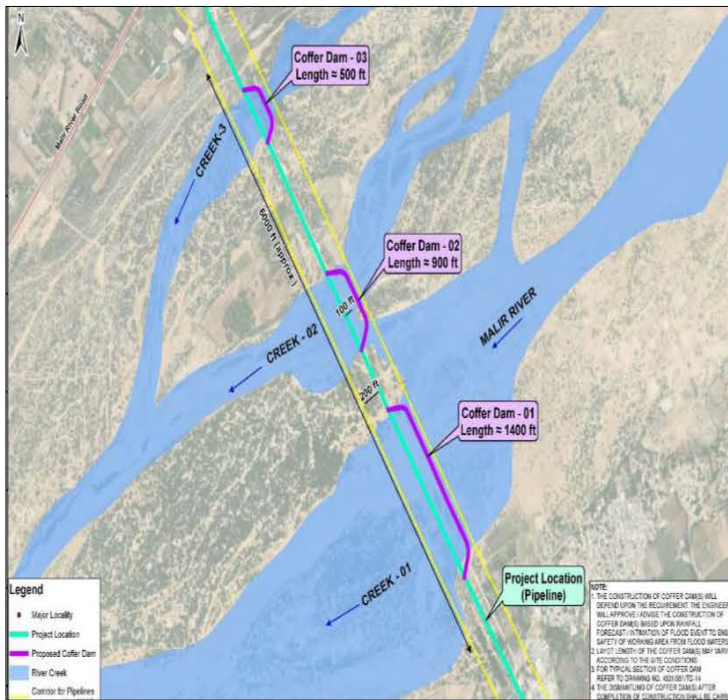




ENVIRONMENTAL and SOCIAL MANAGEMENT PLAN (ESMP)



Final Report

KWSSIP – KARACHI WATER AND SEWERAGE SERVICES IMPROVEMENT PROJECT

PROTECTION/ REHABILITATION WORK FOR G.K CONDUIT, K-II, K-III, 84” DIAMETER BALANCE CONVEYANCE AND 36” DIAMETER MALIR MAIN AT MALIR RIVER BED PHASE-I AND PHASE-III

January, 2023



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LIST OF ABBREVIATIONS

ASL	Above Sea Level
AIIB	Asian Infrastructure Investment Bank
AOI	Area of influence
BMPs	Best Management Practices
BOD	Biochemical Oxygen Demand
BOQs	Bills of Quantities
BPs	Bank Procedures
CC	Construction Contractor
COD	Chemical Oxygen Demand
DC	Design Consultant
DG	Directorate General
EA	Environmental Assessment
EHS	Environmental, Health & Safety
EMF	Environmental Management Framework
EPA	Environmental Protection Agency
ESF	Environmental and Social Framework
ESMP	Environment and Social Management Plan
GoP	Government of Pakistan
GoS	Government of Sindh
HSE	Health, Safety & Environment
IEE	Initial Environmental Examination
KW&SB	Karachi Water and Sewerage Board
KWSSIP	Karachi Water & Sewerage Services Improvement Project
NCS	National Conservation Strategy
NDMA	National Disaster Management Authority
NGOs	Non-Governmental Organizations
NOC	No Objection Certificate
O&M	Operational and Maintenance
PCC	Plain Cement Concrete
PPE	Personal Protective Equipment
PRCC	Pre-stressed Reinforced Cement Concrete
ROW	Right of Way
SEPA	Sindh Environmental Protection Act
SEQS	Sindh Environmental Quality Standards
SMF	Social Management Framework
SOP	Standard Operating Procedures
TOR	Terms of Reference
TSS	Total Suspended Solid
WB	World Bank

Executive Summary

1. Introduction

Karachi Water and Sewerage Board (KW&SB) is the responsible entity to provide bulk water to Karachi for both domestic and industrial use through two different sources i.e., Hub and Indus River. The Indus River is considered to be the only reliable source of water via Keenjhar Lake through an integrated network of canals, conduits, siphons, pumping stations, and pressurized water mains.

The system traverses through many water channels, railway tracks, roads, etc. On the route, the Greater Karachi (G.K), K-II, and K-III conduits and 84-inch diameter balancing conveyance main and 36-inch diameter water main (nonoperational), cross the Malir river near Dumlottee. The system passing through the Malir bed comprises Plain Cement Concrete (PCC) G.K. conduit, having Horse shoe structures and was constructed in 1952 whereas K-II and K-III are Mild Steel (MS) Syphons constructed in the year 1999 and 2006, respectively. 84-inch diameter balancing conveyance is Pre-stressed Reinforced Cement Concrete (PRCC) and the 36-inch diameter Malir main is of MS material.

All the crossing works were designed as a buried structure under the riverbed with upstream and downstream protections to provide safety against erosion and piping.

With the passage of time, illegal sand lifting from the Malir basin, and poor operation and maintenance, the protection works have deteriorated significantly. The recent erratic rains have increased the risk factors multifold times and proper protection works need to be provided. GK conduit is the lifeline of Karachi and if another flood hits the area without taking any measures to rectify the existing situation, then the whole city may suffer due to a cut in the supply of water and the KW&SB cannot afford nor has the capacity to manage any disaster on an emergency basis.

During the recent flood, the condition has become more chaotic and resulted in aggravating the overall situation. There is a potential threat to the structural stability and safety of the system within the bed.

The Government of Sindh (GoS), through the Karachi Water and Sewerage Board (KW&SB), is implementing various proposed projects to rehabilitate water supply and sewerage systems in Karachi. The proposed project will be implemented under the Karachi Water and Sewerage Services Improvement Project (KWSSIP), which is financed by World Bank (WB), Asian Infrastructure and Investment Bank (AIIB) and GoS. To address the potential environmental and social impacts of the proposed project, this Environmental and Social Management Plan (ESMP) has been prepared, in accordance with the WB safeguard policies.

Project Implementation Unit (PIU) KWSSIP, intends to rehabilitate the existing protection works under KWSSIP-1.

The current Environmental and Social Management Plan (ESMP) has been prepared to ensure that the proposed project activities are implemented in an environmentally benign manner with social acceptability and minimum disturbance to the community.

Environmental Management Framework (EMF) was prepared in 2019 with the purpose to establish principles, rules, guidelines and procedures to ensure compliance of environmental safeguard requirements of the national laws and World Bank's safeguard policies for those project investments. The EMF sets out the policies, strategies, procedures and institutional requirements to screen the activities, the environmental documents required for these activities and the approval and clearance procedures to be followed.

Social Management Framework (SMF) including a Resettlement Policy Framework (RPF) was prepared in 2019 with the aim to assess potential adverse social impacts of the envisaged proposed projects to be financed under Phase-1 of KWSSIP and ways to avoid, minimize or mitigate them through the establishment of clear procedures and methodologies for planning, screening, review, approval and implementation of proposed projects. SMF policy principles include transparency, inclusion, participation, social accountability and social safeguards that will be mainstreamed by adopting appropriate processes for social impact assessment and mitigation.

2. Policy, Legal and Administrative Framework

The national and provincial Government has promulgated laws/acts, regulations, and standards for the protection, conservation, rehabilitation, and improvement of the environment. The Ministry of Climate Change is the responsible authority for environmental protection policy-making in Pakistan whereas Sindh Environmental Protection Agency (SEPA) is the regulatory authority, which has provided guidelines for conducting Environmental Impact Assessment (EIA)/ ESMP studies and has the authority to issue regulatory clearance/ No Objection Certificates (NOCs) for various projects.

In addition to the laws of the land, World Bank Operational Policies (OPs) are also applicable to the project including Environmental Assessment (OP 4.01), Natural Habitat (OP 4.04), Physical Cultural Resources (OP 4.11), Involuntary Resettlement (OP 4.12), Gender policy (OP 4.20), and Access to information (BP 17.50).

3. Project Description

The proposed protection/ rehabilitation works will be carried out in the bed of Malir river in Dumlotee near Dur Muhammad Goth on Super Highway Link Road about 15 km away from Malir Cantonment, Karachi.

The primary objective of the proposed project is to protect the existing bulk water supply system in Malir Bed from the floods. The current protection works will be repaired/ rehabilitated with the provision of toe walls and gabion walls at the left and right banks of existing GK, K-II, and K-III conduits, 36-inch diameter Malir main, and 84-inch diameter balancing main. The proposed length of repair is about 1.75 km.

The proposed flood protection works will include upstream and downstream cut-off walls of 10.0 feet and 15.0 feet depth respectively. Gabion floor protection along a 225 feet wide pipeline corridor will also be provided. Loose stone aprons will be provided for upstream and downstream approaches. The scoured portion will be filled with loose stone to the level of gabions protection.

A total of 50 construction workers will be required for the construction period of 12 months. The estimated cost of the project is about PKR 3,068 million (13.64 million USD).

4. Baseline Profile

An area of Area of Influence (Aol) of 300m on either side is considered for the project.

A. Physical Environment

The project site lies within the river bed of Malir. The level shows a generally rising tendency from the sea. The topography of the project site varies from 130 to 150 ft above mean sea level (AMSL). The maximum contour in the project's surroundings is 220 feet and the minimum is 130 feet.

It was observed during the site visit that silty clay/clayey silt material exists on the ground strata. It is unconsolidated detrital material deposited by a body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its floodplain or delta.

The project area has an extreme climate. It has hot summers and mild winters. The summer starts in May and lasts till September. May and June are the hottest months. The mean maximum temperature is observed at 35 °C for the month of May. The winter season lasts from November to February. January is the coldest month. The mean maximum and mean minimum temperature ranges from 27 °C to 12 °C in January. On average, August is w2.0% the most humid. Maximum precipitation was observed in the month of July of nearly 50 mm. the dominant wind speed throughout the year is >19 km/hr.

Karachi is located on the coast of the Arabian Sea. The surface water resources of Karachi include three major rivers named Indus, Lyari, and Malir. Rivers Malir and Lyari basins are the two main basins that drain about 80 percent of the surface runoff of the city. Surface runoff is collected by hundreds of small and large channels in the basins, finally draining into the Arabian Sea.

The Project Area is located in Seismic Zone 2B, where 2B (upper moderate damage zone) represents peak horizontal ground acceleration from 0.16 to 0.24g.

B. Biological Environment

Sindh is a biologically diverse region housing numerous biological species. The project area is in the river bed which mostly remains dry throughout the year and only receives seasonal flooding during monsoon. The presence of any sensitive species of either flora or fauna

including endangered species is not identified desk review and field survey. A common naturalized shrub i.e., *Prosopis Juliflora* is found in abundance in the project area.

Since the river bed is mostly dry, the fish cannot be found except those which flow with the water in monsoon season. Some reptiles including Monitor Lizards and some other large lizards can be seen in the project area. Furthermore, there are mammals including dogs and cats.

There are no settlements within the zone of impact of the proposed project and there is no social connection of the community to the project site neither in terms of livelihood and access routes nor as a communal attachment.

5. Public Consultation and Information Disclosure

Engagement with stakeholders and disclosure is an integral part of the project's environmental and social assessment. The methods used for public consultation with project stakeholders in order to ascertain their stakes regarding project implementation were general/public meetings, rapid participatory appraisal, and on-site meetings.

Different categories of interested parties including project staff, government officials, and local communities were consulted to predict the nature and scale of risks, challenges, and impacts of the project perceived by them.

The following are the key findings of the consultation meetings:

Table ES- 1: Summary of Consultation Meetings

Sr. No.	Location	Date/ Time	Views	Responses
1	Haji Somar Goth	11-11-2022 • 02:00 pm	<ul style="list-style-type: none"> • Mostly women work in the fields. Their fields are on rent and after 6 months of farming whatever income is generated, they pay rent for the field and the remaining amount is for them. • There is no direct connection from the water board in their houses. They have connected pipes from a station of water board which is a little far from their houses. • The water is contaminated with sewage and sometimes they are not able to make tea with that water. • They have to walk for around 15-20 minutes to fetch drinkable water. 	<ul style="list-style-type: none"> • Water and sewerage-related issues are being resolved under several proposed projects of KWSSIP in different phases. • The proposed project activities will not disturb your routine activities.

Sr. No.	Location	Date/ Time	Views	Responses
			<ul style="list-style-type: none"> • There is no sewerage system in their area. They have their own septic tank. But when they are full the smell is unbearable for them, and they have to pay to get them empty. Every household pays PKR 1000 to get the septic tank emptied. • They get infected from fungal infection, diarrhea, stomach pain, flu and cough very frequently. • No NGO is working in their area. • Water and sewerage lines should be connected to their area. Health issues can be reduced by the provision of the proper sewerage system. 	
2	Durr Muhammad Goth	02-11-2022 • 04:00 pm	<ul style="list-style-type: none"> • These kinds of protection works have also been conducted in the past. However, the only possible solution is the construction of a weir. • The weir will protect the existing KW&SB conduits. 	<ul style="list-style-type: none"> • The consultants shared the proposed design with them and they appreciated the approach and design of the consultants.
3	Durr Muhammad Goth	04-10-2022 • 02:30 pm	<ul style="list-style-type: none"> • The community has nothing to do with the project area and any activity if executed in this area will not affect them. 	<ul style="list-style-type: none"> • Maximum efforts will be made to keep the project activities confined in the right of way.
4	Haji Yousaf Goth	12-10-2022 • 01:30 pm	<ul style="list-style-type: none"> • The conduit is away from the community and the people will not face any issues during the implementation of the project. 	<ul style="list-style-type: none"> • The consultant team reconfirmed that the community is not going to be affected by the proposed project activities.
5	Durr Muhammad Goth	12-10-2022 • 02:30 pm	<ul style="list-style-type: none"> • The primary source of water in Malir Naddi is rainwater. • The groundwater of the project area is sweet/ drinkable and is available at the depth of 30-35 feet. • The project area is away from the community and people will not face any kind of issues. 	
6	Durr Muhammad Goth	14-10-2022 • 04:00 pm	<ul style="list-style-type: none"> • The locals did not show any apprehensions regarding the proposed project. 	

6. Anticipated Environmental Impacts and Mitigation Measures

The construction activities would cause changes in topography, soil contamination, surface and groundwater pollution, air pollution, noise and vibration, solid waste generation, disturbance to flora and fauna, overburdening of resources, construction camps issues, health and safety issues, emergency situations, traffic disruption and social issues including labor influx, community health & safety (CHS), sexual exploitation and abuse / sexual harassment (SEA/SH) and security issues. All these impacts can be mitigated by adopting prescribed mitigation measures and ensuring good workmanship during the execution of the project.

Anticipated impacts during the operational stage will include the scouring of the protection walls and the chances of floods. Furthermore, future repair works may induce operational health & safety (OHS), CHS, labor and traffic issues.

7. Environmental and Social Management and Monitoring Plan

Recommended mitigation measures to control potential adverse impacts are described in the Environmental and Social Management Plan (ESMMP). ESMMP shall become the part of construction contract agreement and shall be strictly enforced during the implementation of the proposed project.

The project activities will be monitored and managed by the PIU-KWSSIP. The Environmental and Social Cell (ESC) staffed with a qualified environmental, social and gender specialist has already been established under PIU-KWSSIP. The ESC will be the custodian of the ESMMP. ESC will support ensuring the compliance of ESMMP. ESC will submit a progress report for the implementation of the ESMP to WB and SEPA as per environmental approval/ NOC conditions for the KWSSIP.

Grievance Redress Mechanism (GRM)

The project has already established a multi-tier GRM with designated staff responsibilities at each level i.e., Community-level, management level (contractors and managers), and PIU-level (GRC and higher management). At the community-level, the GRM focal points will be one female and one male, at the management level the GRM focal points of managers and contractors and at the PIU level, Grievance Redress Committee (GRC) and Gender Based Violence (GBV) committee have been constituted.

The complaints may be lodged through:

- A prescribed form available online at KWSSIP website of Grievances Redressal Mechanism Icon;
- Complaint by post on the specified address;
- On a dedicated landline telephone number/line, which will be received by the GRM receiving officer;
- The grievance may be dropped in the complaint box placed at the working site;
- Complaint through e-portal of KWSSIP easily accessible from the mobile phones; and

- Complaints at Customer Services Center of KW&SB.

The GRC will acknowledge the complaints within one day of receipt and will review available records and the fact-finding will be completed within 10 days from receipt of complaints. The GRC in its formal meeting to be conducted within 20 days from receipt of the complaint will hear and clarify with the complainant (if required so) about the issue and shall conclude and communicate its recommendations for further implementation.

Environmental Budget

The total estimated cost for the implementation of ESMP is worked out to be about **PKR 45,969,315 million.**

1. Introduction

1.1 Overview

The Government of Sindh (GoS), through the Karachi Water and Sewerage Board (KW&SB), is implementing various proposed projects to rehabilitate water supply and sewerage systems in Karachi. The Proposed Project will be implemented under the Karachi Water and Sewerage Services Improvement Project (KWSSIP), which is financed by World Bank (WB), Asian Infrastructure and Investment Bank (AIIB) and GoS. To address the potential environmental and social impacts of the Proposed Project, this Environmental and Social Management Plan (ESMP) has been prepared, in accordance with the WB safeguard policies.

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Karachi Water and Sewerage Board (KW&SB) is the responsible entity to provide bulk water to Karachi for both domestic and industrial use through two different sources i.e., Hub and Indus River. The Indus River is considered to be the only reliable source of water via Keenjhar Lake through integrated network of canals, conduits, siphons, pumping stations and pressurized water mains.

The system traverses through many water channels, railway tracks, roads etc. On the route, the Greater Karachi (G.K), K-II, and K-III conduits and 84-inches diameter balancing conveyance main and 36-inches diameter water main (nonoperational), crosses Malir river near Dumlottee. The system passing through the Malir bed comprises Plain Cement Concrete (PCC) G.K. conduit, having Horse shoe structures and was constructed in 1952 whereas K-II

and K-III are Mild Steel (MS) Syphons constructed in year 1999 and 2006, respectively. 84-inch diameter balancing conveyance is Prestressed Reinforced Cement Concrete (PRCC) and 36-inch diameter Malir main is of MS material.

All the crossing works were designed as buried structures under the river bed with upstream and downstream protections to provide safety against erosion and piping.

With passage of time, due to illegal sand lifting from Malir basin and inadequate operation and maintenance, the protection works have been deteriorated significantly leading to the G.K. conduit becoming exposed and at high risk. During the recent flood, the condition has become more chaotic and resulted in aggravating the overall situation. There is a potential threat to the structural stability and safety of the system within the bed.

Project Implementation Unit – Karachi Water and Sewerage Services Improvement Project (PIU-KWSSIP), has been directed to take-up the design and construction activities on urgent basis to avoid any unforeseen and damage to the existing system.

The current Environmental and Social Management (ESMP) has been prepared to ensure that the proposed project activities are implemented in an environmentally friendly manner with social acceptability and minimum disturbance to the community.

1.2 Objective of ESMP

The major objective of this ESMP is the identification of possible environmental and social impacts of the proposed project on both short and long-term bases. Based on the level and nature of these observations, the ESMP then describes appropriate mitigation measures. As a planning tool, the ESMP aims to ensure that environmental, socio-economic and cultural issues throughout the entire project lifecycle are anticipated and considered by the project proponent. It also serves as a framework for establishing project controls to reduce or prevent adverse environmental or socio-economic impacts.

The specific objectives of this ESMP are:

- To assess the existing environmental and socioeconomic conditions of the project area;
- To identify potential impacts of the proposed interventions on the environmental, ecological and social aspects of the project area, to predict and evaluate these impacts and determine their significance;
- To propose appropriate generic mitigation measures that will be incorporated in the design of the project to avoid or minimize (if cannot eliminate) the potentially adverse impacts;
- To assess the compliance status of the proposed activities with respect to the national and provincial environmental legislation and WB's OPs;
- To provide institutional, monitoring, reporting and documentation measures for environmental safeguards compliance; and
- To aid decision makers to take informed decisions.

1.3 Scope of ESMP

The ESMP identifies the potentially significant impacts of the proposed project and suggests the applicable mitigation measures to avoid, minimize or reduce the magnitude of the impacts. It will also indicate the institutional and training requirements to implement mitigation measures during the construction and operation of proposed project.

The current ESMP presents a roadmap for environment and social management for the proposed project wherein the existing protection works in Malir River will be repaired/rehabilitated with the provision of toe walls and gabion walls at the left and right banks of existing GK, K-II, K-III conduits, 36-inch diameter Malir main and 84-inch diameter balancing main. Project details with project location map discussed in Section-3.

1.4 Contractual Requirements/ Obligations of ESMP

The impacts and their mitigation measures, summarized in this ESMP, will be made part of the Bidding Documents to ensure that Contractors are contractually bound to implement ESMP requirements at all project stages. The ESMP requirements will be part of the Contract and the details prescribed in the ESMP will be mandatory. The ESMP will be equally applicable to Subcontractors.

At the stage of the bidding process, the Contractor will be instructed to carefully consider the requirements for environmental and social management contained in this ESMP when preparing the bid and pricing the items of Work. The Contractor will need to accept that the prescriptions and clauses detailed in the ESMP are an integral part of the Contract for relevant items of Work; unless separate items are included in the Bill of Quantities (BoQs). The Contractor will need to accept that separate payment will not be made in respect to compliance with the ESMP. The Contractor should, therefore, be aware that in case the Contractor or Subcontractors fail to implement the ESMP recommendations, the Engineer will take necessary action(s) to ensure that the ESMP is properly implemented and/or to rectify the damages caused by such negligence.



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1.5 Structure of Report

The structure of this report is listed below:

Section 1: Introduction briefly presents the project background, objectives, methodology and need of the study.

Section 2: Legal and Administrative Framework Lists national as well as provincial laws, regulations and procedures and applicable World Bank Operational Policies (OPs).

Section 3: Description of Project provides an overall description of the project including proposed networks, design considerations and concepts, manpower requirement, waste generation, machinery and material requirements.

Section 4: Baseline Profile gives a description of baseline physical, biological and socio-economic conditions of the project area.

Section 5: Stakeholder Engagement identifies the main stakeholders and their concerns raised during scoping sessions and deals with the measures to mitigate the social impacts.

Section 6: Impacts and Mitigations identifies, predicts and evaluates impacts of the project activities during the construction and operation stages and deals with the measures proposed to mitigate potential environmental impacts of the proposed project.

Section 7: Environmental and Social Management & Monitoring Plan This section outlines organizational framework, mitigation and monitoring plans, training requirements, defines roles and responsibilities, estimates budgets requirements for satisfactory implementation.

2. Regulatory Review

2.1 Overview

This section describes the current environmental policy as well as legal and administrative framework required to develop Environmental and Social Management and Monitoring Plan (ESMMP) for the proposed flood protection works. All relevant provisions of environmental policies laid down by the Government of Pakistan, Government of Sindh along with applicable World Bank Policies have been duly discussed and the project proponent will be required to adhere to these regulations throughout the course of the project. The institutional arrangement for compliance to these laws has been described in ESMMP (Section 7).

2.2 Summary of Key National Legislations

The relevant national legislations are briefly described in chronological order in **Tables 2.1**:

Table 2.1: Relevant National Legislations

Sr. No.	National Legislations	Brief Coverage	Relevance to project
1.	Fatal Accidents Act 1855	This is an Act to provide compensation to families for loss occasioned by the death of a person caused by actionable wrong.	This law will be applicable for community-related accidents.
2.	Pakistan Penal Code 1860	Every person will be liable to punishment under this Code and not otherwise for every act or omission contrary to the provisions thereof, of which he will be guilty within Pakistan. It authorizes fines, imprisonment, or both for damaging public properties.	The provisions of the Penal Code, 1860 are applicable to the project in terms of penalties for affecting public property and assets.
3.	Canal and Drainage Act 1873	This Act prohibits corruption or fouling of water in canals (defined to include channels, tube wells, reservoirs, and watercourses), or obstruction of drainage.	This act will be applicable to the proposed project in terms of sewage disposal & handling of wastewater.
4.	Protection of Trees and Bushwood Act, 1949	This Act prohibits cutting or lopping of trees and brushwood without permission of the Forest Department. .	The forest department will be approached to seek permission to cut trees if any of the trees have to be cut for the project.
5.	Pakistan Antiquities Act 1975	The protection of cultural resources in Pakistan is ensured by the Antiquities Act of 1975. Antiquities have been defined in the Act as ancient products of human activity, historical sites, or sites of anthropological or cultural interest, national monuments etc. The act is designed to protect antiquities from destruction, theft, negligence,	The provisions of this act would also be applicable, if any archaeological discoveries are made during the excavation works for the

Sr. No.	National Legislations	Brief Coverage	Relevance to project
		unlawful excavation, trade and export. The law prohibits new construction in the proximity of a protected antiquity and empowers the Government of Pakistan to prohibit excavation in any area, which may contain articles of archaeological significance. No objection certificate (NOC) would be requested from Director General (DG) Archeological Department for construction within 200 feet of cultural heritage sites.	construction of proposed Project.
6.	National Conservation Strategy, 1992	Pakistan National Conservation Strategy (NCS), which was approved by the federal cabinet in March 1992, is the principal policy document on environmental issues in the Country. The NCS outlines the Country's primary approach towards encouraging sustainable development, conserving natural resources and improving efficiency in the use and management of resources. The NCS has 68 specific programs in 14 core areas in which policy intervention is considered crucial for the preservation of Pakistan's natural and physical environment.	The core areas that are relevant in the context of the proposed project are pollution prevention during construction, conserving biodiversity and supporting forestry and plantation.
7.	The Protection Against Harassment of Women at the Workplace Act, 2010	The Protection Against Harassment of Women at the Workplace Act, 2010 is a legislative act in Pakistan that seeks to protect women from sexual harassment at their place of work, and equally applicable to this project.	This Act will be applicable to ensure protection of women in the implementation of the proposed project.
9.	Pakistan Climate Change Act, 2017	An Act to meet Pakistan's obligations under international conventions relating to climate change and address the effects of climate change, whereas it is expedient to meet Pakistan's obligations under international conventions relating to climate change and to provide for adoption of comprehensive adaptation and mitigation policies, plans, program, projects and other measures required to address the effects of climate change and for matters connected therewith.	The core areas that are relevant in the context of the proposed project are pollution prevention during construction and avoiding any means to generate GHG to combat climate change.
10.	Pakistan Labor Laws	Labor rights in Pakistan specified under Articles 11 and 17 of the constitution of Pakistan, will be applicable to the proposed project. More specific laws are described separately. The laws are relevant to the project.	These laws will be applicable to provide proper labor rights to the workers at the project site.

