company drivers, if it is raining while on the road.
Reduce speed, since breaking distance significantly increases due to wet surfaces therefore, the distance between vehicles shall be increased.

- Switch on lights (low beam)
- Avoid over taking
- Maintain access routes by applying grader and loader.
- Use the route in work area where subbase material is applied to avoid any slushy condition.
- Follow the flagmen deputed to control the traffic during rain.

# Annexure 1: Routes for Transportation

Maps and Layout

# Annexure 2: Incident / Accident Investigation Report Format

| INCIDENT / NEAR MISS REPORT | QUALITY RECORDS / FORMS | |
|---|---|---|
| | Doc. Level: | Doc. Version:1 |
| | Doc. No | |

| HS.T.02 | INCIDENT / NEAR MISS REPORT |
|---|---|
| Title of Project: | |
| Location: | Date: |

**Objective(s)**

To implement immediate and effective process in order to provide immediate treatment against any fatality, Injuries, Casualty.

**SECTION A: TO BE COMPLETED BY PERSON INVOLVED (OR BY SUPERVISOR OR HEALTH AND SAFETY REPRESENTATIVE IF WORKER IS INCAPACITATED) AND BY THEIR SUPERVISOR**

**Details of the person involved in the incident/near miss**

**Employee #:** ..... **Site Address** ..... **Work phone:** .....

**Name:** ..... **Father Name:** .....

**Position:** ..... **Date of birth:** ..... ☐ **Male** ☐ **Female**

**Please select one:** ☐ Member ☐ Client Member ☐ Sub Contractor ☐ Visitor/Other

**Details of the:** ☐ Incident ☐ Near miss ☐ Medical

**Date:** ..... **Time:** ..... A.M /P.M

**City:** ..... **Location:** .....

**Was the incident/near miss reported to your supervisor, immediately:** ☐ Yes ☐ No

Part of the body injured

| Head | Trunk | Internal | Arm | Hand | Leg | Foot eye |
|---|---|---|---|---|---|---|
| ☐ neck | ☐ heart | ☐ left | ☐ left | ☐ left | ☐ left | ☐ ear |
| ☐ hip | ☐ lungs | ☐ right | ☐ right | ☐ right | ☐ right | ☐ |
| ☐ nose | ☐ chest | ☐ systemic | ☐ shoulder | ☐ thumb | ☐ knee | ☐ great toe |
| ☐ mouth | ☐ stomach | | ☐ upper arm | ☐ fingers | ☐ lower leg | ☐ other toes |
| ☐ teeth | ☐ groin | | ☐ elbow | ☐ palm | ☐ ankle | |
| ☐ face | ☐ back | | ☐ forearm | | ☐ thigh | |
| ☐ skull | ☐ multiple | | ☐ wrist | | ☐ upper leg | ☐ psychosocial |

Nature of injury

| | | | | | |
|---|---|---|---|---|---|
| ☐ abrasion | ☐ puncture | ☐ heart attack | ☐ sprain | ☐ burn | ☐ traumatic shock |
| ☐ bruise | ☐ laceration | ☐ hearing loss | ☐ strain | ☐ scald | ☐ electric shock |
| ☐ fracture | ☐ amputation | ☐ foreign body | ☐ hernia | ☐ rash | ☐ psychosocial |
| ☐ concussion | ☐ bite | ☐ minor cuts | | ☐ allergy | ☐ chemical |

☐ aggravation of previous injury or medical condition *(please describe)*: .....

Type of incident which caused injury

| | | | | |
|---|---|---|---|---|
| ☐ striking against | ☐ stumbling | ☐ lifting | ☐ pushing | ☐ ingestion |
| ☐ struck by | ☐ slipping | ☐ bending | ☐ pulling | ☐ absorption |
| ☐ caught in/on | ☐ tripping | ☐ twisting | ☐ jumping | ☐ inhalation |
| ☐ stepping on | ☐ falling | ☐ stress | ☐ vehicle | ☐ needlestick |

☐ other *(please describe)*: .....