2.3 Summary of Key Provincial Legislations

The relevant provincial legislations are briefly described in chronological order in **Tables 2.2:**

Table 2.2: Provincial Legislations

Sr. No.	Strategies / Policies / Legislations / Acts / Laws & Regulations	Brief Coverage	Relevance to project
1.	Sindh Cultural Heritage (Preservation) Act, 1994	This provincial Act empowers the Government of Sindh to preserve and protect any premises or objects of archaeological, architectural, historical, cultural, or national interest in Sindh by declaring them protected. Karachi alone has over 200 buildings declared as "Protected Heritage" by the Government of Sindh. A NOC will be required from Department of Culture, Tourism and Antiquities if any protected site is identified along said project.	No site of physical/cultural importance has been identified within the AOI of the proposed project. However, there are chances that some objects of archaeological or historical importance could be found during construction /excavation activities at the project site.
2.	Sindh Plantation, Maintenance of Trees and Public Parks Ordinance, 2002	The Sindh Plantation, Maintenance of Trees and Public Parks Ordinance, 2002 prohibits the cutting of trees in the project area and prior permission from the Local Government Department (LGD - GoS) will be needed as per the ordinance for any tree cutting activity during the project construction.	In case of any tree cut, prior permission will be taken from relevant government departments. However, plantation will be done in the project area for environmental enhancement.
4.	Sindh Public Property (Removal of Encroachment) Act, 2010	The Act is to provide measures for removal of encroachment from public property and to retrieve possession; it is expedient to provide measures for removal of encroachment from public property and to retrieve possession. Sindh Public Property (Removal of Encroachment) Act, 2010 "Public Property" is defined, to be a building, land, place or premises vesting, in or under the management or control of Government, local council, autonomous body or registered cooperative society or such other authority.	The current land ownership status of the project areas has been assessed under this Act.
5.	Forest Act (1927) and the Forest Act (Sindh)	The Forest Act of 1927 and its Sindh Amendment 2012 establish the right of GoP and GoS to designate areas of reserved forest, village forest, and protected forest.	It has been confirmed through the site surveys and relevant

Sr. No.	Strategies / Policies / Legislations / Acts / Laws & Regulations	Brief Coverage	Relevance to project
	amendment), 2012		stakeholder's consultations that no such areas are present within the proposed project AOI.
6.	The Sindh Industrial Relations Act, 2013	An Act to regulate the formation of trade unions, regulation, and improvement of relations between employers and workmen, and the avoidance and settlement of any differences or disputes arising between them and ancillary matters and as such relevant	The Act will be applicable to avoid any disputes between the employer and workmen/labor.
7.	The Sindh Environmental Protection Act, 2014	It is implemented for the protection, conservation, rehabilitation and improvement of the environment, for the prevention and control of pollution, and promotion of sustainable development. Subject to the provisions of this Act and the rules and regulations, no person will discharge or allow the discharge or emission of any effluent, waste, pollutant, noise or any other matter that may cause or likely to cause pollution or adverse environmental effects.	All projects to be implemented in Sindh must comply with this Act during all the phases i.e., construction and operation. However, for the proposed project, No Objection certificate (NOC) will not be required as conveyed by the relevant authority.
8.	Sindh Solid Waste Management Board (SSWMB) Act, 2014	The SSWMB Act, 2014 enacted to establish a board for collection and disposal of all solid waste, to arrange effective delivery of sanitation services, to provide pollution free environment and to deal with other relevant matters.	The Contractor will ensure that the solid waste generated due to proposed project activities is collected and disposed of in an effective way to avoid any harm to the Environment.
9.	Sindh Minimum Wages Act, 2015	This act provides for the regulation of minimum rates of wages and various allowances for different categories of workers employed in certain industrial and commercial undertakings and establishments. The contractors and operators of the project will be bound to pay wages to the labor and employees as per the requirement of this act.	The contractors will ensure to pay remunerations to the labor and employee as per obligation of this act.
10.	The Sindh Bonded Labor	Act to provide for the abolition of bonded labor system in the Province of Sindh.	The contractor will not engage bonded-labor

Sr. No.	Strategies / Policies / Legislations / Acts / Laws & Regulations	Brief Coverage	Relevance to project
	System (Abolition) Act, 2015		and forced labor during execution under this Act.
11.	The Sindh Commission on the Status of Women Act, 2015	Sindh Commission on the Status of Women was set up for the promotion of social, economic, political and legal rights of women, as provided in the Constitution of the Islamic Republic of Pakistan 1973, and in accordance with international declarations, conventions, treaties, covenants and agreements relating to women, including Convention on the Elimination of all forms of Discrimination against Women (CEDAW).	The project will ensure adequate participation of women in the project and will ensure social and domestic protection of women under this Act.
12.	Sindh Workers Compensation Act, 2015	This act is expedient to provide for the payment by certain classes of employers to their workers or their legal heirs of compensation for injury or death by accident.	Adherence to the act is mandatory in case of injury or loss of life of any worker.
13.	The Sindh Transparency and Right to Information Act, 2016	The Sindh transparency and right to information act is to provide for promoting transparency in the working of every public authority by setting out a practical regime for every citizen to secure access to information in a rapid and low-cost manner under the control of public authorities, the constitution of a Sindh Information Commission and for matters connected therewith or incidental thereto.	The current project is public welfare project and the public has right to access all the project-related information. The PIU-KWSSIP will ensure easy access to such information under this Act.
14.	Sindh Environmental Quality Standards, 2016	Sindh Environmental Quality Standards (SEQS) are discharge standards and are applicable at the point of discharges of emissions. SEPA 2014 states that noncompliance with SEQS and not paying pollution charges will invoke implementation of punitive sections of the Environmental Protection Order and penalties to every noncomplying proponent, corporate body, Government agency, local authority, or local councils. Standards for the following types of effluent and emissions are stated in the SEQS and may be related to the specified projects: Municipal and liquid industrial effluent parameters (32) for discharge to inland waters, sewage treatment facilities, and the sea Industrial gaseous emissions (16) into the atmosphere Motor and vehicle exhaust and noise (3 to 5) Ambient air quality (9)	SEQS apply to both discharge and ambient pollutant concentrations: gaseous emissions and liquid effluents discharged by batching plants and construction machinery, and ambient air quality and ambient noise. The standards for motor vehicle exhaust and noise apply through the construction as well as operation stage of

Sr. No.	Strategies / Policies / Legislations / Acts / Laws & Regulations	Brief Coverage	Relevance to project
		Drinking water quality (33) Noise standards for residential, commercial, industrial, and silence zones	the project will need to be accounted. SEQS will be adopted in the project design and their compliance will be ensured during construction and operation of the project.
15.	Sindh Sanitation Policy, 2017	The main purpose of this policy is to provide better sanitation service and to make sure that the entire population of Sindh has excess to a safely managed sanitation service and sanitary environment that is also nutrition sensitive and hygienic.	Proposer sanitation facilities will be provided at the camp sites under this policy.
16.	Sindh Drinking Water Policy, 2017	The main purpose of this policy is to provide safely manage drinking water whose supply is adequate, well maintained and sustainable and to enhance public awareness about health, nutrition and hygiene related to safe water. The main objective of the Sindh drinking water policy is to improve the quality of life of the people of Sindh by reducing the water borne diseases by providing safe drinking water to the entire population in its premises.	The contractor will ensure that safe drinking water is provided to all construction workers. The project involves provision of safe drinking water in the project areas.
17.	Sindh Occupational Safety and Health Act, 2017	Act to make provision for occupational safety and health conditions at all workplaces for the protection of persons at work against risk of injury arising out of the activities at work places and for the promotion of safe, healthy and decent working environment adapted to the physical, physiological and psychological needs of all persons at work;	The Construction Contractor and PIU will ensure safety of workers and other staff by adopting adequate safety measures under this Act.
18.	Sindh Payment of Wages Act, 2015 (Sindh Act No. VI of 2017)	This Sindh payment of wages act came into formation in 2015. This act provides the mechanism to regulate the disbursement of wages to certain classes of persons who are engaged as employee in different industries, factories and commercial places in the province of Sindh.	The wages to the labors will be disbursed under this Act.
19.	The Sindh Differently Able Person Act, 2017	This Act is to provide for the employment, rehabilitation and welfare of differently able persons. As well as it is expedient to provide for the employment, rehabilitation and welfare of differently able persons.	The differently able persons will be provided employment as well as compensation of their losses, if any.

Sr. No.	Strategies / Policies / Legislations / Acts / Laws & Regulations	Brief Coverage	Relevance to project
20.	The Sindh Prohibition of Employment of Children Act, 2017	An Act to prohibit the employment of children and to regulate the employment of adolescents in certain occupations and processes to be taken place within provincial boundaries.	This Act is applicable to the project and the Contractors and sub-contractors will have to comply with this Act.
21.	Karachi Strategic Development Plan (KSDP), 2020	Karachi Strategic Development Plan 2020 was issued in August 2007 and projects the future population in Karachi. The JICA Study adopted this population projection based on the agreement made in the steering committee held on 2nd October 2006. The future land use plan in Karachi proposed in KSDP – 2020, as well as the future population projection, was also referred to in preparing water supply and sewerage master plan in this study. The prime objective is the sustainable development of Karachi.	The proposed project must be in conformity with the KSDP.
22.	Sindh Wildlife Protection, Preservation, Conservation and Management Act, 2020	This Act requires measures for direct protection to the wildlife resources in Sindh province and indirect protection to other natural resources and allows the project to work on the principles of no harm.	This act is relevant as the wildlife of concern is found in the area.
23.	The Sindh Local Governments (Amendment) Act, 2021	This act is expedient to establish an elected local government system to devolve political, administrative and financial responsibility and authority to the elected representatives of the local governments; to promote good governance, effective delivery of services and transparent decision making through institutionalized participation of the people at local level and to deal with ancillary matters.	The local government will be taken on board in decision making and implementation of the proposed project.
25.	Factories Act, 1934 and The Sindh Factories (Second Amendment) Act, 2021	This is an act to consolidate and amend laws on labor rights and for matters connected to their safety, basic welfare facilities including living, food, occupational health including infectious diseases and protection from those infectious diseases; it also covers the work-related hazards and protection from those hazards, shelters facilities during rest time, restriction of working hours and holidays rules etc.	The Sindh amended law is for the rights of labor works in the province of Sindh and applicable to the proposed works.

2.4 Applicable World Bank Policies

2.4.1 World Bank Operational Policies

The World Bank operational policies applicable to the project and its compliance mechanism, are summarized in the description below in **Table 2.3**:

Table 2.3: Relevant World Bank Operational Policies

Sr. No.	World Bank Operational Policies	Brief Coverage	Relevance to project
1.	Environmental Assessment (OP 4.01)	Under this OP, the World Bank requires environmental assessment (EA) of projects proposed for Bank's financing to help ensure that they are environmentally sound and sustainable and thus to improve decision making through appropriate analysis of actions and of their likely environmental impacts.	The current ESMP has been prepared in compliance with OP 4.01.
3.	Physical Cultural Resources (OP 4.11)	<p>This policy seeks to assist in the preservation of cultural property. The Bank normally will assist only those projects that are sited or designed so as to prevent any damage to physical cultural resources.</p> <p>There is very little chance that during the construction of proposed project, sites of cultural, archaeological, historical, or religious significance might be encountered. However, in case of discovery of any such sites or artefacts during the project implementation, the site will not be selected if significant cultural sites are going to be affected or alternate options for the design of the proposed projects will be developed. However, in every situation, the provisions of this Policy will be applied.</p>	The Chance Find procedures have been included in this ESMP in compliance with this OP.
4.	Gender policy (OP 4.20)	The objective of the Bank's gender and development policy is to assist associate countries to curtail poverty and improve economic growth, human well-being, and development effectiveness by addressing the gender disparities and inequalities that are barriers to development, and by assisting member countries in formulating and implementing their gender and development goals, and the Bank occasionally assesses the gender dimensions of development.	The project will comply with this Policy. Appropriate mitigations are included in this ESMP.

Sr. No.	World Bank Operational Policies	Brief Coverage	Relevance to project
5.	Access to information (BP 17.50)	The World Bank's Policy on Disclosure of Information is to be open about its activities and to welcome and seek out opportunities to explain its work to the widest possible audience. The Bank has broadened the scope of information about its activities that it makes publicly available. The Bank has established the Info-Shop at headquarters, plus regional Public Information Centers (PICs), to serve individuals seeking to obtain Bank information. In addition, Country Offices are encouraged to establish modest PIC services for their country clientele. This policy is triggered for proposed projects categorized as A and B. The developer consults project affected groups and local NGOs: a) during scoping and before TORs are prepared; b) when the draft EA is available; and c) throughout project implementation as necessary. The developer provides relevant information in a timely manner prior to consultation and in a form and language accessible to the groups being consulted.	This ESMP and other relevant documents/information will be disclosed.

2.5 Managing the Risks of Adverse Impacts on Communities from Temporary Project Induced Labor Influx

This guidance note provides guidance on identifying, assessing and managing the risks of adverse social and environmental impacts that are associated with the temporary influx of labor resulting from Bank supported projects. The guidance note contains guiding principles and recommendations to be considered as part of the design and implementation of projects with civil works that require labor from outside the project's area of influence.

2.6 Environmental, Health & Safety (EHS) Guidelines

In addition to operational policies (OP), the World Bank Group (WBG) has also prepared its EHS guidelines for all the interventions that are financed by the group. These EHS Guidelines are technical reference documents with general and sector-specific examples of Good International Industry Practice (GIIP). Following EHS guidelines are relevant to the proposed project during the construction and operation phase:

General EHS Guidelines: Issues associated with the construction and operation of maintenance facilities are addressed in the General EHS Guidelines with other key element

like environment and occupational health and safety (OHS) at workplace as well as for community.

EHS Guidelines for Construction Materials Extraction: Issues associated with sourcing of construction materials are presented in the EHS Guidelines for Construction Materials Extraction.

2.7 International Protocol/ Conventions

As Pakistan is a member of a number of international organizations such as United Nations Organization (UNO), Organization of the Islamic Conference (OIC), South Asian Association for Regional Cooperation (SAARC), Economic Cooperation Organization (ECO) etc., so it has to follow the international protocols and obligations related to the environment. The major protocols, ratification dates by Pakistan and obligations related to the proposed project are provided in the **Table 2.4** below.

Table 2.4: International Agreements/Conventions Relevant to the Project

Sr. No	Agreement/ Convention	Ratification	Description/Relevance
1.	UNESCO Convention on the Protection of the World's Cultural and Natural Heritage ¹ , 1972	Pakistan ratified this convention on 23 July 1976.	Convention concerning the Protection of the World Cultural and Natural Heritage - requires parties to adopt a general policy on the protection of the natural and cultural heritage, to set up services for such protection, to develop scientific and technical studies, to take appropriate legal, technical, scientific and administrative measures and to foster training and education for such protection. The proposed project design and E&SS team paid due attention to archaeological sites and local norms. Both of these factors will also be considered during project implementation.
2.	The Rio Declaration, 1992 ²	Pakistan signed the treaty on June 13, 1992 and ratified on 1 June 1994	The Rio Declaration comprises 27 principles which address important issues such as; sustainable development to integrate environmental protection into the development process; common but differentiated responsibilities to conserve, protect and

¹ (1972). UNESCO Convention on the Protection of the World's Cultural and Natural Heritage, <http://whc.unesco.org/en/%20convention%20text/>

² (1992). The Rio Declaration, http://www.unesco.org/education/pdf/RIO_E.PDF

Sr. No	Agreement/ Convention	Ratification	Description/Relevance
			<p>restore the earth's ecosystems; public participation and information access at the national level, reduce and eliminate unsustainable patterns of production and consumption.</p> <p>The proposed interventions will promote sustainable development and environmental issues will be given due consideration in the design and implementation.</p>
3.	Convention on Biological Diversity, 1994 ³	Pakistan signed this treaty in 1992 and it was ratified by cabinet in 1994.	<p>The Convention on the Biological Diversity (CBD) has three main goals: Conservation of biological diversity (or biodiversity); sustainable use of its components; and fair and equitable sharing of benefits arising from genetic resources.</p> <p>Sustainability and equitable sharing of benefits will be given due consideration during the project implementation.</p>

2.8 Institutions Responsible for Planning, Policies and Regulations

The institutional setting in Karachi has traditionally comprised various agencies at federal, provincial and local government (LG) levels with separate land areas, separate legal and administrative frameworks, and engaging in little institutional coordination.

2.8.1 Sindh Environmental Protection Agency (SEPA)

Implementation of SEPA 2014 is the mandate of the Sindh Environmental Protection Agency (Sindh EPA). Sindh EPA is headed by a Director General, and sections are headed by directors, i.e., Director Technical, Director Administration and Finance, and Director Laboratory. Sindh EPA has established District Environment Offices in a few districts. The Environmental Impact Assessment (EIA) Reports are submitted to SEPA and after scrutiny and fulfillment of requisite formalities, SEPA accords approval of the EIA and issues a No Objection Certificate (NOC) for the commencement of construction activities.

2.8.2 Karachi Water and Sewerage Board (KW&SB)

Karachi Water and Sewerage Board (KW&SB) comes under the provincial government but operates as an independent organization. It is responsible for sewage disposal for the city of Karachi and is involved in initiatives for improved sewage disposal. It is also responsible for

³ (1994). Convention on Biological Diversity, 1994, <https://www.cbd.int/>

provision of water to the city of Karachi. The KW&SB is a vertically-integrated entity, with functions including wholesale supply and treatment, transmission and distribution of water, wastewater collection, treatment/disposal, and revenue collection.

KW&SB was established under the KW&SB Act, 1996 as an autonomous body with its own Board of Directors, and a Managing Director who was also a Board Member. The 'Board' is controlled directly by the provincial government. The chairman and vice chairman of the Board were directly appointed by the provincial government.

3. Description of Project

3.1 Overview

The proposed project comprises protection/rehabilitation work for G.K Conduit, K-II, K-III, 84-inch diameter balance conveyance, and 36-inch diameter Malir main at Malir river bed.

3.2 Project Location

The proposed protection/ rehabilitation works will be carried out in the bed of Malir river in Dumlotee near Dur Muhammad Goth on Super Highway Link Road about 15 km away from Malir Cantonment, Karachi. The location map is shown in **Figure 3.1**.

3.3 Existing Situation

KW&SB bulk water supply system traverses across many water channels, railway tracks, roads etc. The system also crosses through the Malir riverbed where a 500 ft corridor is maintained by KW&SB for pipeline crossings, as informed by KW&SB officials. PCC G.K conduit, having horse shoe cross section was constructed in 1952, whereas K-II and K-III are MS pipes constructed in year 1999 and 2006, respectively. 84-inch balancing conveyance is a PRCC and 36-inch Malir main is a M.S pipe.

As per the original design, all these pipe line crossing works were designed as buried structures under the river bed and upstream and downstream protections works were provided to ensure safety against erosion and piping.

The upstream / downstream protections were provided with gabion structures along with cut-off walls. With the passage of time, due to illegal sand lifting from Malir basin and inadequate operation and maintenance, the protection works have deteriorated significantly exposing the G.K. conduit and putting it at high risk. The recent heavy rains have increased the risk factors. Therefore, it is required to design appropriate protection works urgently to avoid any risk compromising the stability of 280 MGD G.K Conduit.

Therefore, KW&SB has taken up the works on an emergency basis to be undertaken under KWSSIP. **Plate 3.1** presents overview of the existing site conditions.

3.3.1 Flow Pattern in Malir River

Malir river flows in three creeks in the approach reach of the project area i.e., upstream of the G.K Conduit and merges back and flows as single at approximately 1.7 kilometers downstream. This indicates that river bed slope in the study reach is very mild. Creek-1 (i.e., first creek from left bank of the river) is the widest and first to start flowing. Also, recent flood event has caused significant erosion in creek-1, exposing G.K conduit along its entire cross-sectional length (approximately 1500 ft). As per site information, Creek -3 (first creek from right bank of the river) starts flowing afterwards whereas, Creek-2 is the last to start flowing. Also, among all creeks, Creek-2 is in comparatively better condition with respect to erosion. The existing gabion protection along Creek-2, although damaged, is still intact. None of the pipelines along this creek is exposed. In regards to Creek-3, the existing protection in form of

cut-off walls and gabions is badly damaged resultantly causing enough erosion of the river bed to expose G.K conduit as well as 34" Malir main.

As evident by the existing site conditions, Creek-1 is the most vulnerable area and if not taken care of before next monsoon season, it may render the failure of G.K Conduit. On the other hand, the proposed protection works need approximately 3 to 4 months of execution time along Creek-1.

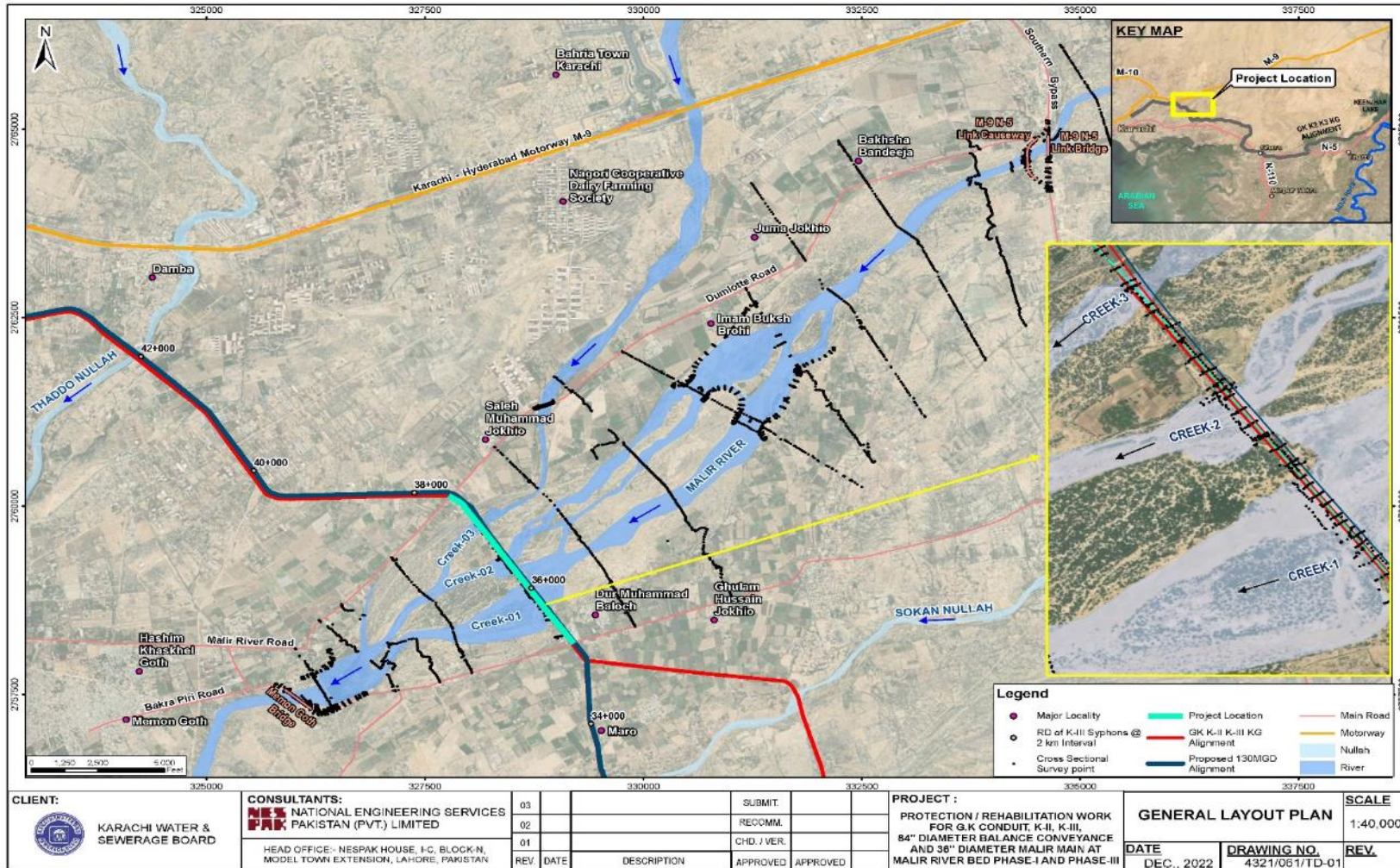


Figure 3.1: Project Location Map



**Exposed portion of G.K Conduit along Creek-1
– From Left Bank**



**Exposed portion of G.K Conduit along Creek-1
– From Right Bank**



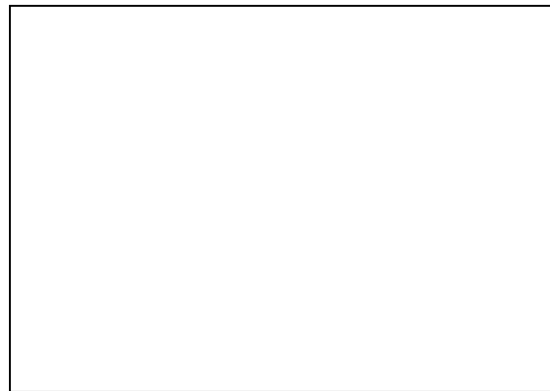
Creek-2 along Pipeline Corridor



**Exiting Stone Protection at Downstream of
Pipeline Corridor**



Creek-3 along Pipeline Corridor



Exposed GK Conduit in Creek-1



Existing Condition of Stone Protection in Creek-2



Scour pit at Downstream of GK Conduit in Creek-3

Plate 3.1: Existing Site Conditions

The observed discharge data of Malir River is available for eleven years only (1976-1986) at Super Highway Bridge, the gauge was operating by the Surface Water Hydrology Project (SWHP) of WAPDA. The observed annual instantaneous peak discharges during the period are shown below in **Figure 3.2**.

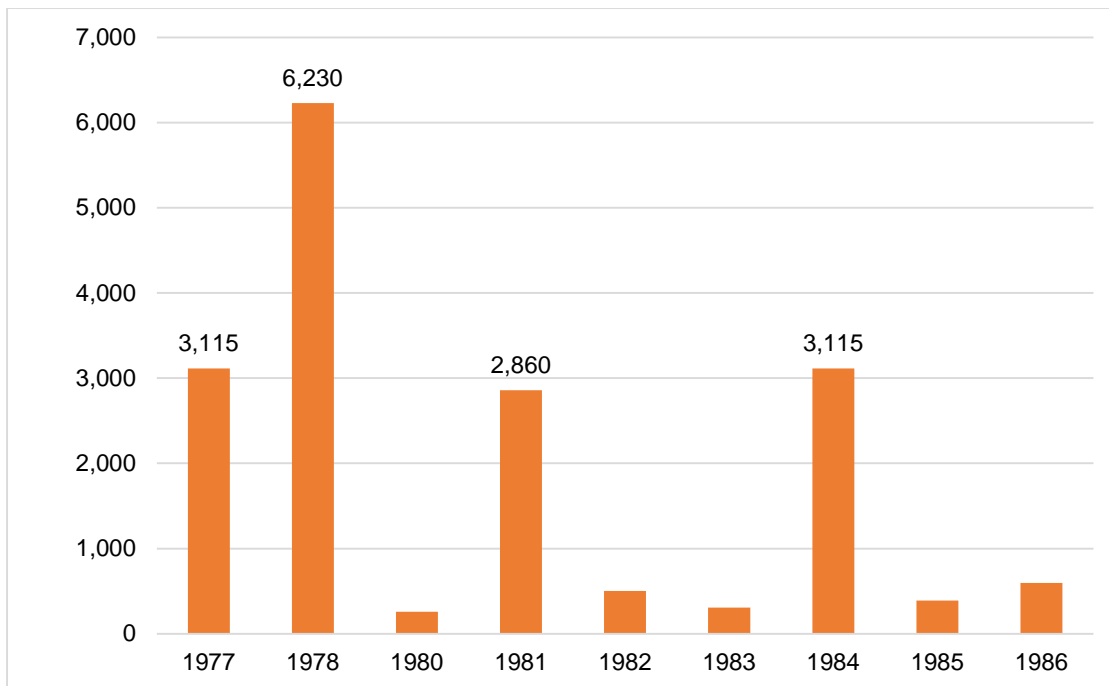


Figure 3.2: Annual Instantaneous Peak Discharges at Super Highway Bridge

The eleven years' period is insufficient length for the estimation of 100-year flood peak. Therefore, rainfall-runoff modelling approach has been adopted for estimation of floods of various frequencies. Long-term daily rainfall time series for Karachi-Masroor for the period 1970-2013 & 2018-2022 was collected from Pakistan Meteorological Department (PMD). The annual series of One-Day annual maximum rainfall is shown below in **Figure 3.3**.