| | INCIDENT / NEAR MISS REPORT | QUALITY RECORDS / FORMS | |
|---|---|---|---|
| | | Doc. Level: III | Doc. Version:1 |
| | | Doc. No: | |

Agency of injury

| | | | |
|---|---|---|---|
| ☐ vehicle power | ☐ buildings | ☐ mobile plant | ☐ structures |
| ☐ tools | ☐ furniture | ☐ other tools/equipment | ☐ surfaces |
| ☐ animal/insect | ☐ heat stress | ☐ materials | ☐ sunburn |
| ☐ biological agent | ☐ chemicals | ☐ equipment | ☐ stress |
| ☐ objects | ☐ ionising radiation | | |

☐ other *(please describe)*: .....

**SECTION B: TO BE COMPLETED BY THE SUPERVISOR AND THE PERSON INVOLVED WITHIN 48 HOURS**

**THIS SECTION IS EXTREMELY IMPORTANT AS THE AIM OF THE INVESTIGATION IS TO IDENTIFY PREVENTATIVE ACTION THAT WILL AVOID RECURRENCE OF A SIMILAR INCIDENT/NEAR MISS**

Probable cause or causes of incident/near miss

| | | | |
|---|---|---|---|
| ☐ inadequate instruction | ☐ fault of plant or equipment | ☐ poor storage | ☐ weather |
| ☐ inadequate workspace | ☐ equipment unavailable | ☐ poor access | ☐ terrain |
| ☐ assistance unavailable | lack of attention | incorrect method | ☐ work practices |
| ☐ other *(please describe)*: ..... | | | |

**Describe the incident/near miss:**

**Immediate action:**

**Long term action:**

| | | | | | |
|---|---|---|---|---|---|
| **Training Required?** | ☐ | ☐ | **Rehabilitation** | ☐ | |
| Induction | ☐ Yes | ☐ No | is required | ☐ | unknown as yet |
| Task specific | ☐ Yes | ☐ No | is not required | | time off work required |
| Area specific | Yes | No | | | |

**AUTHORISATION (ALL SIGNATURES ARE REQUIRED)**

| | |
|---|---|
| **Person involved in the incident:**<br>Name: .....<br>Signature: .....<br>Date: ..... | **HSE Officer/ Supervisors:**<br>Name: .....<br>Signature: .....<br>Date: ..... |
| **HSE Manager:**<br>Name: .....<br>Signature: .....<br>Date: ..... | **Project Manager:**<br>Name: .....<br>Signature: .....<br>Date: ..... |

# Annexure X: Draft-Sample Waste Management Plan (WMP)

## DRAFT-SAMPLE
## CONTRACTOR'S WASTE MANAGEMENT PLAN (WMP)
## FOR
**Rehabilitation of Rain/Flood Affected Roads**

| S.NO | DATE | PREPARED BY | CHECKED BY | APPROVED BY | REMARKS |
|---|---|---|---|---|---|
| **1.** | | The Contractor | CSC | PIU | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# 1. INTRODUCTION

This WMP was developed by the Construction Contractor (CC) under the supervision of construction Supervision Consultant (CSC) with the endorsement of Project Implementation Unit (PIU) - SFERP for rehabilitation of Roads and Allied Infrastructure.

This site specific Waste management plan is applicable to all working sites and accommodation facilities utilized by the contractor. All the waste either generated from camp areas, construction sites or batching plants will be collected and disposed of in an environmentally safe manner. All the workers and visitors will be required to implement solid waste management system at site.

The following details based on the Environmental Code of Practice for General Waste shall be considered:

- Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of the disposal site, to cause less environmental impact.
- Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach.
- Segregate and reuse or recycle all the wastes, wherever practical.
- Collect and transport non-hazardous wastes to all the approved disposal sites that is endorsed by the provincial government and Sindh EPA.
- Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process.
- Provide refuse containers at each worksite.
- Request suppliers to minimize packaging where practicable.
- Place a high emphasis on good housekeeping practices.
- Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal.
- The waste shall only be collected, transported and disposed off through SEPA certified waste vendor/collectors.

The following details based on the Environmental Code of Practice for Fuels & Hazardous Substance Management shall be considered:

- Prepare spill control procedures and submit the plan for CSC and PIU for approval.