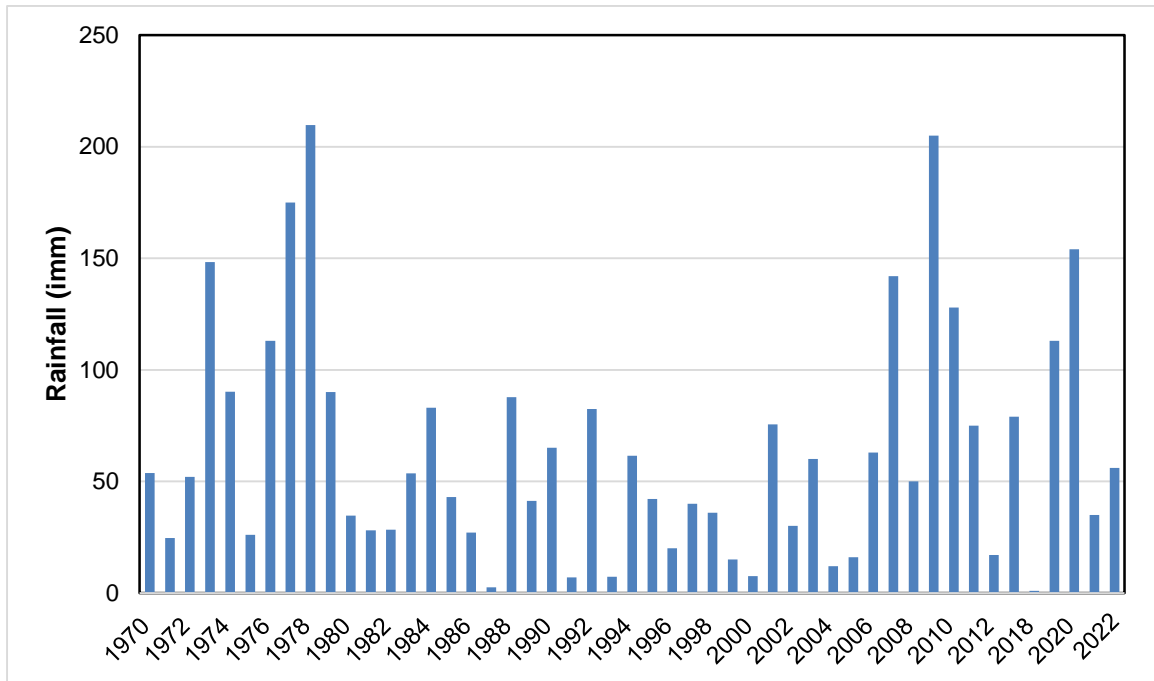


Figure 3.3: One-Day Annual Maximum Rainfall (Karachi Masroor)

The 3-hourly data of only August 2020 extreme event is available at Karachi Airport station. In the first step, a 24-hr duration with maximum rainfall has been sorted and subsequently used in the estimation of design hyetograph. The 24-hr maximized rainfall distribution is shown below in **Figure 3.4**.

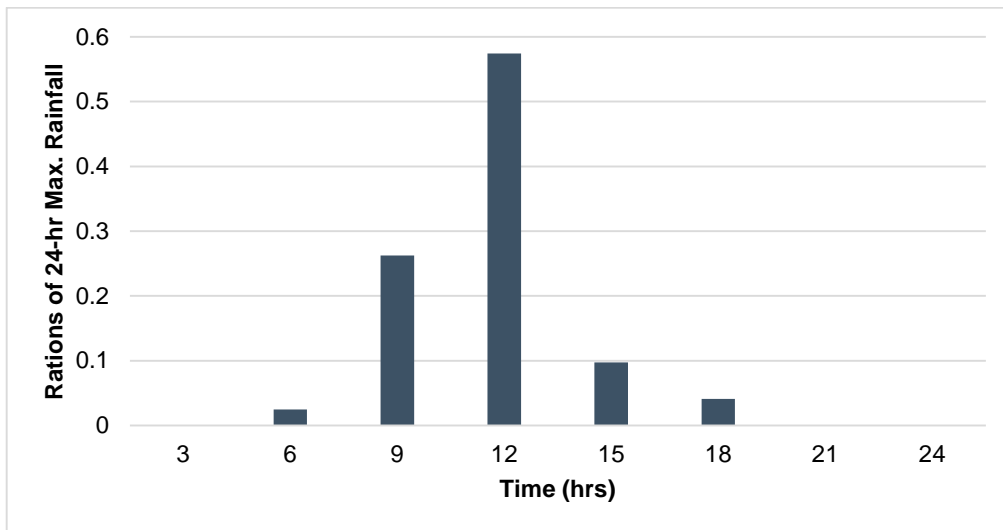


Figure 3.4: 24-hr Maximized Time Distribution of August 2020 Event

100-year rainfall depths have been estimated by frequency analyses of One-Day annual maximum rainfall series for the estimation of peak discharges in the catchment. The 100-year 24-hr rainfall hyetograph has been simulated in HEC-HMS model. Considering the time of concentration of various sub-basins, the time step of model control specifications has been set to 30 minutes. The model has provided a peak discharge 6,530 m³/s at the pipeline

crossing. The rainfall depths and discharge intensities for various return periods are given below **Table 3.1 & 3.2**

Table 3.1: One-Day Rainfall Depths of Various Return Period at Karachi Masroor

Return Period (year)	Rainfall Depth (inches)	Rainfall Depth (mm)
2.33	2.3	58
5	4.2	107
10	5.7	145
25	7.6	193
50	9.0	229
100	10.5	267

Table 3.2: Discharge Intensities of Various Return Period at the Project Location

Return Period (year)	Discharge (m ³ /sec)	Discharge (ft ³ /sec)
2.33	850	30,000
5	2,223	78,505
25	4,843	171,029
50	5,995	211,711
100	6,530	230,605

3.4 Proposed Activities

The current protection works will be repaired/ rehabilitated with the provision of toe walls and gabion walls at the left and right banks of existing GK, K-II, K-III conduits, 36-inch diameter Malir main and 84-inch balancing main. The proposed length of repair is about 1.75 km.

3.4.1 Flood Protection

The proposed flood protection works will include upstream and downstream cut off walls of 10.0 and 15.0 ft depth respectively. Gabion floor protection along 225 ft wide pipeline corridor will also be provided. Loose stone apron will be provided for upstream and downstream approach. Scoured portion will be filled with loose stone to the level of gabions protection. Flood protection cross-sectional details and section details are shown in **Figure 3.5, Figure 3.6, Figure 3.7, Figure 3.8, Figure 3.9** and **Figure 3.10**.

Major activities involve in the proposed project are summarized in **Table 3.3**.

Table 3.3: Description of Proposed project Activities

Serial No.	Activities	Brief Description
1	Excavation	Excavation of unsuitable soft rock material (existing gabions) up to the required depth including disposal of excavated material to approved dumping site

Serial No.	Activities	Brief Description
2	Compaction	Compaction of earthwork with power road roller, ploughing, mixing, moistening earth to optimum moisture content in layers, etc. 95-100% max modified American Association of State Highway and Transportation Officials (AASHTO) dry density.
3	Concreting	Concrete work with lean 1:4:8 ratio
4	Fabrication for concreting	Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastening, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars). Deformed Bars (Grade - 60)
5	Provision of rubber stoppers	Providing embedding 10" (250 mm) wide ¼" (6 mm) thick rubber water stopper in expansion joints of Reinforced Cement Concrete (RCC) roof slab completes in all respects.
6	Dumping of material	Dumping of Stone Apron
7	Carriage of material	Carriage of Stone from Quarry i.e. Kalu Naddi, Jo Shahi Dam, Run Pathani or Nooriabad Carriage of material from Nooriabad, Kalu Nadi, Run Pathani and Jo shahi Dam (according to discussion with representative of Mines and Minerals Department, GOS) to site of work.
8	Clearance of site	Clearing and Grubbing
9	Removing of trees	Removal of approximately 300 clusters of Prosopis Juliflora which is an invasive specie.
10	Laying of proposed MS pipe line	Proposed MS Pipe Line
11	Backfilling	Filling in wire crates, including sewing crates (excluding cost of crates) stone or boulder
12	Laying of Galvanized Iron (GI) wire net	Providing and weaving G.I. wire netting for wire crates, with G.I. wire of approved size (including siding and partition to make crate): 4" (100 mm) mesh 8 SWG wire
13	Supplying of stone	Supplying of stone
14	Providing and Driving steel sheet piles	Providing and Driving steel sheet piles AU20 or equal complete in all respect. Across the flow (River) Along the flow
15	Coffer Dam	Coffer Dam based on 5-yr return period design has been provided to protect the construction works during monsoon.

3.4.2 Coffer Dam

As established in the TOR of the project, risks likely to be encountered shall be mitigated during the implementation stage. Keeping in view the fact that while working in the river bed, the foremost risk is the due to flooding phenomenon. The project area lies within the active flow path of the river, even flows resulting from usual rainfall may stop the construction activity or impact the safety of working area causing unforeseen delays in timely / as per execution plan of the project. Therefore, provision of a coffer dam / flow diversion embankment has been made part of the proposed solution to ensure safety of the working area from impacts of river flows. Cofferdam is a temporary embankment and as per usual practice, constructed to divert the flows, whereas, the top levels are fixed to deal average year floods (i.e., 2.33-year return

period). In case of any unusual or high flood event, cofferdams may not pose any hindrance to the flow and will overtop.

The discharge adopted for the design of protection works of pipeline corridor was selected as 100-year return period flood, whereas 2.33-year return period flood was adopted to fix the top of the coffer dam. The adopted top level for cofferdam is 193.50 ft (i.e., Water Level at 2.33-year return period discharge of 30,000 cusecs + 2 feet free board). This refers to the fact that cofferdam will not withstand discharges greater than 30,000 cusecs and will be overtopped. Therefore, the use of coffer dam will be stopped when the rainfall depth corresponding to 2.33-year return period is recorded. The proposed coffer dam will not pose any hinderance to flows in Creek-2 and Creek-3, rather the coffer dam will temporarily divert the flow concentrations from Creek-1 to other creeks.

It is important to mention here that along the left bank of the river, at upstream of G.K Conduit (about 3,500 ft), there lies an existing settlement named as Dur Mohammad Baloch Goth, as shown in **Figure 3.5**. The total area of the settlement lying within the boundary is approximately 137.6 acres and the water facing front is approximately 4,000 ft with approximately 800 number of houses. The reason behind selecting the lesser discharge for cofferdam design was to ensure that the coffer dam embankment shall not be the reason to cause inundation of the settlement (during the construction) lying at the left bank of the river along Creek-1.

The land-use map of the area has been developed using freely available satellite imagery of March 2022, by image interpretation technique. The general statistics of the land-use has been tabulated below.

Table 3.4: Land-use Statistics of Dur Mohammad Baloch Goth

Sr. No.	Landuse	Area (acres)
1	Barren / Open Area	33.3
2	Cultivated Land	30.8
3	Orchard	34.7
4	Park	0.1
5	Road / Track	7.6
6	Builtup Area	31.1
	Total Area	137.6

To ascertain the impacts of diversion arrangement on the existing settlement, an analysis was carried out by developing a 1-Dimensional HEC-RAS model for the selected reach and discharge elevation rating-curve and water-surface profiles for following scenarios;

1. Scenario-1 (Existing Conditions/ Without Coffor Dam)
2. Scenario-2 (With proposed Coffor Dam)



Figure 3.5: Location of Settlement w.r.t Creek-1

- **Scenario-1 (Existing Conditions / Without Coffer Dam):**

The **Figure 3.6** below shows the discharge elevation rating curve in-front of settlement at the location 1,000 ft upstream of G.K (marked as A in **Figure 3.5**), corresponding to various discharges.

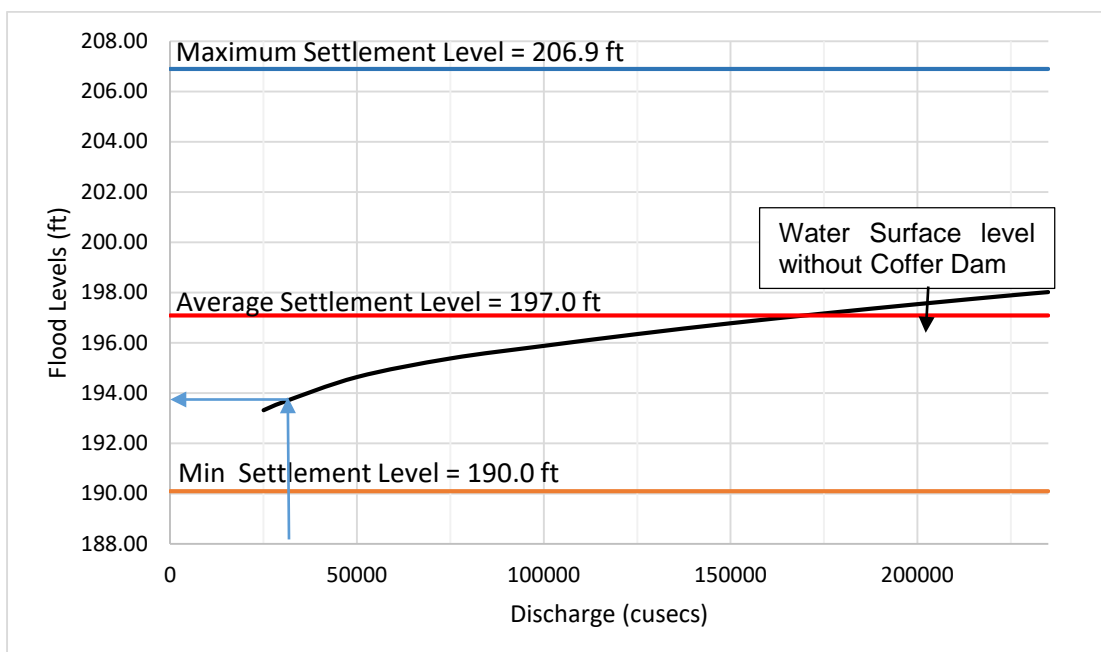


Figure 3.6: Discharge-Elevation Rating Curve - Existing Conditions

The rating-curve infers that water surface elevation corresponding to 30,000 cusecs discharge is 193.30 ft under existing conditions i.e., when coffer dam is not constructed. The average settlement level is 3.7 ft higher than the water level of 30,000 cusecs discharge. The inundation map for scenario-1 is shown in **Figure 3.7** below;

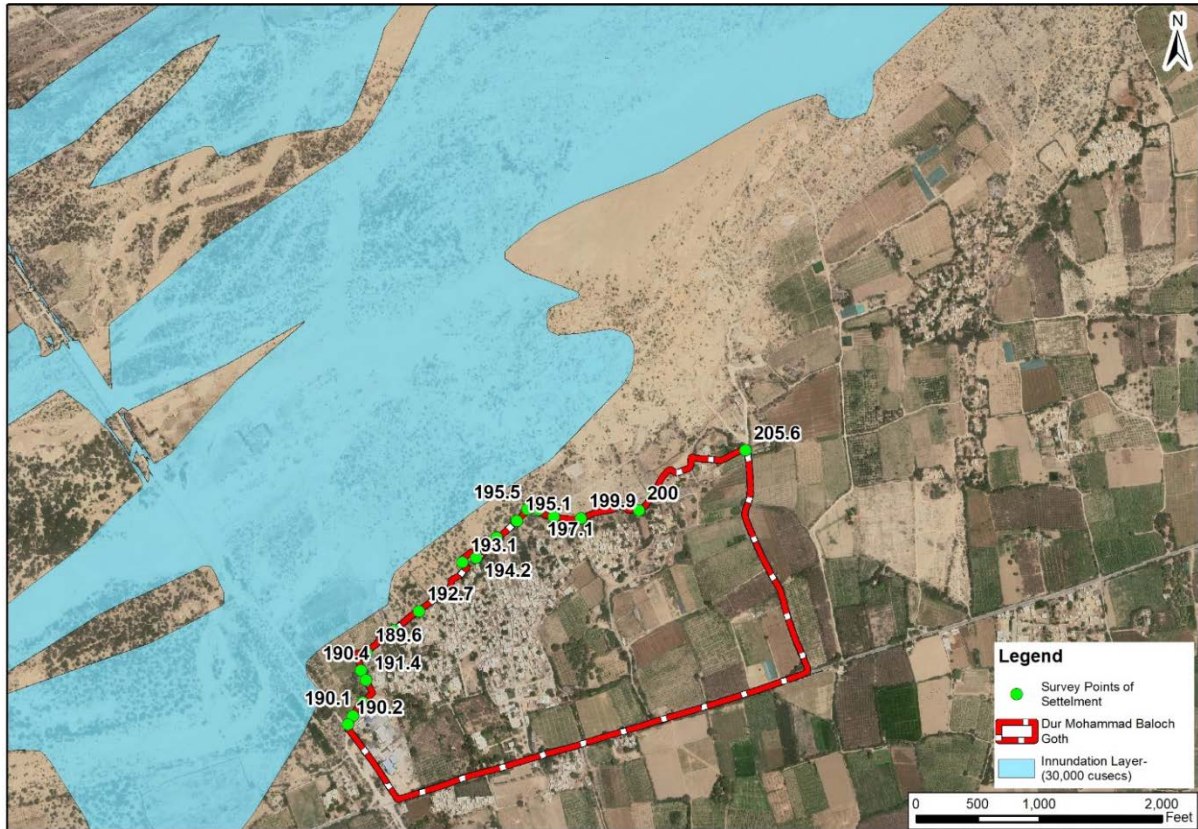


Figure 3.7: Inundation extents for Scenario 1 for 30,000 cusecs

- **Scenario-2 (With proposed Coffor Dam):**

The **Figure 3.8** below shows the discharge elevation rating curve corresponding to various discharges for scenario-2.

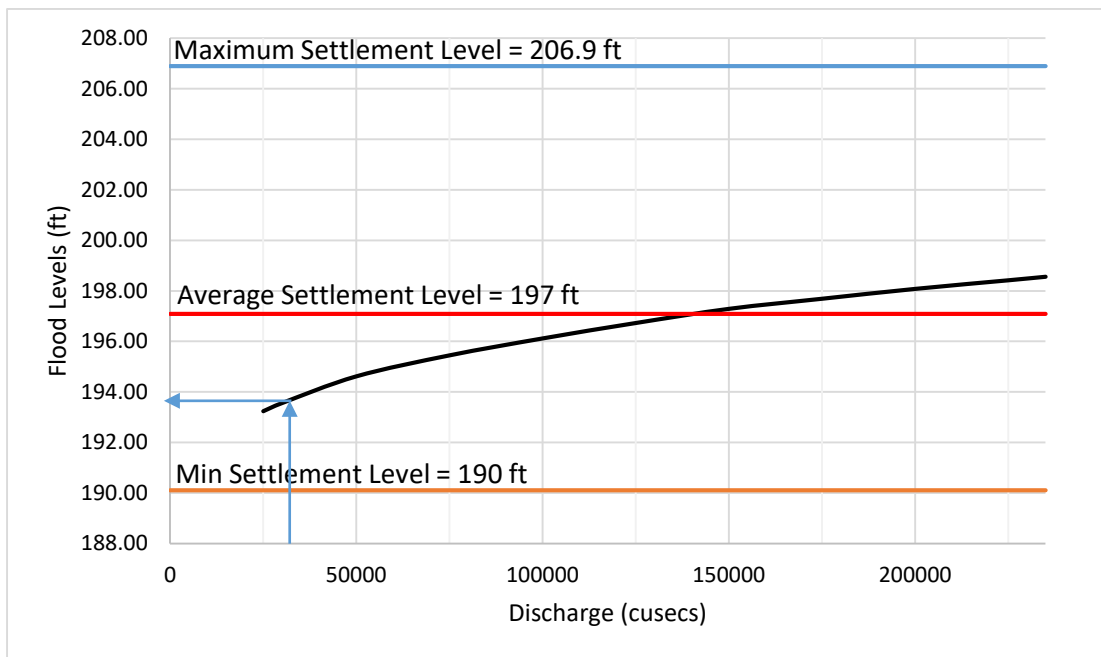


Figure 3.8: Discharge-Elevation Rating Curve - Existing Conditions

The rating-curve infers that the increase in water surface elevation corresponding to 30,000 cusecs discharge is 0.3 ft (i.e., 193.6) with respect to that of existing conditions. The average settlement level is 3.4 ft higher than the water level of 30,000 cusecs discharge. The inundation map for scenario-2 is shown in **Figure 3.8** below;

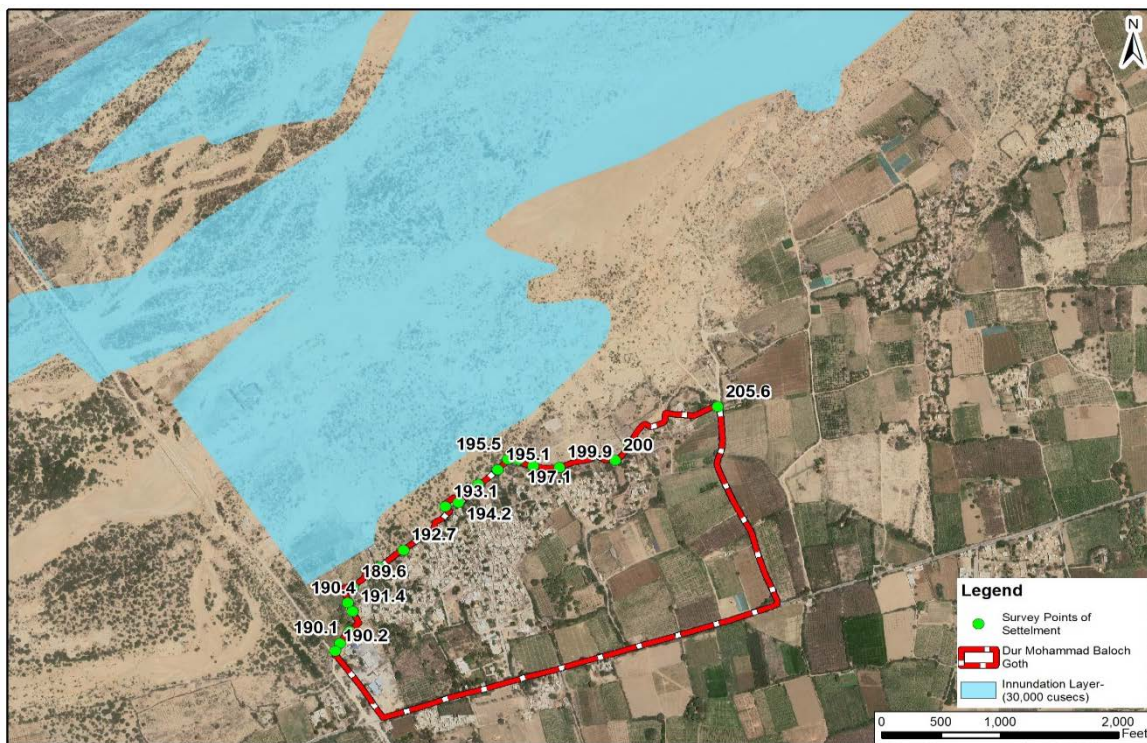


Figure 3.9: Inundation extents for Scenario 2 for 30,000 cusecs

A water surface profile for 30,000 cusecs discharge for both scenarios discussed above, along section B-B (shown in **Figure 3.5**), has been shown in the **Figure 3.10** below;

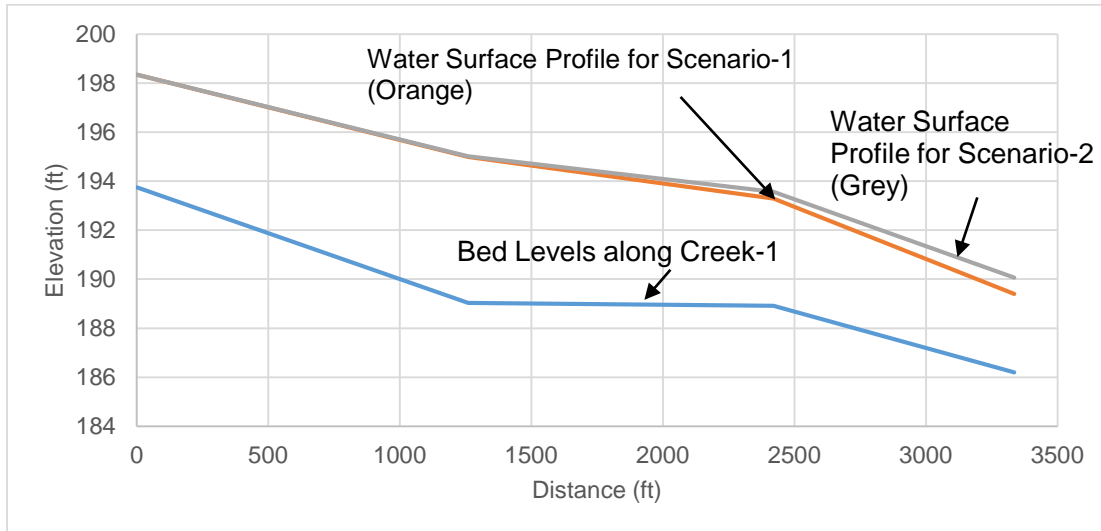


Figure 3.10: Water Surface Elevation along B-B

As per the inundation maps, Dur Mohammad Baloch Goth settlement is not likely to be inundated with 30,000 cusecs with/without coffer dam. However, because of the close proximity to the river and presence of houses at lower elevation, the entry to riverine area (toward river beyond settlement area marked in red on the maps) should be avoided during rain and when the rain depth corresponding to 30,000 cusecs is recorded, the community evacuation as per Emergency Action Plan should be initiated. For the community evacuation, establishing the communication mechanism with the community is required and this will be part of contractor's Emergency Action Plan as per the discussion with the community representatives.

Also, it shall be ensured by the Project Manager that the construction methodology submitted for the execution of proposed arrangement, must comply with the Environmental and Social Management Plan. Keeping in view the fact that Creek-1 being the most vulnerable creek, the construction of the proposed arrangement along Creek-1 shall be taken up on priority basis with the spirit to complete it before approaching of flood season / monsoon (2023).

The layout plan and cross-sectional details of Flood Protection Works are given in Figure 3.11 to 3.16 while that of of Coffor Dam are shown in **Figure 3.17**, whereas typical sections of coffer dam are shown in **Figure 3.18**.