- Train the relevant construction personnel in the handling of fuels and spill control procedures.
- Store dangerous goods in bonded areas on top of a sealed plastic sheet away from the water course. Refueling should occur only within bonded areas.
- Make available MSDS for chemicals and dangerous goods on-site.
- Transport waste of dangerous goods, which cannot be recycled, to a designated disposal site approved by the government and Sindh EPA.
- Provide absorbent and containment material (e.g., absorbent matting) where hazardous material is used and stored and personnel trained in the correct use.
- Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use.
- Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with the expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur.
- Store hazardous materials above flood plain level by providing the secondary containment.
- Put containers and drums in temporary storage in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area should preferably slope or drain to a safe collection area in the event of a spill.
- Put containers and drums in permanent storage areas on an impermeable floor that slopes to a safe collection area in the event of a spill or leak.
- Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution.
- Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials.
- The hazardous waste shall be treated appropriately only authorized person would be allowing to dealt with. The hazardous waste should be incinerated at SEPA approved incinerator plant.
- The waste handlers should be SEPA certified and having expertise to dealing the material which is hazardous in nature.

## 1.1 Waste Management Plan (WMP)

Waste Management (WMP) is the generation, segregation, collection, transfer, transportation and disposal of waste in a way that takes into account public health, economics, conservation, aesthetics, and the environment, and is responsive to public demands. Failure of the waste management system has serious environmental impacts like land and air pollution, blockage of drains and water pollution in natural streams. There are various factors that attribute to poor waste management, such as, lack of public awareness, high waste generation and non-functioning of existing systems. Rate of urbanization, scavenger role for recyclable separation and the capacities of existing municipalities for solid waste management are also important factors that should be considered.

### 1.1.1 Objective and Target of WMP

The goal of this management plan is to outline the requirements for managing and controlling the waste generation, collection, storage, transportation and disposal systems to be applied during the rehabilitation of roads.
The overall goal of this Waste Management Plan is to improve the quality of life of people working for the proposed subproject and to conserve natural resources by reducing, reusing and recycling (3R) waste in a sustainable manner. The objectives of the plan are:

- To devise a mechanism of waste management and its final disposal in an environmentally safe manner i.e. minimizing the waste, recovery of Reusable and Recyclables
- To reduce waste generation at source and encourage reuse and recycling of waste.
- To record the quantity of waste generated, reused and recycled at site.
- To properly dispose the hazardous waste if any without harming the environment.
- To enhance segregation of waste before final disposal
- To organize awareness campaigns and training s to educate workers for waste management.
- To report the progress of implementation of Solid Waste Management to the Engineer.

# 2. ROLES AND RESPONSIBILITIES

## 2.1 Site Manager

Site Manager is responsible to hire and facilitate staff for collection, segregation, transportation and disposal of waste. He will assign responsibilities to ensure that waste has been segregated and disposed of properly. His responsibilities include:

- To ensure housekeeping at offices and camps
- To ensure the license of SEPA is remains valid till the job ends
- To ensure the compliance of condition laid down in EPA approval
- To provide drainage of rain water in all areas in association with HSE Team.
- To provide hygienic conditions in living rooms and dining halls
- To collect all waste, segregate it properly and dispose of accordingly.

## 2.2 In charge camps:

In charge camps is responsible for maintaining neat and clean environment and ensure housekeeping of the camps. All the waste will be collected and disposed of properly. He will ensure no littering inside the camps. His responsibilities include

- Daily sweeping and collection of general waste from rooms, kitchen and office area.
- Sanitation of wash rooms and toilets.
- Trimming and maintenance of green areas and walkways if present.
- Fumigation to avoid any pests.
- Maintaining environment healthy for all workers.

## 2.3 Site Waste Coordinator:

Environmental engineer will be responsible to monitor and report the progress of overall management of the waste. Contractor shall ensure that suitable arrangements are in place to ensure the consignment and disposal of waste materials. These arrangements shall include;

- Daily monitor site conditions and ensure that remedial actions are implemented.