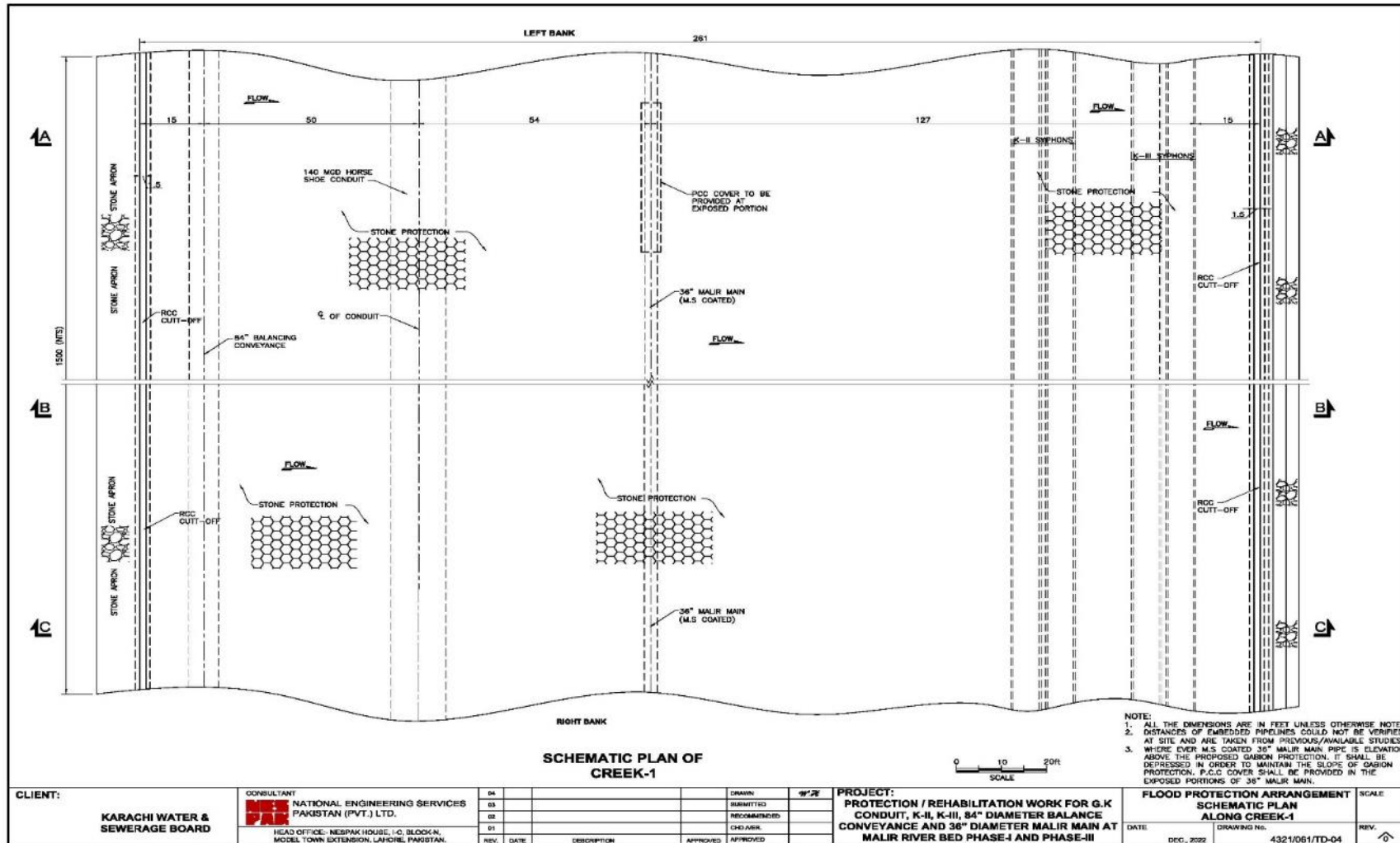


Figure 3.11: Flood Protection Arrangement Schematic Plan (Creek 1)

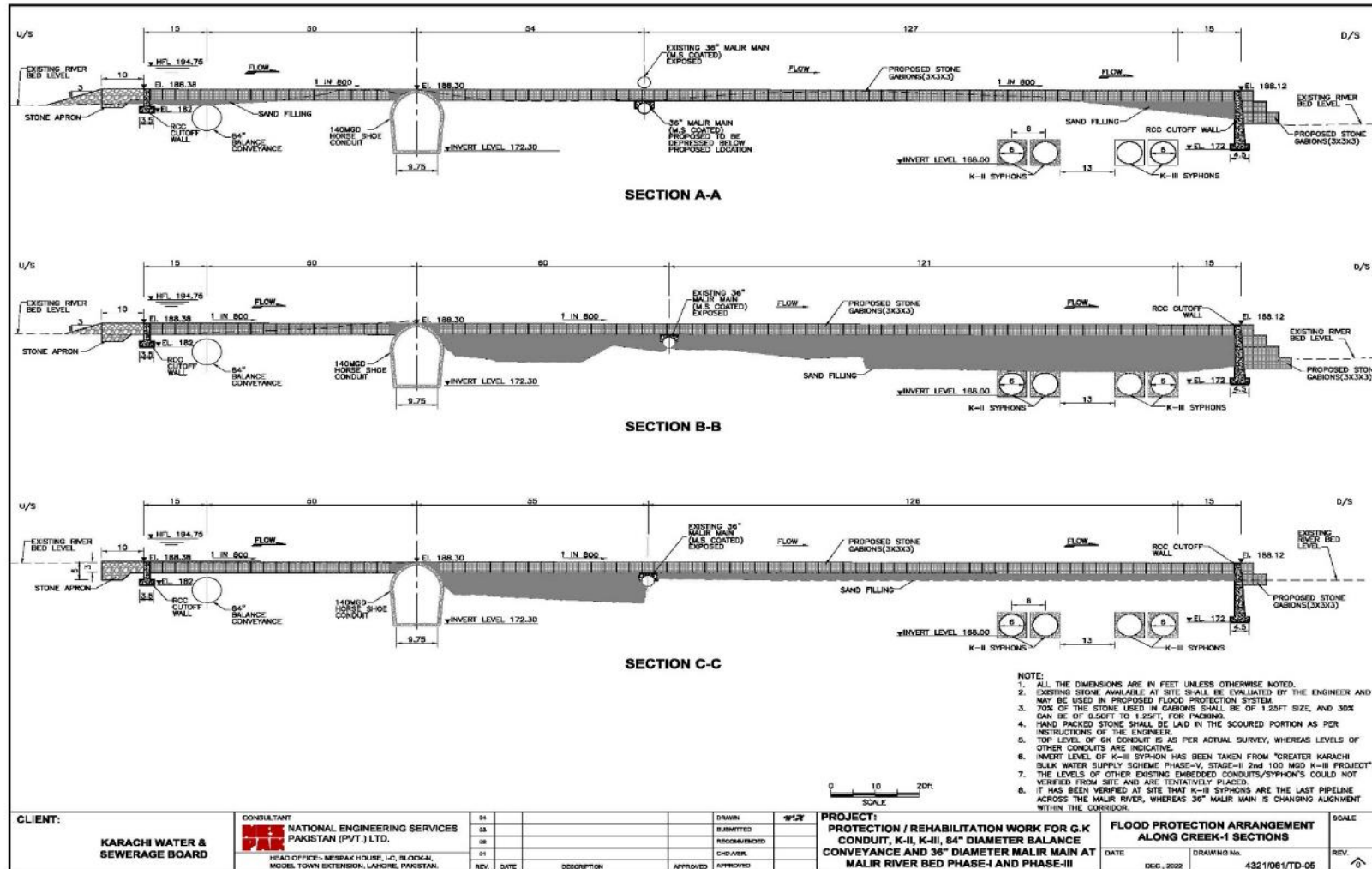


Figure 3.12: Flood Protection Arrangement along Creek-1 Section & Details

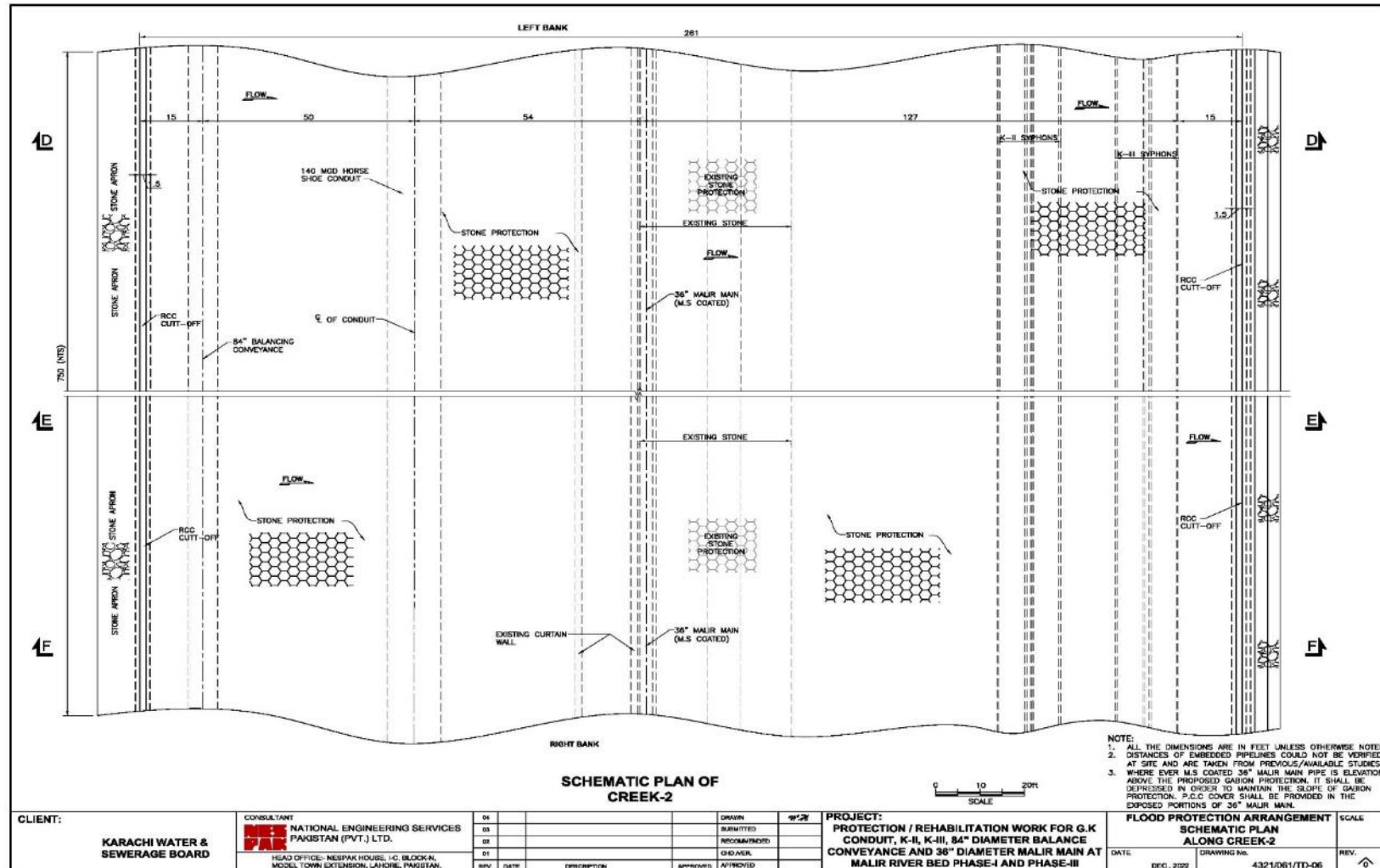


Figure 3.13: Flood Protection Arrangement Schematic Plan (Creek 2)

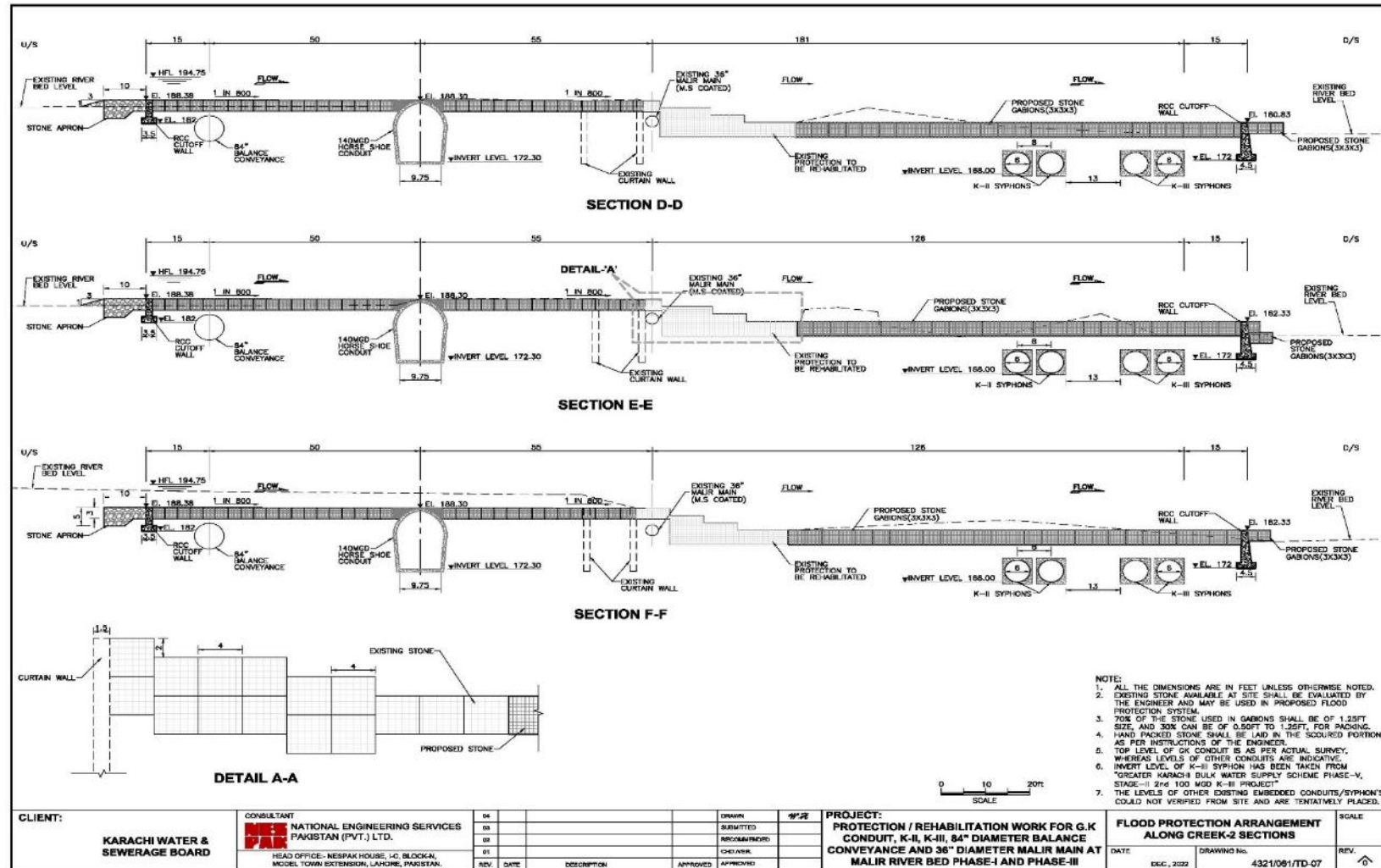


Figure 3.14: Flood Protection Arrangement along Creek-2 Section & Details

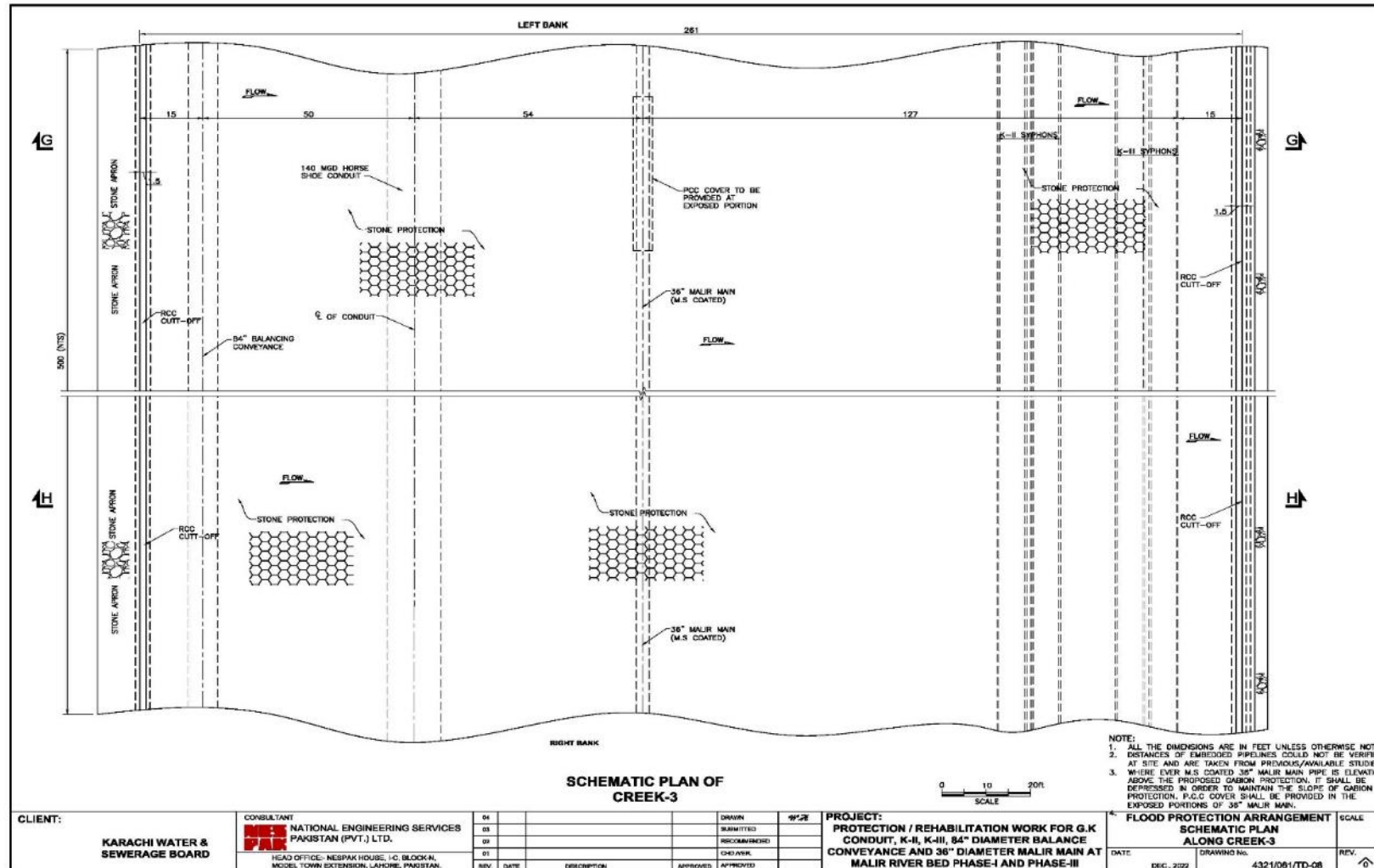


Figure 3.15: Flood Protection Arrangement Schematic Plan (Creek 3)

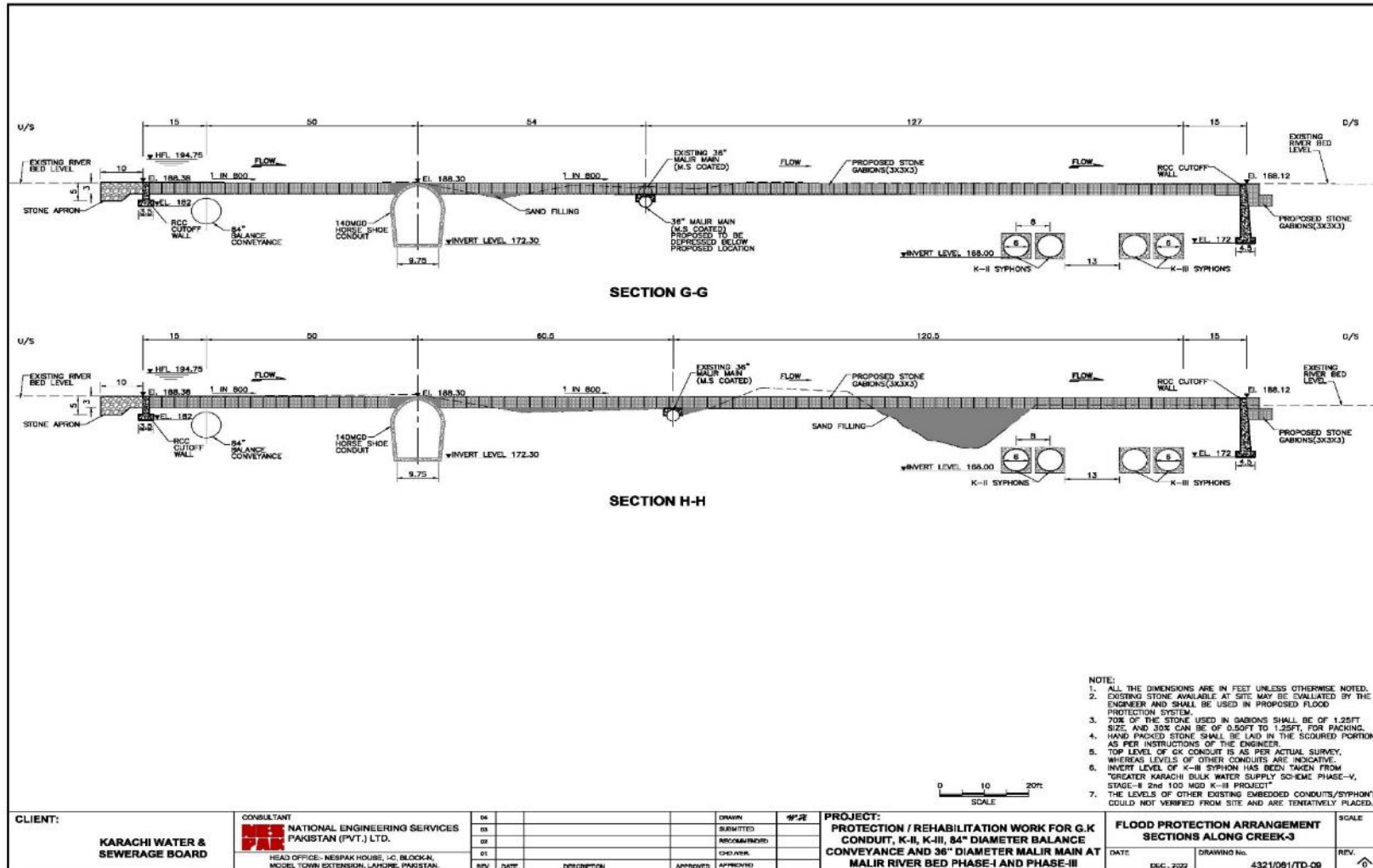


Figure 3.16: Flood Protection Arrangement along Creek-3 Section & Details

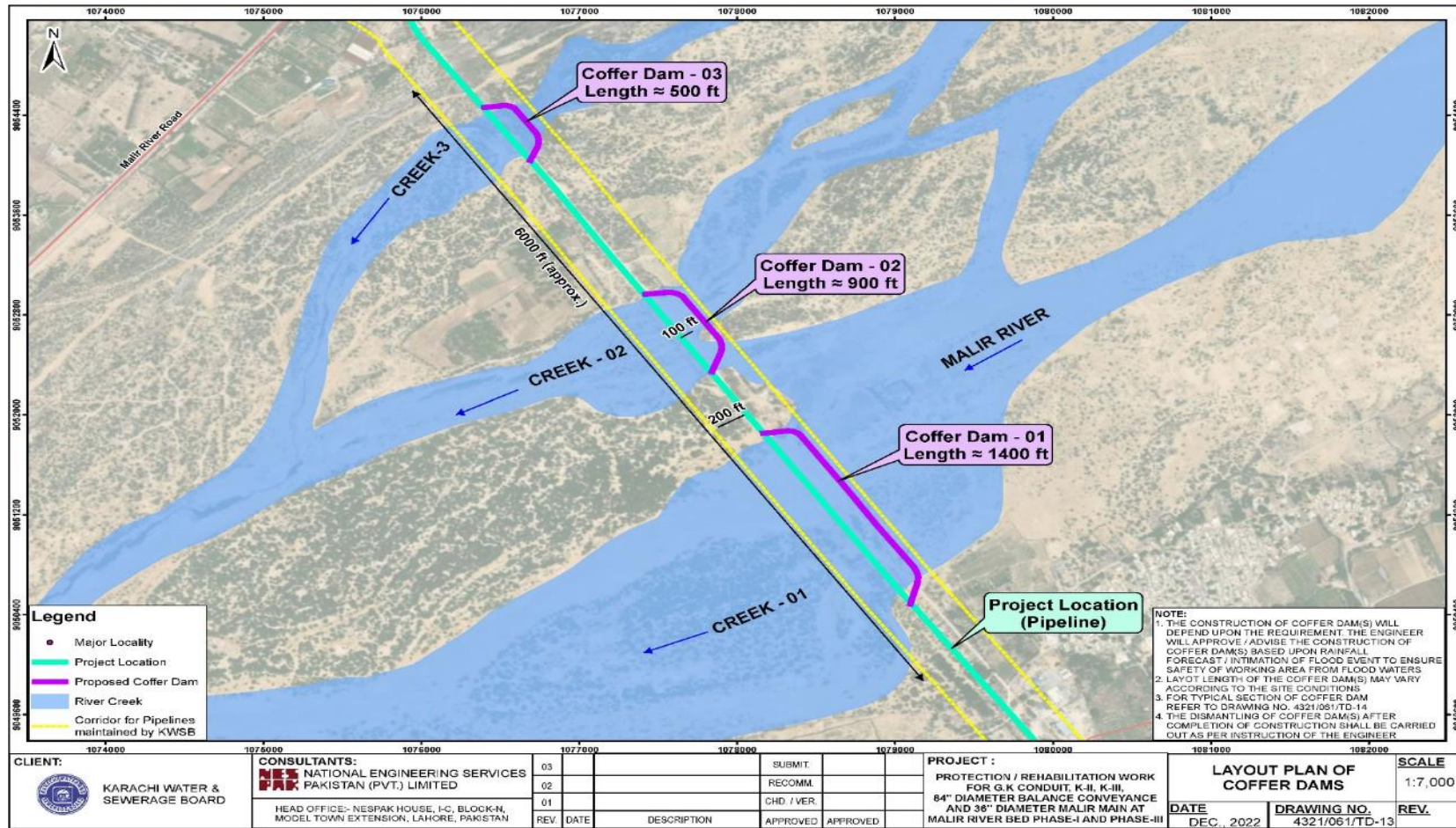


Figure 3.17: Layout Plan of Coffer Dam⁴

⁴ The coffer dam in Creek-1 is compulsory and that in Creek-2 and Creek-3 are provisional and most unlikely to be constructed