- Satisfy himself that waste material removed from site is reaching the disposal pits area and is not being “fly tipped” or causing environmental damage.

- Waste generation, collection, transportation and disposal will be recorded and reported to Engineer on monthly basis. Contractor will discuss all efforts and issues of waste management system.

- To ensure implementation of this plan, such as collection of solid waste from waste bin into drums, and onward from waste drum to solid waste pits and transportation of the solid waste and segregation at solid waste pits area.

## 2.4 Support Staff for Solid Waste Management:

In residential areas and offices, housekeeping staff is hired and administered by Administration department. While on site, area in charge is responsible for the housekeeping, collection of waste and segregation while transportation to the disposal pits is the responsibility of I/C Admin/site manager.

## 2.5 Capacity Building of Workers

All the waste will be collected according to the procedures delineated in this Plan. The Contractor's HSE staff will conduct trainings regarding waste management on required basis. Trainings will be conducted for following staff:

- Employees / Workers: To reduce waste generation on individual level and to make use of installed waste bins.
- Housekeeping staff: To ensure safe and adequate collection, segregation, transportation and disposal of the waste.

# 3. ENVIRONMENTAL IMPACTS OF WASTE

The proposed Waste Management strategy is based on both short-term and long-term effects on the environment including conservation of resources and prevention of pollution. Inadequate handling or disposal of waste can contaminate the air, water or land resources and can cause overall environment pollution; including emission of greenhouse gases, effects on other physical infrastructure, chemicals, cause fire or explosion hazards.

If the waste is not handled properly, it can cause severe nuisance and can cause variety of viral or bacterial diseases. Domestic (kitchen) waste contains high percentage of readily degradable hydrocarbons which release bad odor during its decomposition, especially in hot and humid conditions. Medical waste or construction waste classified as inert waste, can pose a problem for disposal. Medical waste can cause serious injury to human health if not properly handled and disposed.

## 3.1 Adverse Impacts of Waste and their Mitigation Measures

**Table-1** presents the adverse impacts of different type of wastes, their mitigation measures and responsibility to mitigate the environmental impacts:

**Table1: Adverse Impacts of Waste and their Mitigation Measures**

| Sr. | Type of Waste | Adverse Impacts | Mitigation Measures | Responsibility |
|---|---|---|---|---|
| **1** | Biodegradable Organic Waste | Attract rats, flies, mosquitoes, cockroaches, birds and other vectors, which can transfer diseases in humans and animals. | Primary and secondary storage of waste will be secured in designated waste bins or pits by covering them to avoid interference of birds, cockroaches, rats or other vectors. Waste will be handed over to local authorities like TMA, on required basis. | The Contractor |
| **2** | Commercial Waste | Broken glass, metals, cement bags and sharp objects, which are potentially dangerous to people coming in contact with. | Commercial waste will be handed over to vendors on required basis for recycling. | The Contractor |
| **3** | Hazardous Waste | Exposure to hazardous waste like used oil, chemical waste, oil spills / leaks etc. can affect human or animal health if they come in contact with through skin or any other mode. | Hazardous waste will be collected in separate containers and will be handled separately (not with other types of waste). This type of waste will be handed over to local authorities like TMA and/or any other appropriate agency, for its proper disposal, on required basis. | The Contractor |
| **4** | Medical Waste | Medical waste can cause infection to the personnel involved in handling or other who | Medical waste shall be collected in separate containers and will be handled separately (not with other types of | The Contractor |

| Sr. | Type of Waste | Adverse Impacts | Mitigation Measures | Responsibility |
|---|---|---|---|---|
| | | may come in contact with it. | waste). It will be handed over to THQ Hospital for its disposal along with their own hospital waste or to DHQ Hospital for final disposal (for incineration). | |
| **5.** | Construction Waste | Construction waste can cause accidents or injuries associated with slip / trip / fall hazard. This can cause poor housekeeping at construction site. | Construction waste will be segregated at first to recover the re-useable items. It will be disposed at a designated disposal site, after taking approval from the Engineer. | The Contractor |

Job specific PPE like gloves, masks, safety shoes and coveralls will be provided to the personnel involved in handling of all kind of waste as mentioned in Table-1

# 4. WASTE MANAGEMENT HIERARCHY

## 4.1 Introduction

Waste management hierarchy includes all the activities and actions required to manage waste from its inception to its final disposal. The following flow chart as shown in Figure below will be implemented by the Contractor during execution of the Project, which shows the interrelationship between the different functional elements of solid waste management plan.