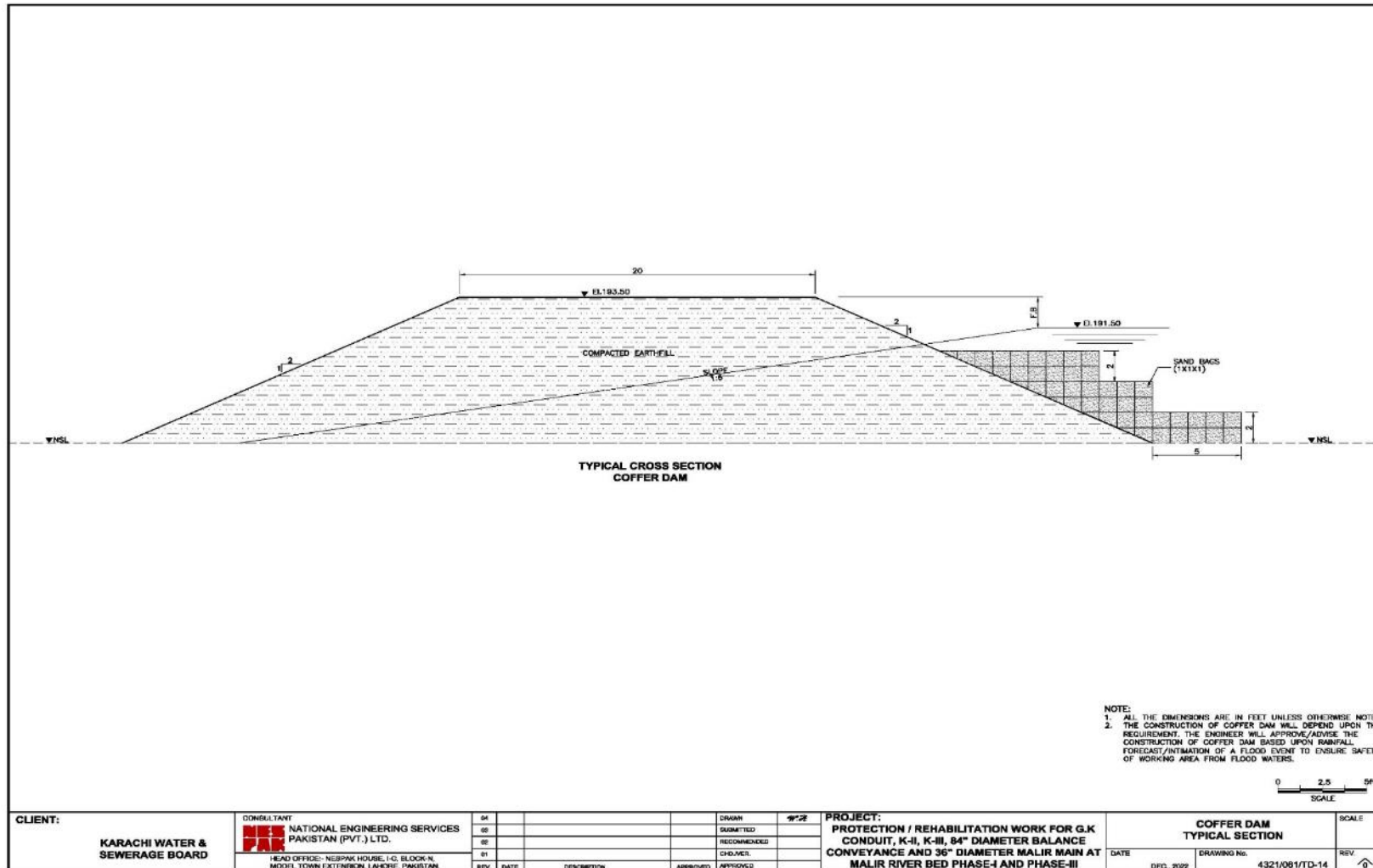


Figure 3.18: Cofferdam Typical Section

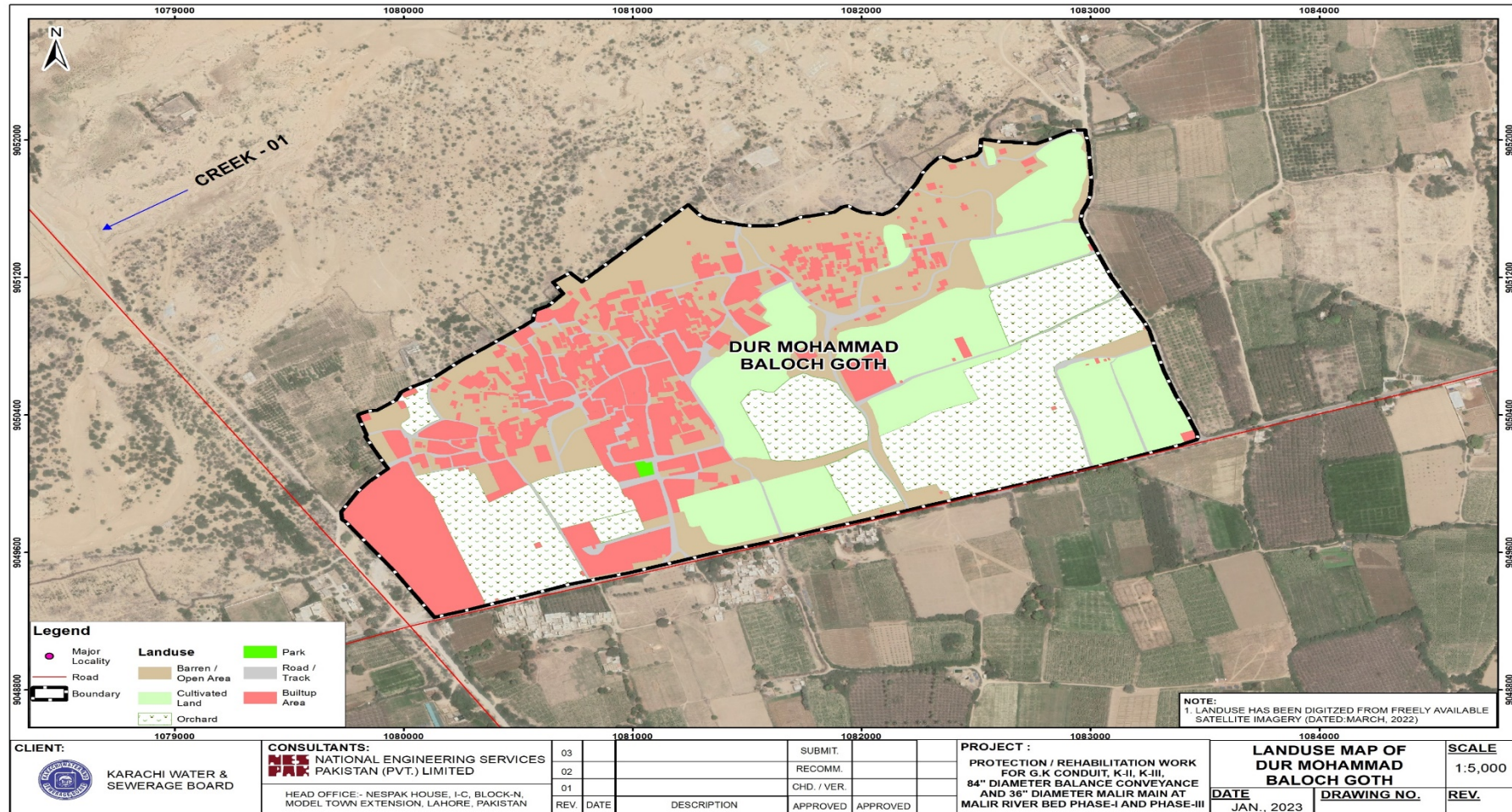


Figure 3.19: Landuse Map of Durr Muhammad Goth

3.5 Workforce Requirement

The project involves professional, administrative, skilled and unskilled labor which will be deployed for the construction activities. About 50 skilled and unskilled workers to be employed (about 50% will be local labor) will depend on the Contractor's activity schedule at the time when the contract is awarded. The Contractor will be advised to hire unskilled workers from the local communities to the extent possible. A training program will be conducted for unskilled workers.

3.6 Accessibility

The site is accessible through Super Highway Link Road, 15 km from Malir Cantt.

3.7 Solid Waste Generation

Due to construction activities waste will be generated at construction site and contractor's camp. Solid waste generated during construction and camp sites will be safely disposed in demarcated waste disposal sites operated by Sindh Solid Waste Management Board (SSWMB).

During construction, the excavated material will be backfilled at the construction sites and there will be minimal construction waste in flood protection works. For construction of coffer dam, embankment of soil will be constructed. The coffer dam will be constructed for only one creek. When construction work completes under one creek, the coffer dam will be shifted to second creek. The soil required for the one coffer dam will be shifted to the other one at the completion of protection works in that respective creek. The soil will be wasted during this shifting and will become part of the river bed. The excess soil, if available after completion of protection works, will be dumped at the banks of river in order to strengthen it. The jute bags used for containing the soil will be transferred to the respective department which can be used for flood fighting/protection arrangements of the Malir River. Overall, there will be minimal solid waste.

The domestic solid waste generation is estimated to be 22 kg/day (as per 0.44 kg/capita/day waste generation) for 50 construction workers of the proposed Project.

Waste Generation Rate = 0.44kg/capita/day
Ref: Pakistan – Waste Management Report, 2020

3.8 Water requirement

The source of water during the construction phase will be from water bowser tanks. The water consumption is estimated to be 250 gallons /day for 50 construction workers for the proposed project. Overall, 1 million gallons (approximately) water will be used. Out of which 95% water will be used for concrete works and rest will be used for curing and sprinkling as well as domestic use at camp sites.

3.9 Wastewater Generation

The wastewater generation is estimated to be 200 gallons/day for 50 construction workers of the proposed project. The wastewater will be treated in a temporary septic tank at the site.

3.10 Raw Material Required

1,500,000 CFT sand will be required for flood protection works and 1,300,000 CFT ordinary soil will be required for coffer dam. Description of proposed project activities given in below **Table 3.4.**

Table 3.5: Description of Proposed project Activities

Sr. No.	Description	Quantity	Quarry Site Name	Concerned Department	Availability of Quantity at the Quarry Site	NOC Requirement
1	Sand Filling	Approx. 1,500,000CFT	<ul style="list-style-type: none"> • Kalu naddi • Run pathani • Jo shahi Dam • Nooriabad 	Mines & minerals	Yes, as per the requirements	Sites are Leased (no need for NOC) contractor can directly purchase the material from vendors
2	Soil for Coffor Dam	Approx. 1,300,000 CFT	<ul style="list-style-type: none"> • Kalu naddi • Run pathani • Jo shahi Dam • Nooriabad 	Mines & minerals	Yes, as per the requirements	Sites are Leased (no need for NOC) contractor can directly purchase the material from vendors

3.11 Land Acquisition

No land will need to be acquired for the proposed project since it involves rehabilitation of existing structures. Furthermore, no encroachers/ squatters are currently present at the site.

3.12 Construction Camps

Camp sites will be selected based on following considerations:

- Number of workforces deployed;
- Type and quantity of machinery mobilized;

- Availability of adequate area for establishing camp sites including parking areas for machinery, stores and workshops;
- Access to communication and local markets; and
- Appropriate distance from sensitive areas including settlements and religious and/or cultural facilities.

Final locations will be selected by the contractor with the assistance of Supervision Consultant. Care will be taken to safeguard the existing environment of the area and location will be selected away from settlements. The contractors may acquire land on lease from private landowners.

3.13 Construction Period

Construction Period of the proposed project is estimated to be about 12 months.

3.14 Cost Estimate

The cost of proposed project is around PKR 3,068 million (13.64 million USD).

4. Baseline Profile

4.1 General

This section presents the current environment around the proposed development which has been considered with respect to physical, ecological and social resources. The prevailing environmental conditions around the proposed project have been considered with respect to physical, and biological aspects.

ESMP team conducted the reconnaissance and detailed surveys of the project area for baseline data collection during field visits from October 6 to October 15, 2022; October 26 to November 4, 2022. The prime objective of the field visits was to collect the baseline data on physical, eco-biological and environmental along with identification, assessment and categorization of the significant environmental impacts of the proposed Project.

4.2 Delineation of Study Area/ Area of Influence (Aoi)

As per the environmental and social (E&S) screening study conducted earlier, the project falls in “category B” which means that the impacts of the project activities are limited and within the boundary of project area. An Area of Influence (Aoi) of 300m on either side has been defined considering all the activities associated with the project including temporary storage, site access and vehicular movements. Error! Reference source not found. represents the Aoi of the project area.

As per the requirements of SEPA Act and the World Bank’s OP’s, impacts and risks have been analyzed within the project Aoi.. Environmental and social impacts and risks have also been analyzed for all relevant stages of the project cycle, including pre-construction, construction and operation phases of the project.

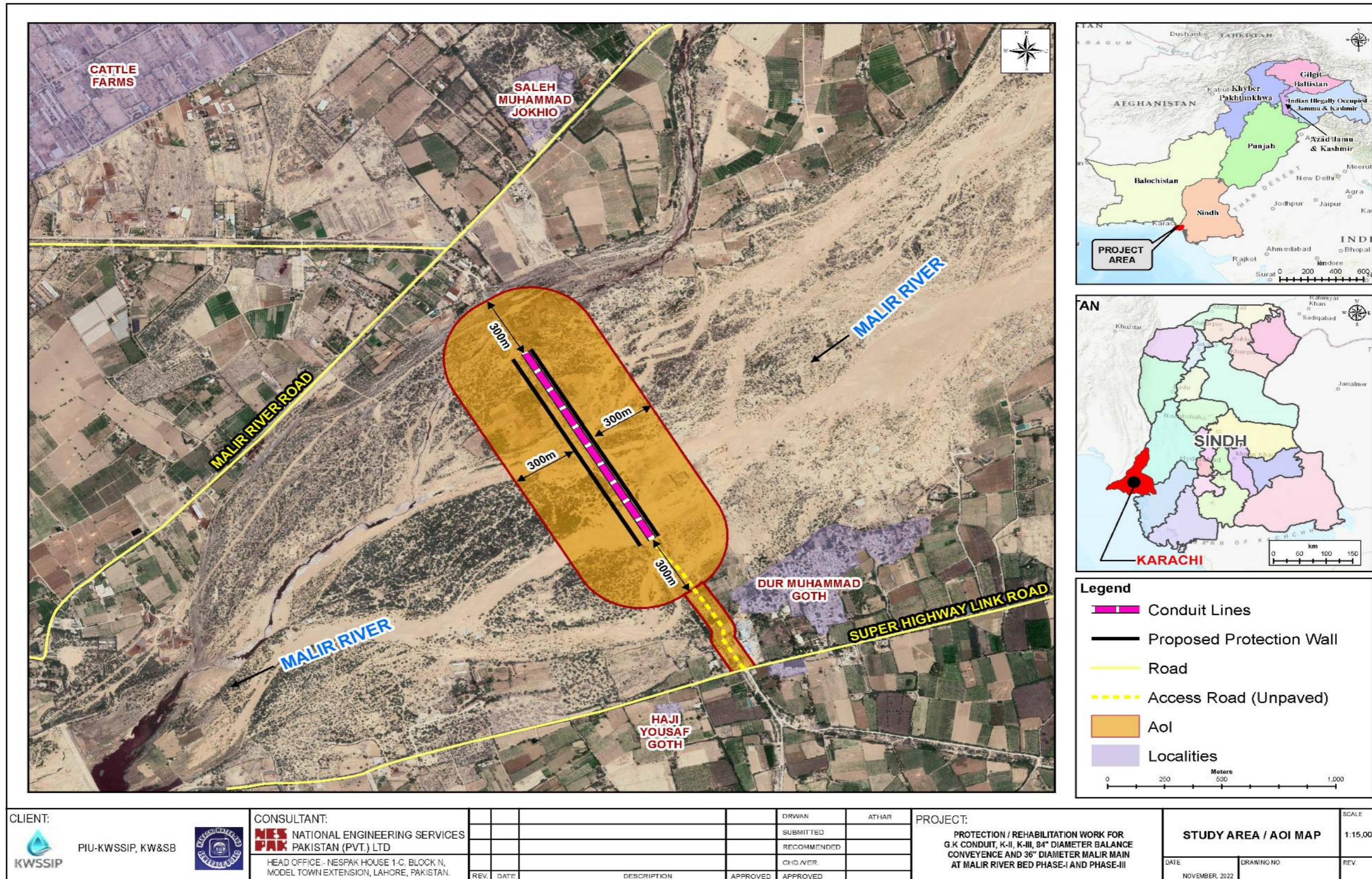


Figure 4.1: Study Area Map / Aol of Project Area

4.3 Physical Environment

4.3.1 Topography

Project site lies within the river bed of Malir. The level shows a generally rising tendency from the sea. Topography of project site varies from 130ft-150ft above mean sea level (ASML)⁵. The maximum contour in the project surrounding is 220ft and minimum is 130ft. The contour map of project area is shown in Error! Reference source not found..

⁵ District census report of Karachi West 1998

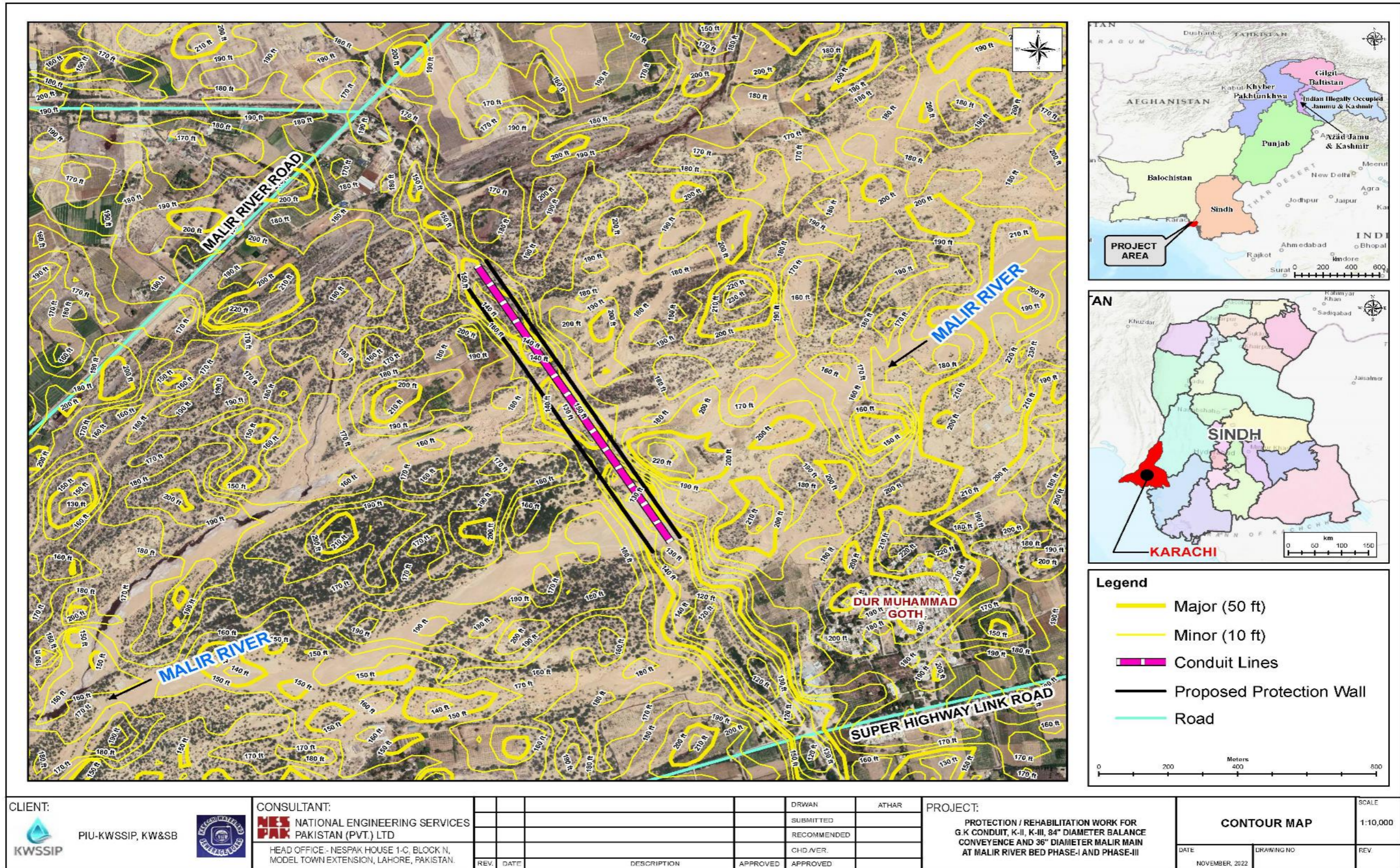


Figure 4.2: Topographic Map of Project Area

4.3.2 Geology

It was observed during the site visit that silty clay/clayey silt material exists on the ground strata. It is unconsolidated detrital material deposited by a body of running water as a sorted or semi-sorted sediment in the bed of the stream or on its flood-plain or delta or as a cone at the base of mountain slope.

4.3.3 Hydrology

Malir River is formed by the confluence of Mol and Khadeji tributaries, the catchment area of which are 611 km² (235 square mile) and 567 km² (219 square mile), respectively, whereas total catchment area up to its estuary is 2,314 km² (893 square mile). After the confluence of Mol and Khadeji, the Malir River traverses through Karachi city about 43 km (27 mile) and outfalls into the Arabian Sea. The catchments of Mol and Khadeji are generally mountainous and mostly comprising barren hills of low to medium height, consisting of pale coloured limestone which contains alluvial deposits, boulders, gravel and sandy clays. Whereas the lower part of the catchment mostly comprises fully developed and underdeveloped urban area and cultivable area along the river banks.

4.3.4 Climate and Meteorology

i. Average Temperatures

Figure 4.3 represents mean monthly maximum and minimum temperatures for different months of the last 30 years. The "mean daily maximum" (solid red line) shows the maximum temperature of an average day for every month for Karachi. Likewise, "mean daily minimum" (solid blue line) shows the average minimum temperature. Hot days and cold nights (dashed red and blue lines) show the average of the hottest day and coldest night of each month of the last 30 years.⁶

⁶ https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/karachi_pakistan_1174872

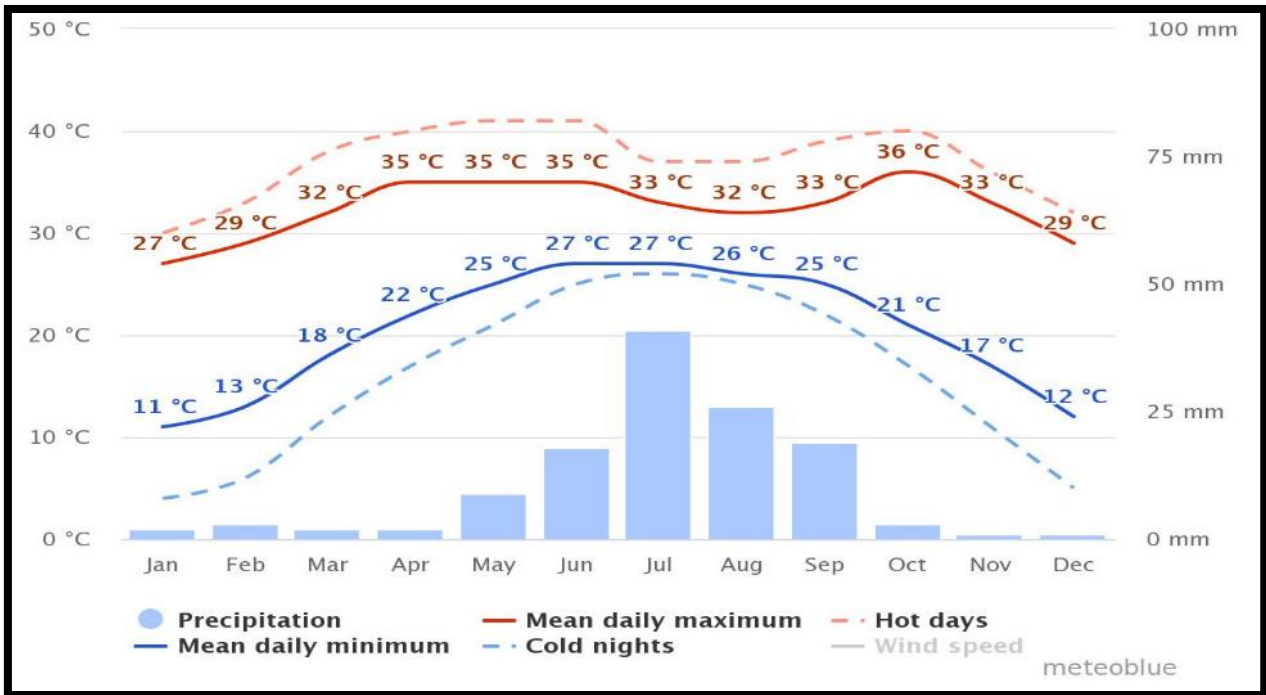


Figure 4.3: Average Temperatures & Precipitation

The project area has hot summer and mild winters. The summer starts from April and lasts till October. May and June are the hottest month. The mean maximum temperature is observed 35 °C for the month of May as shown in **Figure 4.3** The winter seasons lasts from November to February. January is the coldest month. The mean maximum and mean minimum temperature ranges from 27 °C to 12 °C in January. The maximum temperatures are presented in **Figure 4.4**.

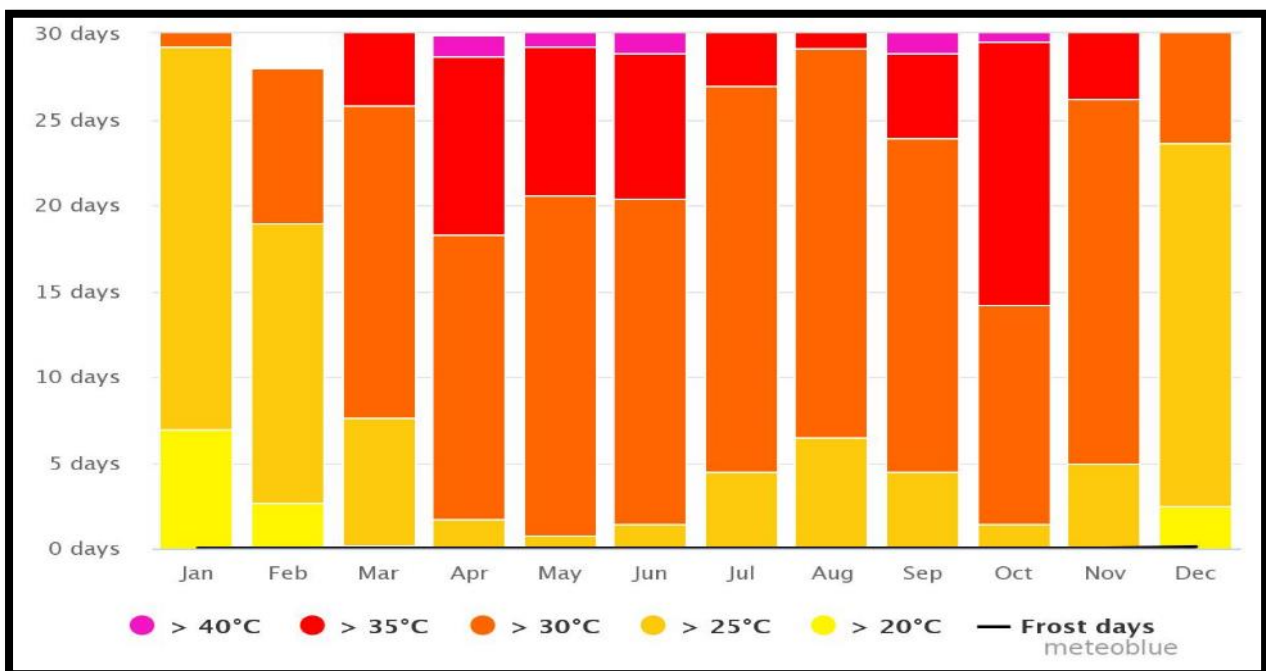


Figure 4.4: Maximum Temperatures

ii. Humidity

Graph below represents the Average relative humidity over the year. **Figure 4.5** shows the Average relative humidity of Karachi.

- On average, August is with 82.0% the most humid.
- On average, January is with 54.0% the least humid month.
- The average annual percentage of humidity is: 70%⁷

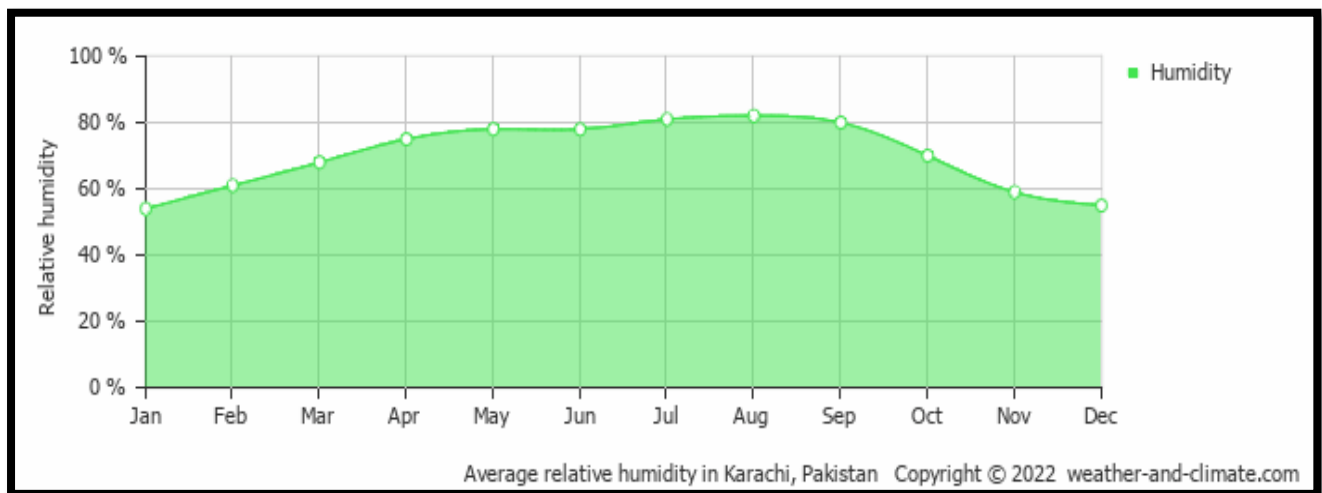


Figure 4.5: Shows Average Relative Humidity

iii. Rainfall

The meteorological station at Karachi Airport collects climatic data. Rainfall near the Karachi coast is extremely low and erratic and this region falls in the semi-arid climatic zone. Maximum precipitation was observed in the month of July nearly 50mm. Heavy rains exceeding 50mm (sometimes 100mm) in a day only occasionally occur in the area. Precipitation system continues from May to September as Shown in **Figure 4.6**.

Figure 4.6 shows the monthly number of sunny, partly cloudy, overcast and precipitation days. Days with less than 20% cloud cover are considered as sunny, with 20-80% cloud cover as partly cloudy and with more than 80% as overcast.

It is clear from the chart that most of the times of year partly cloudy days dominate in summer season, while sunny days are observed in winter season, with seldom overcast days. The maximum precipitation days are observed during May to September as shown in **Figure 4.6** below.

⁷ <https://weather-and-climate.com/average-monthly-Humidity-perc,Karachi,Pakistan>

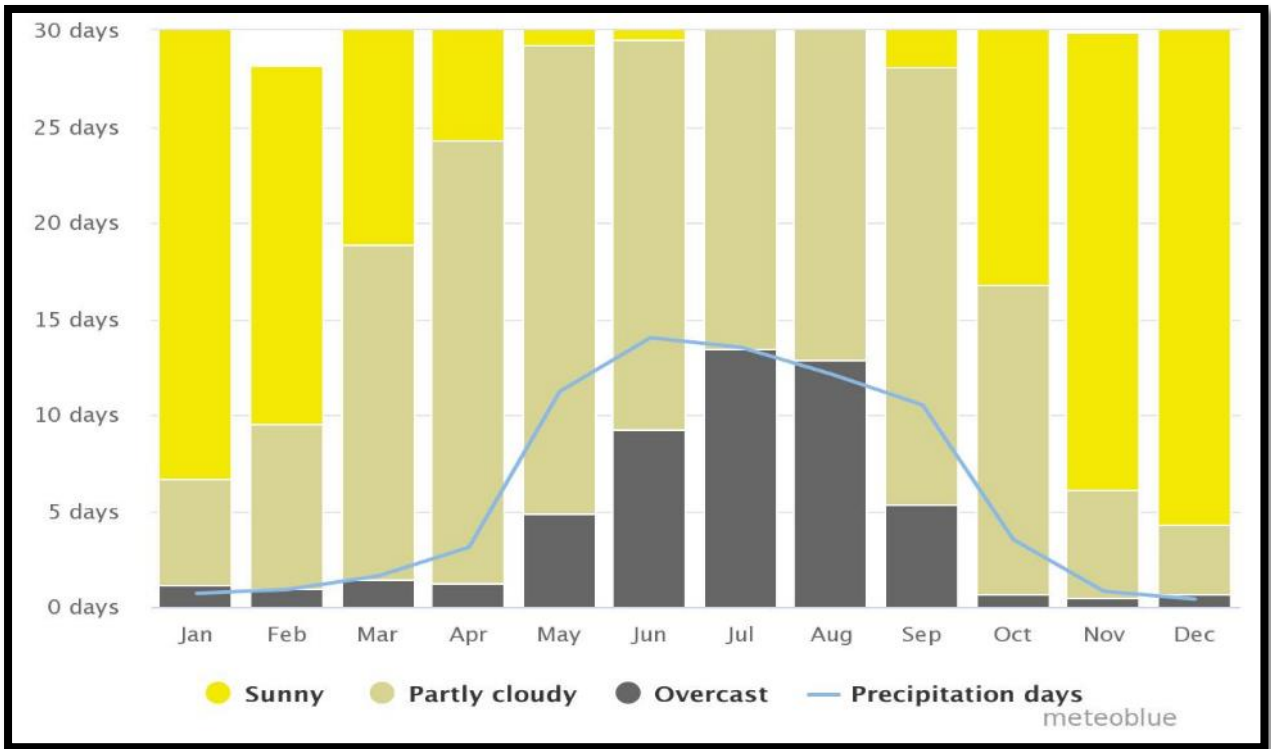


Figure 4.6: Cloudy, Sunny and Precipitation Days

Figure 4.7 shows on how many days per month, certain precipitation amounts are reached. It can be seen from the chart that the precipitation in July to September is maximum and ranges between 2-5 mm. Highest intensity of precipitation is observed in the month of July as Shown in **Figure 4.7**.

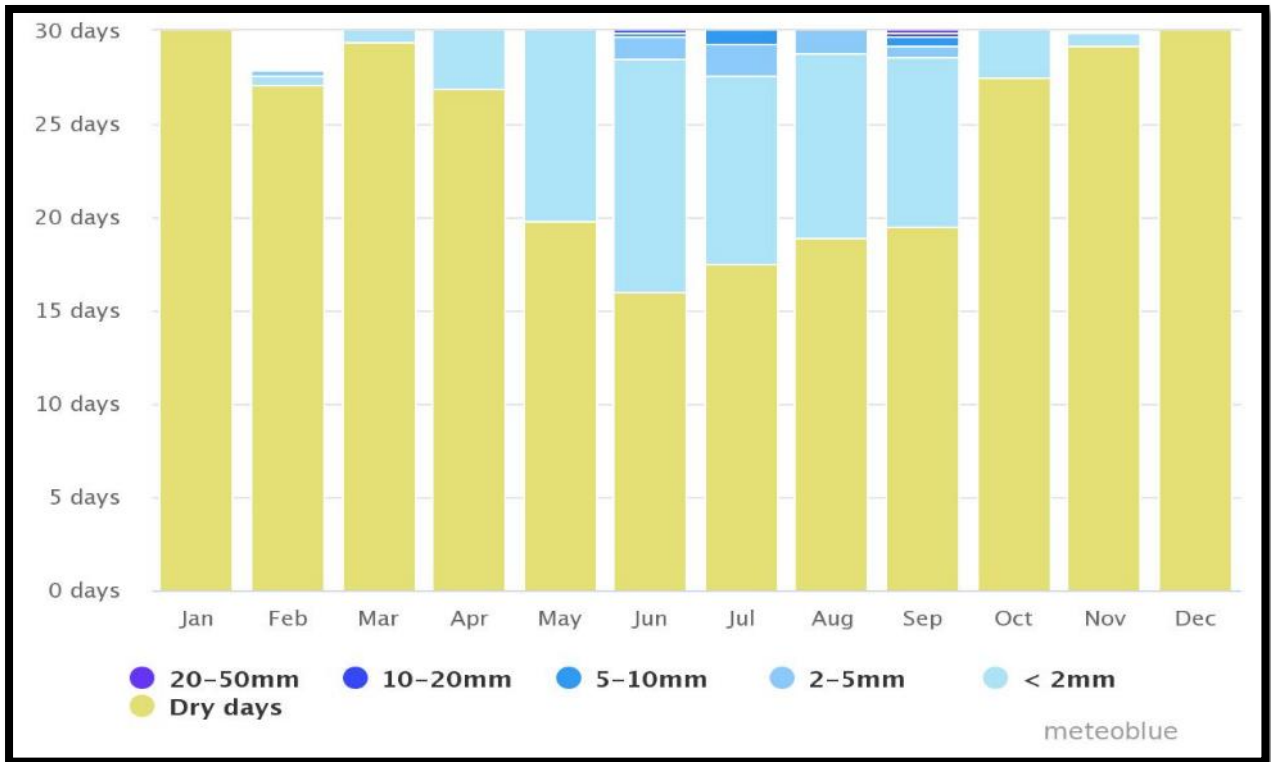


Figure 4.7: Precipitation Amounts

iv. Wind Speed and Direction

Central Karachi weather is considered pleasant and is famous for its breeze from the sea. The onshore winds from the Arabian Sea contribute to humid conditions. The wind speed has highest velocities during the summer months, when the direction is south-west to west. During winter, the wind blows from north to northeast, shifting southwest to west in the evening hours. The wind usually carries sand and salt resulting in severe wind erosion and corrosion. Tropical cyclones are formed in the Arabian Sea in the pre-monsoon season, mostly in the month of June. **Figure 4.8** shows the days per month, during which the wind reaches a certain speed.

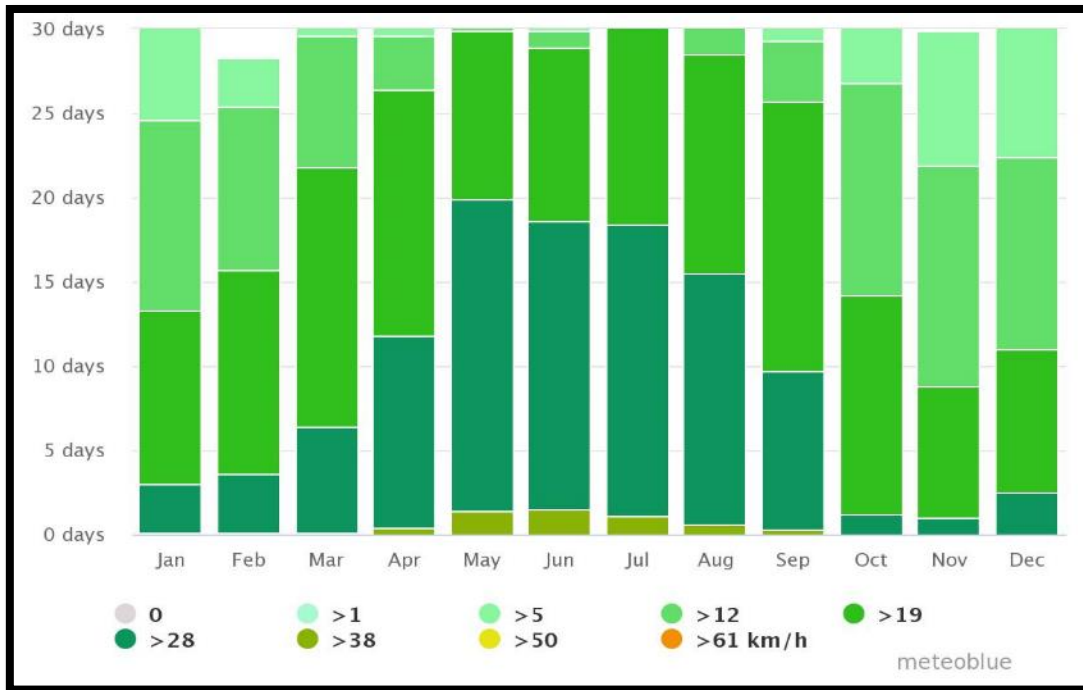


Figure 4.8: Wind Speed

Maximum wind speeds can be observed in the months of May to July. Wind speed >28 km/h dominates for seventeen to Eighteen days in these months. However, the dominant wind speed throughout the year is >19 km/hr.

The wind rose for Karachi for the last 30 years shows how many hours per year the wind blows from the indicated direction. Wind rose is shown in **Figure 4.9**.

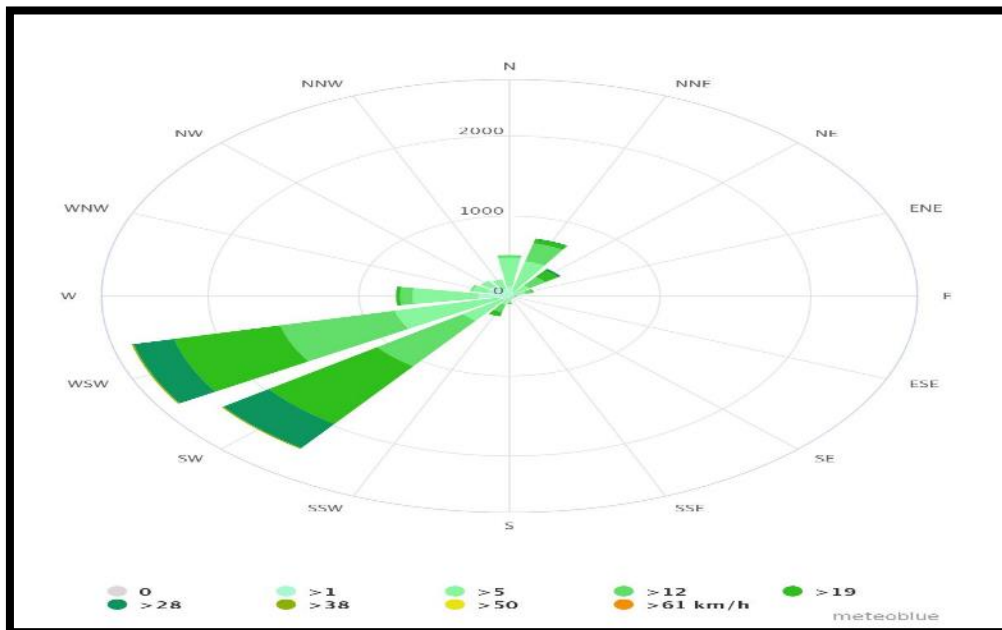


Figure 4.9: Wind Rose for Karachi

It can be seen from the wind rose that dominant wind direction is towards **W** and **WSW**.

4.3.5 Water Resources

The description of the water resources of project area is as under:

A. Surface water

i. Malir River

Malir River is formed at the confluence of Mol and Khadeji tributaries. Total catchment area up to the river mouth is 2,314 km² (893 mile²). After the confluence of Mol and Khadeji, the Malir River traverses through Karachi city about 43 km (27 mile) and outfalls into the Arabian Sea. It is reported that the Malir drains substantial rainfall-runoff in monsoon months. On the upstream side of Malir river of project area Langhegi Nullah is also joining in the Malir River shown in the **Figure 4.10**.

The project boundary is located in the bed of Malir river. **Figure 4.10** shows hydrology of the project area.

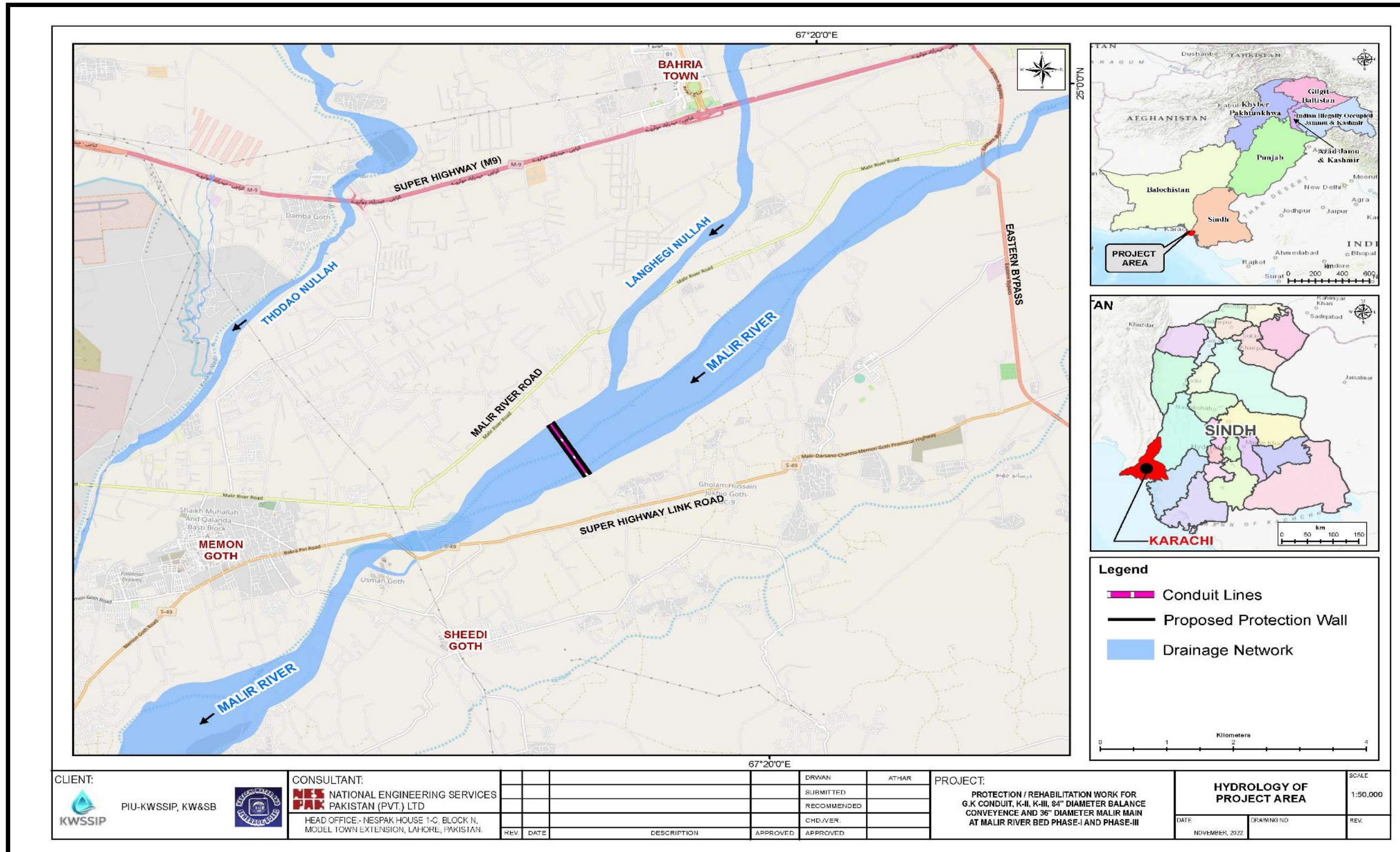


Figure 4.10: Hydrology Map of Project Area

B. Groundwater

As stated above, project lies in the river bed. Therefore, the groundwater is sweet and drinkable. The aquifers are approximately 10-20 ft deep. Two possible water-sources are contributing to the groundwater recharge in project area. The first likely source is the rainfall. As the project area suffers from shortage of precipitation (only rainfall), the contribution to willow groundwater storage from rain is very little. The spring water discharges into Malir River also contributing to groundwater storage as a second recharge source.

4.3.6 Environmental Monitoring, Sampling and Testing for Proposed Project

In order to determine the ambient air, noise levels, wastewater, surface water and groundwater/ drinking water quality of the study area testing was conducted for the aforementioned aspects. The sampling locations for the testing of ambient air, noise, surface water, groundwater/ drinking water and wastewater for project area are shown in Error! Reference source not found..

The task of environmental monitoring and testing was awarded to SEPA approved environmental laboratory i.e., Asian Verification Laboratory.

A. Ambient Air Quality

As discussed in Section 4.3, the Aol of 300 m is considered on each side of project alignment. The air quality parameters do not vary in these small proximities. The ambient air monitoring at a single point in these areas can be the representative of the whole area as well as the surroundings.

The ambient air quality was monitored using a mobile station at one specified location. All the air quality parameters are in compliance with SEQs. The results of ambient air quality monitoring are given in **Table 4.1**. The detail report and photolog of ambient air quality monitoring are **Annex-I**.

Table 4.1: Ambient Air Quality Results

Sr. No.	Parameters	Avg. sampling time	Unit	Test Result	SEQS
1	Carbon monoxide	24 hrs.	mg/m ³ (8 Hour)	BDL	5
2	Nitrogen Oxides as NO		µg/m ³	7.97	40
3	Sulphur dioxide		µg/m ³	BDL	120
4	PM _(2.5)		µg/m ³	28.20	35
5	PM ₍₁₀₎		µg/m ³	46.45	150
6	Suspended particulate Matter (SPM)		µg/m ³	74.65	500

All the parameters are observed to be within the prescribed limits of SEQs. The soil in the project area is in hard/ compacted form with the insignificant impact of anthropogenic activities. Therefore, the value of particulate matter is low.

B. Noise Level

The noise levels were monitored using noise meter at one specified location. The results of noise monitoring are attached as **Annex-I**. Noise monitoring quality parameters are in compliance with SEQs. The results of noise monitoring are given **Table 4.2**.

Table 4.2: Noise Monitoring Results

Sr. No.	Location	Equivalent Noise Level (L _{eq}) dB(A)
		Day Time
1	Near Pipeline (Open Area)	55.6
SEQs permissible limits		65 dB(A)

C. Groundwater/ Drinking Water Quality

Groundwater/ Drinking water samples were collected from hand pump at Dur Muhammad Goth from November 02, 2022 by Asian Verification Laboratory and was analyzed for chemical and microbiological parameters. The analysis results of groundwater samples are compared with SEQs. The results are shown in **Table 4.3**. The detailed monitored report and photolog for drinking water quality are attached as **Annex-I** respectively.

Table 4.3 Results of Groundwater/ Tap Water

Sr. No	Measuring Parameter	Units	SEQS Limits	Results
1	pH @ 25 °C	pH	6.5-8.5	7.73
2	Color	TCU	<15TCU	0.01
3	Turbidity	NTU	<5	0.62
4	Total Hardness as CaCO ₃	(mg/L)	<500	484
5	Total Dissolved Solids (TDS)	(mg/L)	<1000	926
6	Aluminum	(mg/L)	0.2	BDL
7	Antimony	(mg/L)	<0.005	BDL
8	Barium	(mg/L)	0.7	BDL
9	Boron	(mg/L)	0.3	BDL
10	Cadmium	(mg/L)	0.01	BDL
11	Chloride	(mg/L)	<250	BDL
12	Chromium	(mg/L)	<0.05	BDL
13	Copper	(mg/L)	2.0	BDL
14	Cyanide	(mg/L)	0.05	BDL
15	Fluoride	(mg/L)	1.5	0.67
16	Lead	(mg/L)	<0.05	BDL
17	Manganese	(mg/L)	0.5	BDL
18	Mercury	(mg/L)	<0.001	BDL
19	Nickel	(mg/L)	<0.02	BDL
20	Nitrate	(mg/L)	0.5	9.4
21	Nitrite	(mg/L)	3	0.477
22	Selenium	(mg/L)	0.01	BDL
23	Residual Chlorine	(mg/L)	0.2-0.5	0.2
24	Taste	Non-Objectionable/ Acceptable	Non-Objectionable
25	Odor	Non-Objectionable/ Acceptable	Non-Objectionable
26	Arsenic	(mg/L)	0.05	BDL
27	Pesticides	mg/L	0.15	BDL
28	Phenolic compound	(mg/L)	0.002	BDL
29	Total Coliform	(count/100ml)	0/100ml	Nil
30	Fecal Coliform	(count/100ml)	0/100ml	Nil
31	Escherichia Coli	(count/100ml)	0/100ml	Nil

The groundwater testing reveals that almost all the parameters are within the permissible limits of SEQs except Nitrates. In the absence of agriculture activity, the primary source of nitrates could be decomposed plants and animals' bodies etc. Furthermore, the industries in the upstream of the drain are also discharging their waste in to drain which could also be the reason of such high values.

D. Wastewater Quality

Wastewater samples were collected from wastewater stream passing through the Malir River bed on November 02, 2022 by Asian Verification Laboratory and was analyzed for its parameters. The analysis results of wastewater samples are compared with SEQS. The results are shown in **Table 4.4**. The detailed report and photolog for wastewater quality are attached as **Annex-I**

Table 4.4 Results of Wastewater

Sr. No.	Measuring Parameter	Units	SEQS Limits	Result
1	pH @ 25° C	pH	6 to 9	8.2
2	Temperature	°C	40 + ≤ 03° C	32
3	Biological Oxygen Demand	(mg/L)	80	118
4	Chemical Oxygen Demand	(mg/L)	150	330
5	Total Suspended Solids	(mg/L)	200	500
6	Oil & Grease	(mg/L)	10	18
7	Chromium	(mg/L)	1.0	0.9
8	Sulfide	(mg/L)	1.0	3.6
9	Color	(mg/L)	<15	55
10	Total Dissolved Solids	(mg/L)	3500	5500
11	Fecal Coliform	Count/ml	-	110
12	Total Coliform	Count/ml	-	290
13	E- Coliform	Count/ml	-	88
14	Chloride	(mg/L)	1000	1190
15	Fluoride	(mg/L)	10	29
16	Cyanide	(mg/L)	1.0	0.09
17	Anionic Detergent	(mg/L)	20	57
18	Sulfate	(mg/L)	600	236
19	Ammonia	(mg/L)	40	6.8
20	Pesticides	(mg/L)	-	BDL
21	Cadmium	(mg/L)	0.1	BDL
22	Copper	(mg/L)	1.0	1.1
23	Lead	(mg/L)	0.5	0.01
24	Mercury	(mg/L)	0.001	BDL
25	Selenium	(mg/L)	0.5	BDL
26	Nickel	(mg/L)	1.0	BDL
27	Silver	(mg/L)	1.0	BDL
28	Zinc	(mg/L)	5.0	11
29	Arsenic	(mg/L)	1.0	BDL
30	Barium	(mg/L)	1.5	0.5
31	Iron	(mg/L)	8.0	10
32	Manganese	(mg/L)	1.5	BDL
33	Total Chlorine	(mg/L)	-	2.3
34	Boron	(mg/L)	6.0	BDL
35	Phenolic compound	(mg/L)	0.1	BDL

The values of BOD, COD, TSS, TDS and Chlorides are higher because the sample was collected from the wastewater drain as raw wastewater. The result of the analysis also shows the inflow of industrial wastewater. There is a planned project to lay sewage interceptor through the length of Malir river; this project is expected to lower the organic pollutants in the wastewater stream.

E. Surface water Quality

Surface water samples were collected from water ponded in the Malir River bed from November 02, 2022 by Asian Verification Laboratory and was analyzed for its parameters. The analysis results of water samples are compared with SEQs. The results of surface water quality monitoring are given in **Table 4.5**. The detailed monitored report and photolog for surface water quality are attached as **Annex-I**

Table 4.5 Results of Surface water

Sr. No.	Measuring Parameter	Units	SEQs Limits	Result
1	pH @ 25 ° C	pH	6 to 9	8.1
2	Temperature	°C	40 + ≤ 03 ° C	31
3	Biological Oxygen Demand	(mg/L)	80	99
4	Chemical Oxygen Demand	(mg/L)	150	285
5	Total Suspended Solids	(mg/L)	200	300
6	Oil & Grease	(mg/L)	10	12
7	Chromium	(mg/L)	1.0	0.5
8	Sulfide	(mg/L)	1.0	3.1
9	Color	(mg/L)	<15	44
10	Total Dissolved Solids	(mg/L)	3500	4300
11	Fecal Coliform	Count/ml	-	100
12	Total Coliform	Count/ml	-	170
13	E- Coliform	Count/ml	-	54
14	Chloride	(mg/L)	1000	970
15	Fluoride	(mg/L)	10	33
16	Cyanide	(mg/L)	1.0	0.06
17	Anionic Detergent	(mg/L)	20	44
18	Sulfate	(mg/L)	600	190
19	Ammonia	(mg/L)	40	5.4
20	Pesticides	(mg/L)	-	BDL
21	Cadmium	(mg/L)	0.1	BDL
22	Copper	(mg/L)	1.0	BDL
23	Lead	(mg/L)	0.5	BDL
24	Mercury	(mg/L)	0.001	BDL
25	Selenium	(mg/L)	0.5	BDL
26	Nickel	(mg/L)	1.0	BDL
27	Silver	(mg/L)	1.0	BDL
28	Zinc	(mg/L)	5.0	7.2
29	Arsenic	(mg/L)	1.0	BDL

Sr. No.	Measuring Parameter	Units	SEQS Limits	Result
30	Barium	(mg/L)	1.5	BDL
31	Iron	(mg/L)	8.0	8.9
32	Manganese	(mg/L)	1.5	BDL
33	Total Chlorine	(mg/L)	-	1.9
34	Boron	(mg/L)	6.0	BDL
35	Phenolic compound	(mg/L)	0.1	BDL

The values of BOD, COD, TSS and TDS are high due to mixing of sewerage with the surface water. The industries in the upstream of the drain are also discharging their waste in to drain which could also be the reason of such high values of Fluoride, Zinc, Coliforms, Oil & Grease etc.