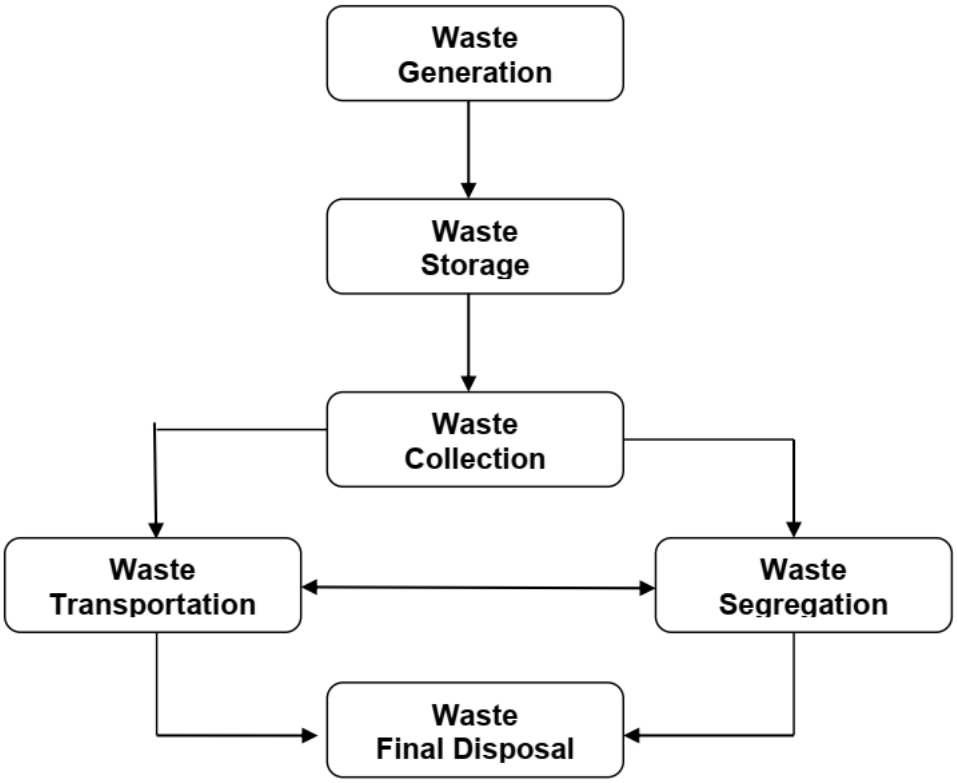


**Figure: Interrelationship between the Functional Elements of WMP**

## 4.2 Primary Collection and disposal:

The collection from the source is called primary collection. All the waste will be collected in bins and transported to nearby waste collection drums.

### 4.2.1 Room and Street sweeping:

All the rooms, corridors walkways etc. will be swept on daily basis. The waste from these rooms will be collected into drums. These drums will be emptied on need basis. The frequency to clear the drum will be optimum to avoid any nuisance or litter in the area.

### 4.2.2 Site domestic Waste Collection:

All the domestic waste from camps and accommodation site will be collected from drums and put in jumbo plastic bags and transported through a vehicle to final disposal point. The vehicle will be covered to prevent litter during transportation to final disposal point.

### 4.3 Waste Segregation & Collection:

Waste is segregated at the source of generation; a numbers of waste bins shall be provided at each site/Location with color coding as per our waste management plan & collected on daily basis.