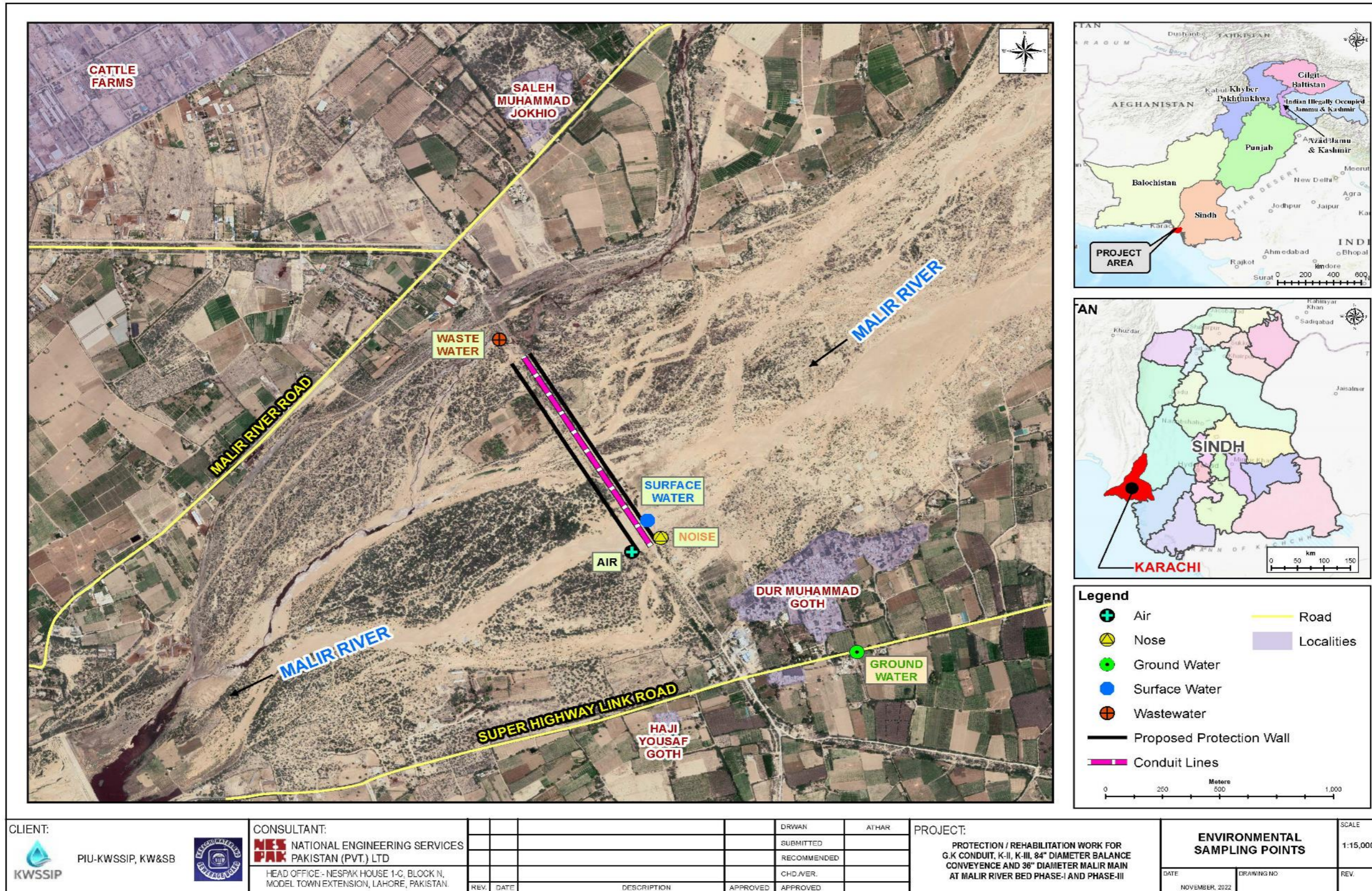


Figure 4.11: Environmental Sampling Points Location at Project Site

4.3.7 Seismology

The project area is located Zone-2B (moderate earthquake zone), according to seismic zoning map of Pakistan. **Figure 4.12** shows the project location on seismic zoning map of Pakistan. The ground acceleration in this zone varies from 0.16g to 0.24g.

The seismic zoning based on Peak Ground Acceleration (PGA) is summarized in **Table 4.6**.

Table 4.6: Seismic Zones

Seismic Zone	Peak Horizontal Ground Acceleration “g” is the acceleration due to gravity
1	0.05 to 0.08g
2A	0.08 to 0.16g
2B	0.16 to 0.24g
3	0.24 to 0.32g
4	> 0.32g

Source: Building Code of Pakistan, Seismic Provisions

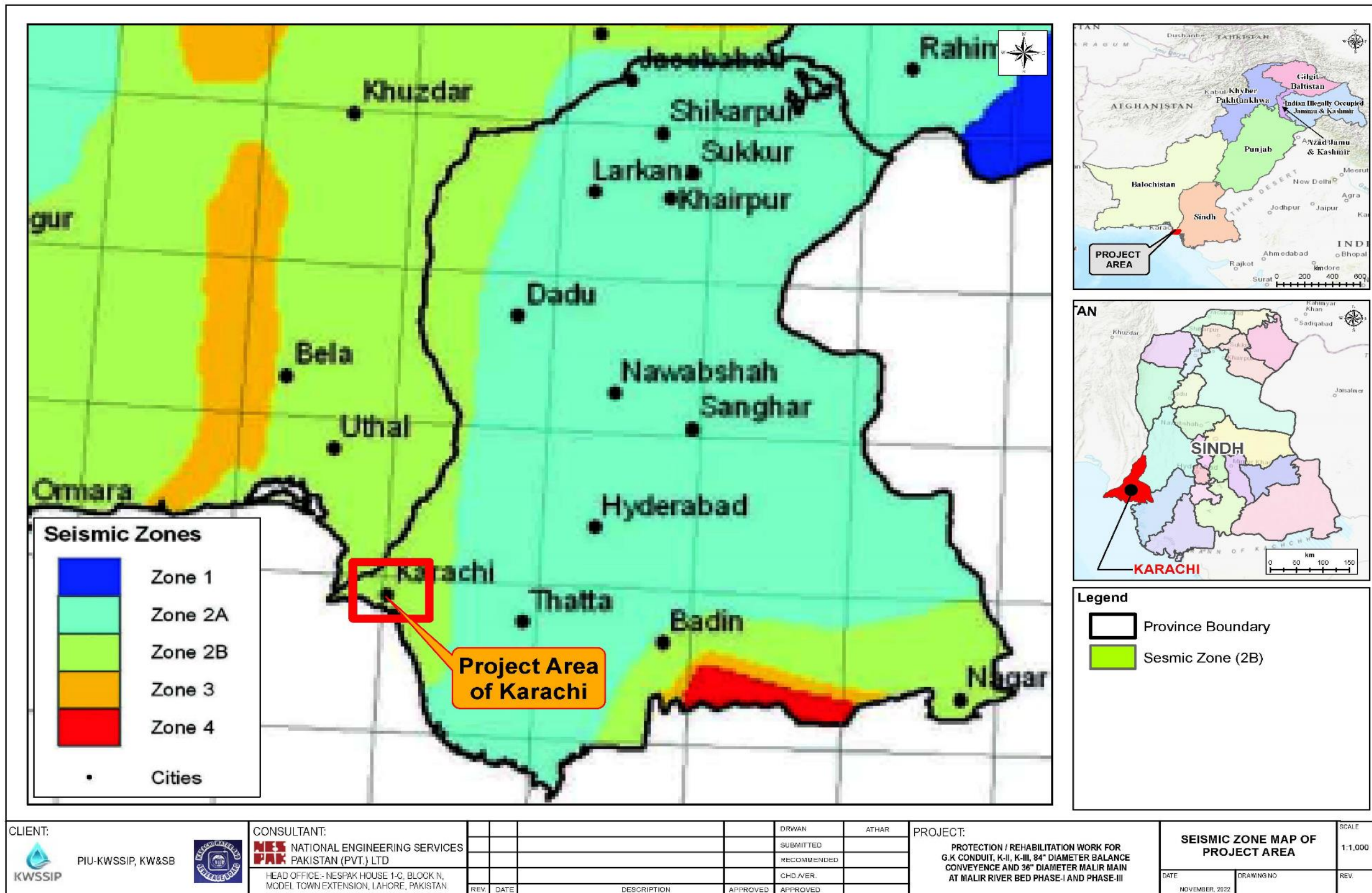


Figure 4.12: Seismic Zone Map of Project Area

4.3.8 Land use of Project Area

The project site is within the Malir river bed. The project area is away from the urban settlements, therefore, there is no socio-economic activity in that area. The bulk water conduits of KWSB carrying the water from Keenjhar lake to Karachi passing through the Malir riverbed traverses through the project area. The river is a non-perennial river which only flows in the monsoon or flood season. The project site is barren with some vegetations/shrubs grown at different place across the river bed. A wastewater drain is also flowing along the river with in the Aol. The land use map is shown in the **Figure 4.13**.

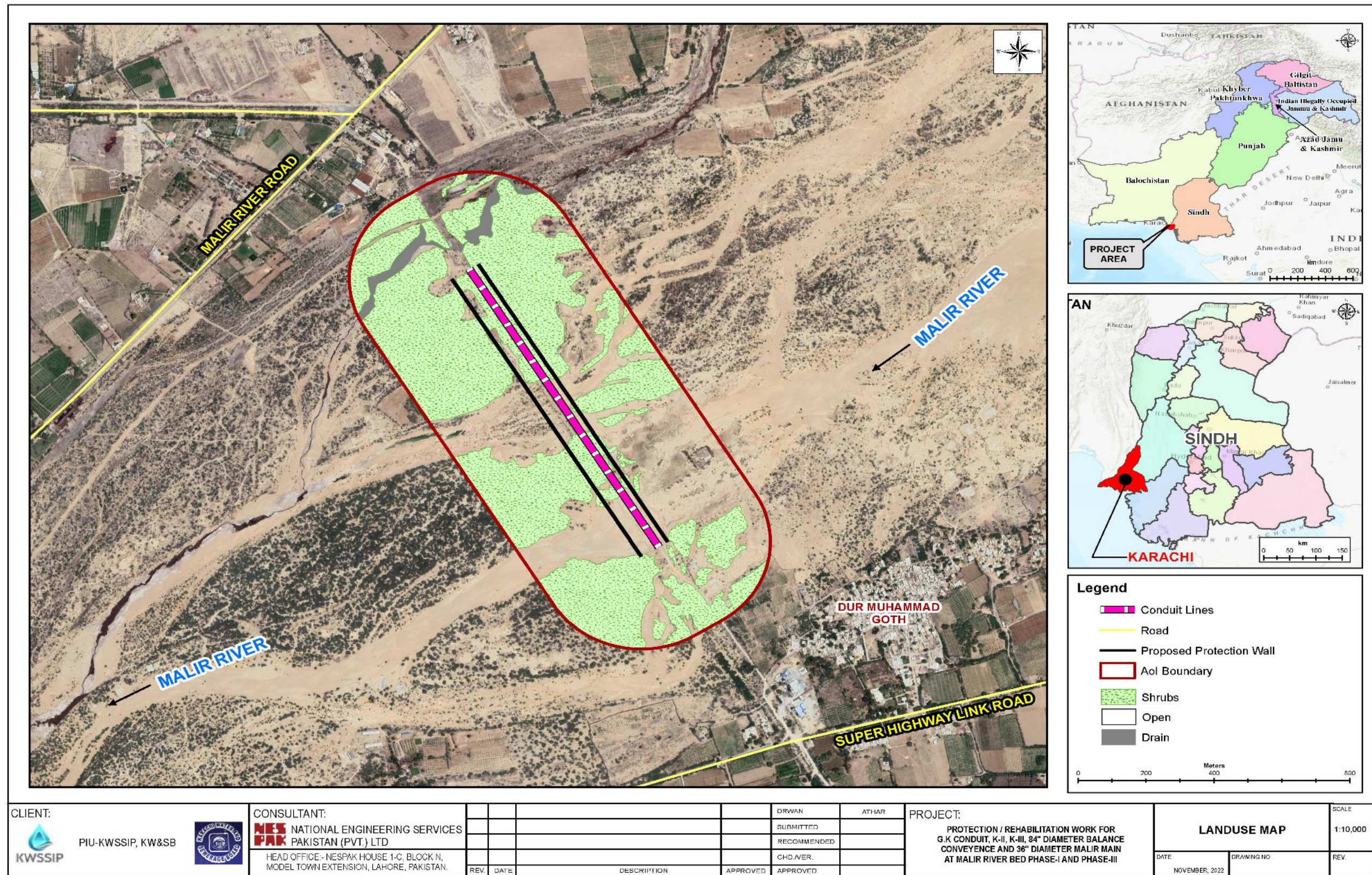


Figure 4.13: Land use Map of Project Area

4.3.9 Sensitive Receptors

The project area has no sensitive receptors within the Aol (300m). There are some sensitive receptors in the near community but they are not going to be affected during the project execution. A comprehensive map showing sensitive receptors outside the Aol in the vicinity of project such as Schools, Mosques, Eid Gah/Janaz Gah, Hospital, is given in Error! Reference source not found.. These points are approximately 1000 m away from the project area. These sensitive receptors are listed below.

- Government Boys elementary modern green school (GBES) modern green (655 m)
- Government Girls Primary School (830 m)
- Muhammad Bin Qasim Memorial Library (875 m)
- Basic Health Unit (670 m)
- Rubani Masjid (950 m)
- Eid Gah/ Janaz Gah (870 m)
- Jamia Masjid Muhammadi (890 m)

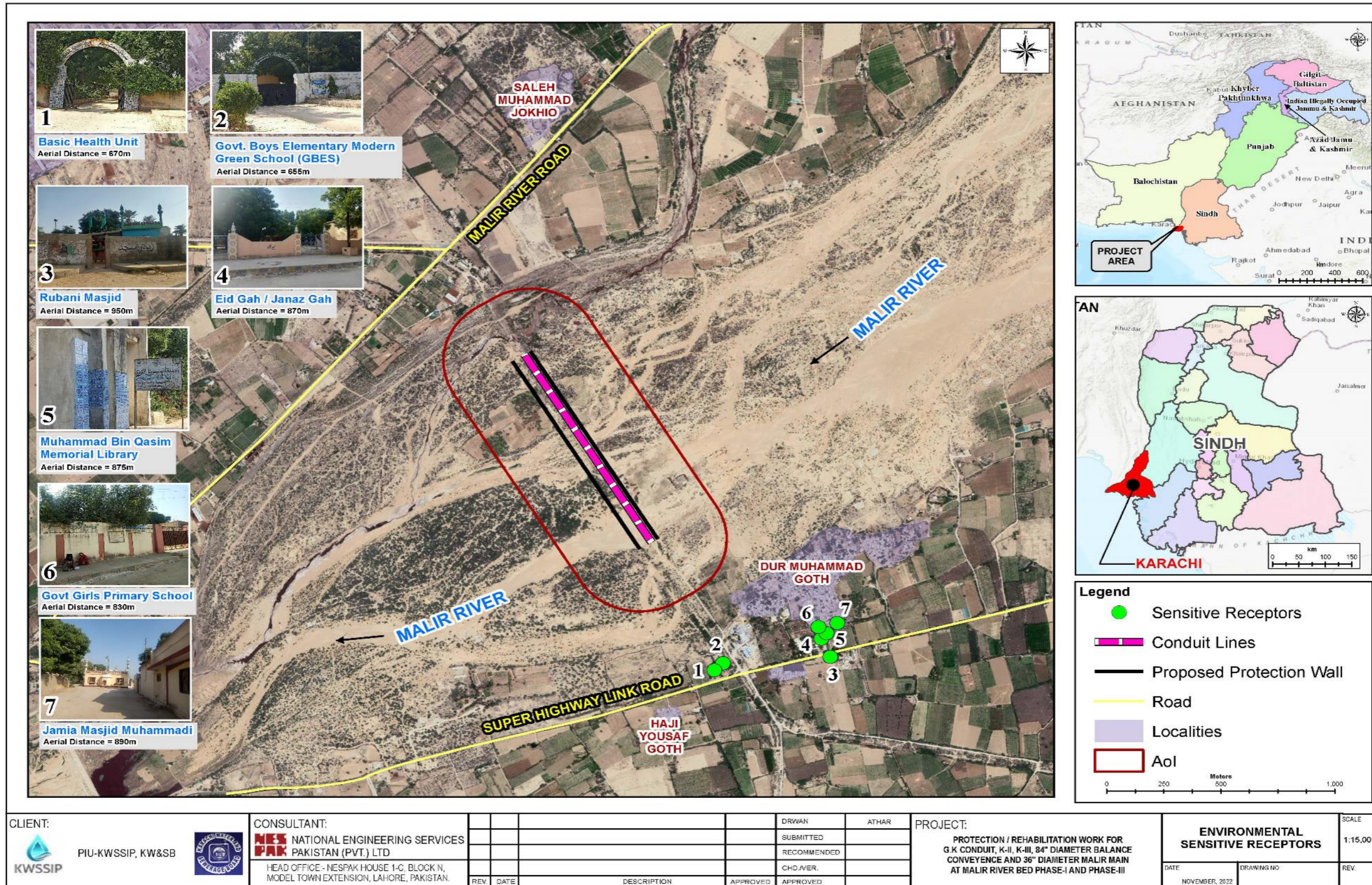


Figure 4.14: Environmental Sensitive Receptors of Project Area

4.4 Biological Environment

Project area is in the river bed which mostly remains dry throughout the year and only receives seasonal flooding during monsoon. Any sensitive species of either flora and fauna including endangered species were not identified during field survey as well as the desk review. A shrub i.e., *Prosopis Juliflora* is found in abundance in the project area.

Prosopis Juliflora is an invasive species and termed as 'Evil Plant'. It has found to be destructive for native flora and fauna. Invasive alien species are animals, plants or other organisms that are introduced by humans, either intentionally or accidentally, into places outside of their natural range, negatively impacting native biodiversity, ecosystem services or human economy and well-being.

Since the river bed is dry, the fish cannot be found except those which flow with the water in monsoon season.

Some reptiles including Monitor Lizards and some other large lizards can be seen in the project area. Furthermore, there are mammals including dogs and cats. List of mammals and birds found in the project area and their IUCN status is given below:

Mammals						
No.	Common Name	Scientific Name	Occurance			Listing IUCN Red list
			Common	Less Common	Rare	
1.	Dogs	<i>Canis lupus familiaris</i>	x			LC
2.	Cat	<i>Felis silvestris catus</i>	x			LC
3.	Rat	<i>Rattus</i>	x			LC

Birds			
No.	Common Name	Scientific Name	Listing
			IUCN Red list
1	Dalmantian Pelican	<i>Pelecanus Crispus</i>	VU
2	Eurasian Curlew	<i>Numenius arquata</i>	NT
3	Curlew Sandpiper	<i>Calidris Ferruginea</i>	NT

Reptile			
No.	Common Name	Scientific Name	Listing
			IUCN Redlist
1	Indian spiny-tailed lizard	Uromastyx hardwickii	VU
2	Oriental Garden Lizard	Calotes versicolor	LC
3	Sindh Gecko Lizard	Crossobamon orientalis	
4	Saw Scaled Viper	Echis	LC

Legends: VU=Vulnerable, LC= Least Concern, NT=Near Threatened

4.5 Social Environment **

The nearest settlement i.e., Dur Muhammad Goth is 0.8 km away from the project site and no settlement is present within the Aol of the project. The community does not have any social affiliation with the project site. The site is neither used for accessibility nor there is any socioeconomic activity in the project zone. Furthermore, there is no cultural or religious site in the project area. The project area is maintained by KW&SB and there are no ownership rights of the community.

However, the National Highway link road shall be used for the mobility of the construction vehicles which may induce localized traffic issues. The public consultation meetings were conducted in this regard and the community has been agreed to cooperate during the period of construction in view of the long-term advantages of the project. The detailed findings of consultation meetings are given in the next section.

5. Stakeholder Engagement

5.1 General

This section describes the outcomes of the public consultation sessions held with different stakeholders that may be directly or indirectly affected by the proposed project.

5.2 Objectives and Principles of Consultation

The consultation process provides a mechanism through which information relevant to the project is disseminated to the stakeholders and their views and concerns related to the project are obtained. This participation is necessary because it paves a pathway between the implementing agency and the public and enables the provision of much needed local knowledge and indigenous know-how which must be integrated into the project design.

The stakeholders including government representatives and other regulators were consulted to appraise them and discuss the environmental and social perspective of project activities. Their valuable concerns and suggestions were noted and thereafter incorporated in the Environmental and Social Management Plan.

The consultation process was carried out in accordance with the requirements of World Bank Guidelines and Pakistan Environmental Procedures. The objectives of this process are to:

- Inform the public about the proposed project.
- Identify and involve all stakeholders, in the consultative and participation process;
- Share information with stakeholders on the construction of the proposed project and expected impacts on the physical, biological and socio-economic environment;
- Understand stakeholders' concerns regarding various aspects of the project, including the existing available facilities and the likely impacts of construction related activities and operation of the Project;
- ;
- The consultation process is transparent. Information is available to stakeholders about relevant aspects of the process, stakeholder engagement, stakeholder input, consultation outcomes, and how stakeholder input is used;
- Provide an opportunity to the public to provide valuable suggestions in the project design in a positive manner; and
- Reduce the chances of conflict through the early identification of controversial issues and consult them to find acceptable solutions.

5.3 Methods of Public Consultation

Public Consultations were carried out in order to establish stakeholder's opinion regarding project implementation. The following methods were used for public consultation and stakeholder's participation as shown in **Figure 5.1**

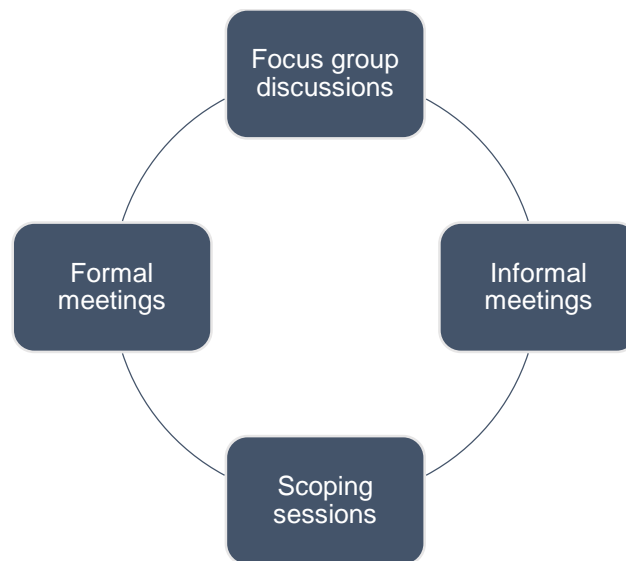


Figure 5. 15: Methods of Public Consultation

5.4 Identification of Stakeholders

The project site is in the remote area with no settlements nearby. Furthermore, the project site is not used by the people for crossing the river neither there are any social or cultural activities. The **Figure 5.2** presents the distance of nearby settlements from the project site. Efforts were made to engage the nearest communities to record their views related to the project.

The study team contacted all the stakeholders and assessed their views and concerns with respect to implementation of the Project. The following categories of stakeholders were identified:

- Institutional Stakeholders;
- Local community (including Women and vulnerable persons (if any));
- Commuters/ road users;
- Local business owners.

Table 5.1: Distance of settlements from project location

Settlements	Road Distance (meter)	Arial Distance (meter)
Saleh Muhammad Jhokio	1500	1150
Cattle Farms	3000	2200
Haji Yousaf Goth	1150	825
Dur Muhammad Goth	1400	700
Haji Somaar Goth	900	850

5.5 Findings of Consultation Meetings

As described in section 5.4, communities are away from the project area and local community does not use the area for commuting/transportation. However, consultations

were conducted in the nearest residential area to access the views and recommendation of the nearby community.

Findings of consultation meetings with community are summarized in the **Table 5.1** and that with the Institutional Stakeholders are summarized in **Table 5.2**:

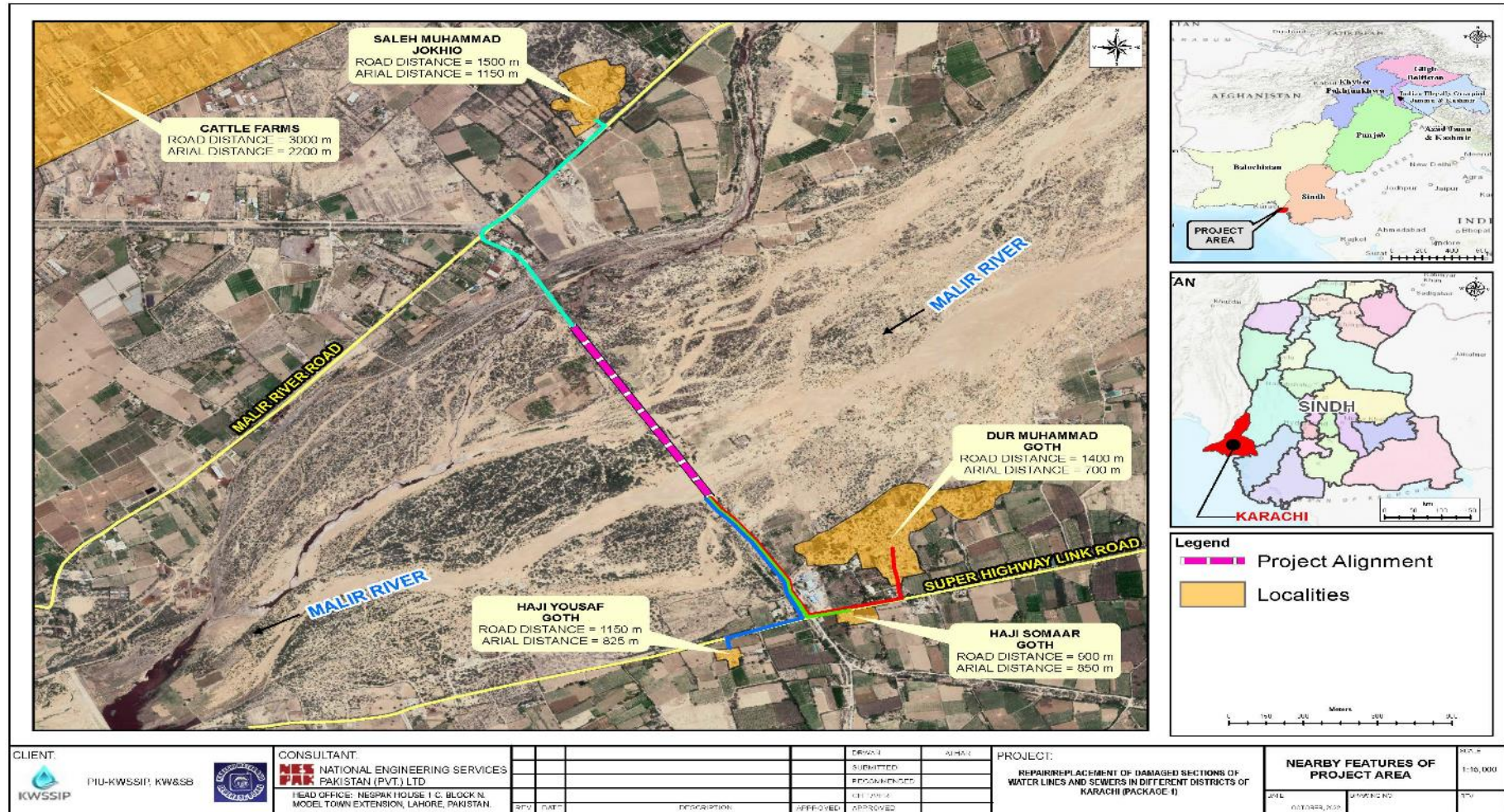


Figure 5.16: Nearby Settlements/ Communities of the Project Area

Table 5.2: Findings of Consultation Meetings with Community

Sr. No.	Location	Date / Time	Venue	No of Participants	Views	Responses
1	Haji Somar Goth	11-11-2022 02:00 pm	Residential area	07 females	<ul style="list-style-type: none"> • The community females explained; • Mostly women work in the fields. Their fields are on rent and after six (6) months of farming whatever income is generated, they pay rent for the field and the remaining amount is for them. • There is no direct connection of water lines from Karachi Water and Sewerage Board in their houses. They have connected pipes from a station of KW&SB which is a near their houses. • The water is contaminated with sewage and sometimes they cannot use it for cooking purpose. • They have to walk for around 15- 20 minute to fetch drinkable water for them. • There is no sewerage system in their area. They have their own septic tank. But when they are full its smell is unbearable for them, they have to pay to get them empty. Every household pays PKR 1000 to get the septic tank emptied. • They get infected from fungal infection, diarrhea, stomach pain, flue and cough very frequently. • No NGO is working within the community • There is a strong need of proper water supply and sewerage systems in the area. People showed their concern on the health issues and spread of disease because of these problems. 	<ul style="list-style-type: none"> • Water and sewerage related issues are being resolved under several proposed projects of KWSSIP in different phases. • The proposed project activities will not disturb you're the routine activities.