- Blue — Paper, cotton & general waste
- Green — Metallic & Crockery waste, plastic
- Yellow — Food & Kitchen waste
- Red — Oil Waste, cartridge & Batteries
- Orange — Medical Waste
- Septic Tanks — Black & Grey water

# 5. HAZARDOUS WASTE

## 5.1 Construction waste:

All the construction waste will be collected and disposed of only at designated places as approved by TMA. Most of the construction waste (surplus concrete, washing waste from Transit Mixer, concrete pump, batching plant waste) will be re-used or recycled during the mixing phase. Any remaining waste will be disposed of in demarked and designated places. The paper bags of cement will be collected at the place of use and handed over to store to sale it for its recycling purpose.

### 5.1.1 Waste with Commercial value:

Timber and other scrap material with a commercial value shall be separated and stored in segregated areas prior to removal. These will be for recycling or reuse purpose. General but site-specific considerations have been developed and will be implemented during construction activities.

## 5.2 Hazardous waste:

All the waste from Mechanical workshop will be stored into different drums and segregated at the spot. The used mobile oil will be stored into drums and handed over to store. Used vehicle filters will be stored into drums and will also be handed over to store.

Batteries shall be drained and flushed before disposal, and the residual acid diluted and neutralized, shall be discharged into the septic tank.

Similarly, all the other waste will be collected from workshop and handed over to store for its proper storage and then transportation to concerned vendor selected for its re-use or recycling. Only municipal waste from Mechanical workshop will be collected in drums daily and segregated before final disposal into disposal pit.

### 5.2.1 Medical waste:

All the medical waste will be collected in designated bins. The waste collection bins will be labeled to differentiate infectious and non-infectious waste. Sharp containers will be provided in the medical facilities (for syringes, suturing kits and needles) and also clearly identified bagging for infectious or contaminated dressings; these will be removed and disposed of by third party which is certified from SEPA, keep track record for its final disposal in the form of pictures and personal witnessed.

## 5.3 Segregation of waste:

All the waste will be transported to disposal pit where final segregation will be done. The segregation staff is the same appointed for housekeeping purpose. Segregation will be in accordance with 3R technique. First of all, it will be required to Reduce the amount of waste generated. Moreover, all the Recyclable and Reusable material will be segregated. All the

waste will be segregated at all stages of waste management to ensure maximum recovery of valuable material. All the segregated material will be temporarily stored in pits meant for the purpose and sold to vendor to promote recovery of valuable material.

### 5.4 Transportation of Medical Waste:

All the medical waste will be collected into designated bins. These bins will have polythene bags inside them. The non-hazardous, non-infectious waste which is being generated during medical process should also be disposed off with them. The infectious waste will be disposed of by SEPA certified-third party.

### 5.5 Disposal of Waste:

All the waste will be disposed off in disposal site of the TMA with the written consent of the relevant authority.

# 6. MONITORING MECHANISM

Environmental Officer will carry out monitoring to ensure effective implementation of Waste Management Plan at following locations:

- Officer's Office Area and Residence Area
- Labor Barracks
- Primary Waste Collection Bin(s)
- Secondary Storage Pit(s)
- Final Waste Disposal Site(s)

Following parameters will be monitored at the above mentioned locations:

- Any sign of soil or water contamination
- Any un-disposed waste at unauthorized area
- Integrity and maintenance of the septic tank and soaking pits

# Annexure 1: Location of Waste Collection Points

Maps and Layout

## Annexure 2: Waste Management Checklists

**Date:_____**

| Description | Status | Notes |
|---|---|---|
| Is there a proper method of disposal of Solid waste? | Yes ☐ No ☐ | |
| Is there a proper method of disposal of liquid waste Camp? | Yes ☐ No ☐ | |
| Is general waste free of chemicals /POL waste? | Yes ☐ No ☐ | |
| Is hazardous waste stored/removed within reasonable timeframe? | Yes ☐ No ☐ | |
| All are bin properly labelled? | Yes ☐ No ☐ | |
| Is there any spill of solid or liquid waste into a water body, clean living area, building or graveyard? | Yes ☐ No ☐ | |
| Is the smell from solid or liquid waste being added to a living area? | Yes ☐ No ☐ | |
| Is any of the contract clauses being affected / violated due to waste disposal system? | Yes ☐ No ☐ | |

**Contractor**_____ **Consultant**_____