Sr. No.	Location	Date / Time	Venue	No of Participants	Views	Responses
2	Durr Muhammad Goth	02-11-2022 04:00 pm	Office of MNA Abdul Hakeem Baloch	12 persons	<ul style="list-style-type: none"> The male community members explained; These kind of protection works have also been conducted in the past. However, the only possible solution is the construction of weir. The weir will protect the existing KW&SB conduits. 	<ul style="list-style-type: none"> The study team shared the proposed design with them and they appreciated the approach and design of the consultants.
3	Durr Muhammad Goth	04-10-2022 02:30 pm	Near project site	06 persons	<ul style="list-style-type: none"> The community has nothing to do with the project area and any activity if executed in this area will not affect them. 	<ul style="list-style-type: none"> Maximum efforts will be made to keep the project activities confined in the right of way.
4	Haji Yousaf Goth	12-10-2022 01:30 pm	Local Tuck Shop	03 persons	<ul style="list-style-type: none"> The conduit is away from the community and the people will not face any issue during the implementation of project. 	<ul style="list-style-type: none"> The study team reconfirmed that the community is not going to be affected by the proposed project activities.
5	Durr Muhammad Goth	12-10-2022 02:30 pm	Tea Hotel	12 persons	<ul style="list-style-type: none"> The primary source of water in Malir Naddi is rain water. The groundwater of the project area is sweet/ drinkable and is available at the depth of 30-35 feet. The project area is away from the community and people will not face any kind of issue. 	
6	Durr Muhammad Goth	14-10-2022 04:00 pm	Near GK Conduit	05 persons	<ul style="list-style-type: none"> The locals did not show any apprehensions regarding the proposed project. 	

Table 5.3: Findings of Consultation Meetings with Institutional Stakeholders

Sr. No	Department	Participants	Points of Discussion	Response
1	KW&SB	Project Manager 84” Conduit, KW&SB Senior Engr., NESPAK Junior Engr., NESPAK	Study team apprised the proposed project activities and asked for the views regarding environmental and social aspects of the project. <ul style="list-style-type: none"> The recent floods have exposed the GK conduit 	The KW&SB representative added the following information: <ul style="list-style-type: none"> Four water mains originating from Kirther traverses through the project area. 36” line is currently, non-functional. Protection works should be carried on emergency bases. 84” main is a pipeline project and will be laid with these existing lines.
2	K. Electric	Public Relations Officer, K. Electric Senior Engr., NESPAK Junior Engr., NESPAK	Study team apprised the proposed project activities and asked for the views regarding environmental and social aspects of the project. <ul style="list-style-type: none"> The electricity poles in the ROW might need to be relocated. 	<ul style="list-style-type: none"> K. Electric will assess the cost of relocation and will share the cost accordingly.
3	Sindh Environmental Protection Agency (SEPA)	Deputy Director Technical, SEPA Environmental Specialist, PIU Sr. Engr., NESPAK	<ul style="list-style-type: none"> Discussion on the required instruments to be prepared for No Objection Certificate PIU shared the required information 	<ul style="list-style-type: none"> SEPA demanded the description and cost of the projects to identify the instrument to be prepared for the project to get no

				<p>objection certificate from SEPA</p> <ul style="list-style-type: none"> • A detailed presentation on Malir protection works was delivered and it was decided that the proposed project activities are repair/ rehabilitation works and it does not fall in any of the category in Schedule I, II and III of SEPA EIA guidelines therefore, no document will be submitted to SEPA.
5	Irrigation	<p>Additional Secretary Technical, Irrigation Department Senior Engr., NESPAK</p>	<p>Study team described the project location and proposed activities to Additional Secretary and inquired about their apprehensions/ suggestions regarding the project;</p>	<ul style="list-style-type: none"> • Additional Secretary was of the view that the upstream of the project area is under the jurisdiction of Chief Engineer Small Dams, Hyderabad. • However, the project site is maintained by KW&SB, therefore, Irrigation Department and Small Dams Authority have no issues in the execution of the proposed project.

5	Forest	District Forest Officer, Social wing, Forest Department Senior Engr., NESPAK Social/ Gender Specialist., NESPAK)	Study team described the project location and proposed activities to DFO and inquired about their apprehensions/ suggestions regarding the project	<ul style="list-style-type: none"> • DFO apprised Prosopis Juliflora is found in abundance in the project area and is used as a fuelwood specially in Sindh. • If any shrub (i.e., Prosopis Juliflora) cutting activity is involved then the proponent should submit an Independent Assessment Report to forest department. After submission of the report, the department will assess the total damage and calculate the compensation cost.
6	Fisheries	Director General, Fisheries Department Senior Engr., NESPAK	Study team described the project location and proposed activities to Director General and inquired about their apprehensions/ suggestions regarding the project;	Director General Fisheries mentioned that Malir river is non- perennial and hence there are no fish species or aquatic life in the project area. However, fish do come with the flood for small duration of time.
7	Mines and Mineral Department	SDO Mines & Minerals, PE, NESPAK SE, NESPAK	Study team described the project location and proposed activities to SDO and inquired about their apprehensions/ suggestions regarding the project;	The SDO identified four sites for both sand and soil namely; Kalu Naddi, Run pathani, Jo Shahi Dam and Nooriabad.

			<p>Furthermore, the feasible site options for quarry sites were enquired and NOC requirements were discussed</p>	<p>Adequate quantities of soil and sand are available and can be borrowed. The department has leased all the sites.</p> <p>The construction contractor can directly purchase the materials from vendors</p> <p>No NOC shall be required from the department in this regard</p>
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Photolog of Public and Department Consultation is attached as **Annex-II**.

5.6 Disclosure

Key features of this ESMP have already been shared with the stakeholders during consultation meetings. However, following steps will be undertaken for disclosure of this ESMP.

The Final ESMP after approval from WB will be disclosed on KWSSIP website in the shape of booklet that will serve to inform the stakeholders about key aspects of the project. For this purpose, an information booklet having summary of impacts, grievance redress mechanism, institutional arrangements for implementation of ESMP will be prepared. The information will be translated into Urdu and distributed in form of brochures.

6. Impacts and Mitigations

The reconnaissance field visit was carried out to assess the socio-environmental impacts of the activities being undertaken to restore the existing protection works for GK Conduit, K-II, K-III, 84" diameter balance main at Malir River bed. A checklist showing a rapid assessment of potential social and environmental impacts, mitigation measures and residual impacts after the mitigation is given in **Table 6.1**. It reveals that the project activities will not cause significant disturbance and inconvenience to the local community and natural environment of the area. All the impacts, which have been identified during the reconnaissance, are associated with the construction phase and mild to moderate in severity and can easily be mitigated through planning or through adopting appropriate management measures that are included in this ESMP. The minor impacts can be resolved through the best management practices. The social impacts such as setting up camp or hiring of laborers will be mitigated according to applicable policies and procedures. The socioeconomic conditions of the proposed project area will be positively improved due to the project implementation. The sub-project will be highly beneficial for enhancing infrastructure's protection against floods.

The nature and scope of the construction activities would bring a number of the associated potential social and environmental impacts. The laborers are expected to be recruited largely from nearest communities which will enhance economic opportunity for them. Potential impacts include location and management of work camp, haul roads and disturbance issues relating to dust, noise and vibration, procurement of construction materials, liquid discharges, waste collection, and storage. The campsite and stone stacking area will be marked on proposed project site. Construction related impacts are heavily dependent on contractor's work. Contractor is liable to ensure contractor's social obligation. These impacts are of routine nature during construction activities and easily manageable. **Table 6.1** presents checklist for sitting related issues.

Impacts Rating

Minor/ Small: an impact for which no mitigation is necessary

Medium: an impact that requires effective mitigation

Significant/ Large: an impact, which, if not mitigated, could stop the Project from proceeding

Table 6.1: Screening Checklist, Mitigation Measures and Residual Impacts

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
A.	Zoning and Land Use Planning						
1	Will the proposed project proposed project affect land use zoning and planning or conflict with prevalent land use patterns?		✓			<ul style="list-style-type: none"> • Contractor to minimize the area and amount for excavation. • Careful selection of borrow areas with Engineer's approval. • Leveling and restoration of borrow pit area. • Ensuring that cultivated areas are not used to the possible extent as borrow areas. 	<ul style="list-style-type: none"> • As the proposed project involves the restoration of existing protection works, therefore, it will not affect land use zoning and planning. • Mitigation measures associated with borrow area selection and management will adequately address potential impacts. Residual impacts are likely to be insignificant.
2	Will the proposed project proposed project involve significant land disturbance or site clearance?			✓		<ul style="list-style-type: none"> • Leveling and restoration of site by the contractor. • Careful selection of borrow areas with Engineer's approval. • Leveling and restoration of borrow pit area. 	<ul style="list-style-type: none"> • The existing protection works are to be restored; it will require the removal of some vegetation but will not lead to significant land disturbance. • The contractor will dispose of the demolition waste of the coffer dam at the approved dumping site Mitigation measures associated with borrow area selection and management will

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
							adequately address potential impacts. Residual impacts are likely to be insignificant.
3	Will the proposed project land be subject to potential encroachment by urban or industrial use or located in an area intended for urban or industrial development?	✓				-	<ul style="list-style-type: none"> The proposed project does not have any potential encroachment by urban or industrial use and is located in remote area within riverbed.
B	Utilities and Facilities						
4	Will the proposed project require the setting up of ancillary facilities?			✓		<ul style="list-style-type: none"> Designated area for the construction camp. Awareness raising of laborers. Campsite restoration after completion of the project. 	<ul style="list-style-type: none"> Proposed project will require only the setting up of the labor camps and no ancillary facilities by the contractor/ department are required.
5	Will the proposed project make significant demands on utilities and services?		✓			<ul style="list-style-type: none"> Water will be obtained from sources approved by the Engineer and PIU, ensuring that there is no impact on existing users particularly nearby communities 	<ul style="list-style-type: none"> There will be no significant demands on utilities and services as the proposed project involves mainly earth/ stonework

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
6	Will the proposed project require significant levels of accommodation or service amenities to support the workforce during construction (e.g., the contractor will need around 50 workers)?			✓		<ul style="list-style-type: none"> The designated campsite to be selected in consultation with relevant communities. Code of conduct for workers. On-going community liaison. Campsite restoration after completion of the project. 	<ul style="list-style-type: none"> Proposed project involves civil works containing earth and stone and it will not require the number of workers to be accommodated.
C	Water and Soil Contamination						
7	Will the proposed project require large amounts of raw materials or construction materials?			✓		<ul style="list-style-type: none"> Designated site on the existing embankment for stone stacking. Soil to be obtained from borrow areas approved by Engineers and PIU. 	<ul style="list-style-type: none"> Actual required quantities will be obtained from the designated sites and no raw materials will be wasted. Raw materials or construction materials to be used in the proposed project will be stored within Aol at the site. Some quantity of raw material will also be used directly.
8	Will the proposed project generate large amounts of residual wastes, construction material waste or cause soil erosion?		✓			<ul style="list-style-type: none"> Contractor will remove any leftover construction material/wastes from the construction sites/ camps and will disposed to the approved government site of GoS. 	<ul style="list-style-type: none"> The material used in the restoration of protection works will be directly used at the site so it will not generate large quantities of waste or cause soil erosion.

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
					<ul style="list-style-type: none"> • Slope protection measures will be taken to avoid soil erosion. • Embankments will not be left un-compacted during construction works. • Protective measures will be taken to control erosion of stacked soil. 	<ul style="list-style-type: none"> • The residual impacts of using construction materials will be insignificant. 	
9	Will the proposed project result in potential soil or water contamination (e.g., from oil, grease, and fuel from equipment yards)?			✓	<ul style="list-style-type: none"> • Usage of concrete base or drip pans to avoid oil and grease spills; • Appropriate sewage disposal from construction camps and offices. • Appropriate disposal of solid wastes including hazardous wastes. 	<ul style="list-style-type: none"> • The proposed project involves civil works containing earth/ stone and it will be directly used at the site. • Most of the raw materials are not expected to contaminate the soil and water. 	
10	Will the proposed project lead to contamination of ground and surface waters by herbicides for vegetation control and chemicals (e.g., calcium chloride) for dust control?	✓			<ul style="list-style-type: none"> • No herbicides will be used during the proposed activities. • Dust will be controlled by water sprinkler. • Covering of tarpaulin (fabric sheet) on tractor trolleys to avoid dust. 	<ul style="list-style-type: none"> • Proposed project involves civil works containing earth and stone and does not involve herbicides or chemicals therefore; it will not lead to ground and surface water contamination. 	
11	Will the proposed project lead to an increase in suspended sediments in streams affected by road cut erosion,			✓	<ul style="list-style-type: none"> • The contractor will not leave any earthwork without compaction. 	<ul style="list-style-type: none"> • The proposed project will not lead to an increase in suspended sediments in streams affected by road cut erosion, as it 	

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
	decline in water quality and increased sedimentation downstream?					<ul style="list-style-type: none"> • Slopes and loose material will be protected against any soil erosion. • The borrow areas will be reinstated and no loose soil will be left there. • Best management practices will be exercised. • Awareness raising of labors for taking care of water quality. 	involves civil work on existing protection works. After adopting mitigation measures, the residual impacts will be insignificant.
12	Will the proposed project involve the use of chemicals or solvents?	✓				-	<ul style="list-style-type: none"> • No chemicals will be used except the fuel of vehicles which will be procured as and when required.
13	Will the proposed project lead to the destruction of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards?			✓		<ul style="list-style-type: none"> • Selecting borrow pits and construction camps in areas that do not support valuable vegetation/tree cover. • Leveling and restoration of borrow pits area. • Strictness on digging of earth in the right-of-way. • Designated site stone stacking/ equipment yard. 	<ul style="list-style-type: none"> • Barren land to extract soil for civil work on existing flood embankment is available and it will be managed according to the specification. There will be removal of vegetation which can be managed but the proposed project will not lead to the destruction of large-scale vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards.

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
14	Will the proposed project lead to the creation of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors?		✓			<ul style="list-style-type: none"> Excavation at borrow areas will be limited to 1-meter maximum. Proper leveling and dressing of the borrow sites. If contractor fails to level the borrow area, the cost equivalent to restore the borrow area will be deducted from contractor's bill and used to level the unattended borrow area. No depressions and pits will be left unattended. They will be filled and levelled at borrow areas as well as the worksite to avoid accidents. 	<ul style="list-style-type: none"> After implementation of mitigation measures, the residual impact would be insignificant.
D.	Noise and Air Pollution Hazardous Substances						
15	Will the proposed project increase the levels of harmful air emissions?			✓		<ul style="list-style-type: none"> Sprinkling of water particularly near communities to avoid air pollutants. Prohibition on the burning of waste/ fuel wood will protect air emissions. Labor will be provided with masks and other PPEs 	<ul style="list-style-type: none"> Proposed project is away from the populated area and simple earth-moving machines/ compactors are involved in the restoration of flood structure, so it will not increase harmful dust.

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
16	Will the proposed project increase ambient noise levels?		✓			<ul style="list-style-type: none"> Nighttime traffic will be avoided particularly near communities. Vehicles, generators, and construction machinery will have standard noise suppression devices. (silencers or muffles). Labor will be provided with earmuffs and other PPEs 	<ul style="list-style-type: none"> As the proposed project is away from the populated area and simple earth-moving machines/ compactors are involved in civil works, so there will be very little increase in noise level
17	Will the proposed project involve the storage, handling or transport of hazardous substances?			✓		<ul style="list-style-type: none"> Maintenance of vehicles and other equipment will be done only in nearby workshops. Fuel for machines/ vehicles will be collected from the nearby petrol pump. If on-site storage is done, relevant safety codes will be followed. Used oils will be collected and given away to recyclers. No hazardous effluents will be released into the ground. 	<ul style="list-style-type: none"> After mitigation measures, the residual impacts will be insignificant.

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
18	Will the construction activities cause safety and health hazard for the nearby population?			✓		<ul style="list-style-type: none"> • Implementing relevant safety codes. • Preparation of safety plan. • Proper marking and placing of sign boards at site and approach roads particularly near communities. • Informing communities and maintaining liaison. • Awareness raising for drivers to follow rules (daily check and watch) on access roads. • Sprinkling of water to avoid air pollutants. • Fencing of construction sites to stop unauthorized personnel from entering the work areas. • Protective equipment for construction workers. • The safety protocols related to working at height shall be followed while working near deep excavations. 	<ul style="list-style-type: none"> • All the activities in the proposed project will be in safety procedures (measures), so there will be no safety and health hazard issues for the nearby population. • After implementation of safety measures, the residual impacts will be insignificant.

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
19	Will the construction activities cause safety and health hazard for the construction workers				✓	<ul style="list-style-type: none"> • Preparation and implementation of OHSMP • Proper marking of safety sign at site. • Ensure use of personal protective equipment (PPE) by all site personnel. • Arranging medical treatment (first aid) facility. • Safety trainings for workers. • During hot summer days, the workers will be provided with cold drinking water, shelter for resting, arrangement of electric fans in the camps. They will be given adequate rest breaks and will be advised to cover their bodies to avoid heat strokes. 	<ul style="list-style-type: none"> • Simple earth/stonework is involved in the proposed project. The contractor will set up a small camp in the designated area. After implementing the safety codes, the residual impacts will be insignificant.
E.	Fauna and Flora						
20	Will the proposed project involve the disturbance or modification of existing drainage channels (rivers,			✓		<ul style="list-style-type: none"> • The careful usage of the borrow area. • Leveling of the area after usage to avoid potential impacts. 	<ul style="list-style-type: none"> • The proposed project involves the restoration of existing protection works, it will not lead to disturbance or modification

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
	canals) or surface water bodies (wetlands, marshes)?						of existing drainage channels or surface water bodies.
21	Will the proposed project lead to the destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?		✓			<ul style="list-style-type: none"> The borrow areas will be selected in a manner to avoid potential impacts. Hunting and poaching will not be allowed. Ensure safety to the habitat of fauna. Minimal vegetation clearance (if required). 	<ul style="list-style-type: none"> The proposed project does not have an area for terrestrial or aquatic ecosystems or endangered species, so restoration works will not lead to its destruction or damage. After mitigation measures, the residual impacts would remain as minor adverse.
22	Will the proposed project lead to the disruption/destruction of wildlife through interruption of migratory routes, disturbance of wildlife habitats, and noise-related problems?		✓			<ul style="list-style-type: none"> The borrow areas will be selected in a manner to avoid potential impacts. The Contractor will propose the site and engineer/PIU/Design & Supervision consultants will review and approve the site. Avoid hunting and poaching Ensure safety to habitat of fauna. Minimal vegetation clearance (if required). 	<ul style="list-style-type: none"> Restoration work not lead to disruption/ destruction of wildlife and interruption of migratory routes. After mitigation measures, the residual impacts would remain as minor adverse.
F.	Destruction/Disruption of Land and Vegetation						

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
23	Will the proposed project lead to unplanned use of the infrastructure being developed?	✓				-	<ul style="list-style-type: none"> The proposed project will not lead to unplanned development as it is restoration work on existing structures
24	Will the proposed project lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?			✓		<ul style="list-style-type: none"> Borrow areas will be selected in a manner not to affect any valuable land. The Contractor will propose the site and engineer/PIU/Design & Supervision consultants will review and approve the site. Leveling and restoration of equipment yard/ borrow pits area. Strictness on the digging earth in the right-of-way. 	<ul style="list-style-type: none"> The borrow pit area will be on barren land, so it will not lead to long-term or semi-permanent destruction of soils.
25	Will the proposed project lead to the interruption of subsoil and overland drainage patterns (in areas of cuts and fills)?			✓		<ul style="list-style-type: none"> The borrow areas will be selected in a manner to avoid potential impacts including subsoil degradation, change overland drainage patterns, erosion and topographical changes. 	<ul style="list-style-type: none"> Existing protection works do not involve any cuts and fill, so it will not lead to interruption of subsoil and overland drainage patterns.

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
26	Will the proposed project lead to landslides, slumps, slips and other mass movements in road cuts?			✓		<ul style="list-style-type: none"> Contractor will not leave any earthwork without compaction. Protection of slopes against any soil erosion. Levelling of the borrow areas to avoid unattended loose soil. Repair and maintenance of roads by the contractor. 	<ul style="list-style-type: none"> The restoration work on protection works will not lead to landslides, slumps, slips, and other mass movements in road cuts.
27	Will the proposed project lead to erosion of lands receiving concentrated outflow carried by covered or open drains?	✓				<ul style="list-style-type: none"> Waste effluents from works camp will be released in a manner not to cause any soil or land erosion. 	<ul style="list-style-type: none"> It will be ensured that contractor would arrange its own camp facilities.
28	Will the proposed project lead to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles?		✓			<ul style="list-style-type: none"> Sprinkling of water to avoid dust emissions. Covering tractor trolleys by a polypropylene (or similar) sheet. 	<ul style="list-style-type: none"> The proposed project will not lead to health hazards and interference with plant growth adjacent to roads etc. After the implementation of safety measures, the residual impacts will be insignificant.
G.	Cultural Property						
29	Will the proposed project have an impact on archaeological or historical sites, including historic urban areas?	✓				-	<ul style="list-style-type: none"> In the vicinity of the proposed project, there is no archaeological or historical site

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
30	Will the proposed project have an impact on religious monuments, structures and/or cemeteries?	✓				-	<ul style="list-style-type: none"> The proposed project area does not have any religious monuments, structures and/or cemeteries
31	Have Chance Finds procedures been prepared for use in the proposed project?	✓				<ul style="list-style-type: none"> In case of detecting any archaeological artifact, structure or tomb, the contractor will be required to immediately stop all works at the site and brief the Engineer and PIU about the site. Upon receiving information from the contractor, the Engineer will bring up the issue and notify the Archaeological Department within one working day. In the event of chance finding, the contractor has to secure the site against any intrusion until the Archaeological Department decides further action. 	<ul style="list-style-type: none"> Operational manual for implementation of work will be utilized.
H.	Expropriation and Social Disturbance						

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
32	Will the proposed project involve land expropriation or demolition of existing structures?	✓				<ul style="list-style-type: none"> The borrow areas will be selected in a manner to avoid potential impacts. Leveling and restoration the of borrow pit area. 	<ul style="list-style-type: none"> The proposed project will be undertaken on state / Government land.
33	Will the proposed project lead to induced settlements by workers and others causing social and economic disruption?	✓				<ul style="list-style-type: none"> Local workers will be hired instead of others. The contractor staff will reside in a camp at least 500 m away from any settlement. 	<ul style="list-style-type: none"> After the implementation of mitigation measures, the residual impacts will be insignificant.
34	Will the proposed project lead to environmental and social disturbance by construction camps?			✓		<ul style="list-style-type: none"> Camp site workers will be provided with washing, bathing, and, latrine facility to avoid water contamination. Tree cutting will not be allowed. Designated campsite site as indicated on the map. Use of local laborers. Avoid unnecessary interaction of laborers with the local community. 	<ul style="list-style-type: none"> Proposed project is away from the settlement and population. Workers will be living in the campsite area with a strict watch on them, so it will not cause any annoyance in camp.
G.	Gender-Related Issues						

	Issues	Significance of Potential Impacts before Mitigation				Mitigation Measures	Residual Impacts/
		None	Minor/ Small	Medium	Significant/ Large		
35	Will the construction activities cause safety and health hazard for the females?	✓				<ul style="list-style-type: none"> Community health and safety protocols will be followed according to Health and Safety Management Plan (HSMP). 	<ul style="list-style-type: none"> The project area is away from the residential settlements thus the residual impact is insignificant.
36	Will the proposed project cause safety issues for women when hiring labor from outside?	✓				<ul style="list-style-type: none"> Workers' code of conduct will be followed by the Contractor. Contractor will provide SOPs and training to male and female works on gender sensitive working environment. 	<ul style="list-style-type: none"> There is no influx of local women in the project area, therefore the residual impact is insignificant.
37	Will the proposed project lead to negative impacts on the daily movement of women?	✓				<ul style="list-style-type: none"> Workers' code of conduct will be followed by the Contractor. The Contractor will train its labors in dealing with women. 	<ul style="list-style-type: none"> The project area is away from the residential settlements thus the residual impact is insignificant.

Table 6.2: Checklist for Siting Related Issues

	Issues	Yes	No	Don't Know	Mitigation Measures	Residual Impacts/Notes
1	Does the proposed project require land acquisition?		✓			As the proposed project is on state land, so it does not require land acquisition.
2	Will the proposed project require permanent or temporary relocation/ resettlement of local people?		✓			The proposed project will not require permanent or temporary relocation/ resettlement of local people.
3	Will any structures or assets e.g., crops be removed or acquired on a permanent or temporary basis?		✓			No structures or assets will be affected by the project activities.
4	Will the proposed project lead to negative impacts on people's daily movements?		✓		The local people will be kept informed about the contractor's machinery movement. The proper traffic signs will be erected at appropriate places.	The proposed project will not affect people's daily movements as it is away from communities.
5	Will the proposed project negatively impact livelihoods [Note: Describe separately if YES]		✓			The proposed project will not affect livelihoods rather it will create a positive impact by involving the local public in the project activity as labors (semi-skilled or unskilled).
6	Is the sub-project located on land with contested ownership?		✓			The proposed project is located on state land.

	Issues	Yes	No	Don't Know	Mitigation Measures	Residual Impacts/Notes
7	Is the sub-project located on land reclaimed from floods (the ownership here may be contested)		✓			The proposed project is on existing protection works which are being restored.
8	Is the proposed project located in an area with designated natural reserves?		✓			The proposed project is not located in the designated natural reserve area.
9	Is the proposed project located in an area with unique natural features?		✓			The proposed project does not have an area with unique natural features.
10	Is the proposed project located in an area with endangered or conservation-worthy ecosystems, fauna or flora?		✓			The proposed project does not have an area with endangered or conservation-worthy ecosystems, fauna or flora.
11	Is the proposed project located in an area falling within 500 meters of national forests, protected areas, wilderness areas, wetlands, biodiversity, critical habitats, or sites of historical or cultural importance?		✓			The proposed project does not come in an area falling within 500 m of national forests, protected/ wilderness areas, wetlands, bio-diversity, critical habitats, or sites of historical or cultural importance.
12	Is the proposed project located in an area which would create a barrier for the movement of conservation-worthy wildlife or livestock?		✓			The proposed project will not disturb the movement of conservation-worthy wildlife or livestock.
13	Is the proposed project located close to groundwater sources, surface water bodies, water courses or wetlands?	✓			Execution of work before the monsoon season. Avoid slipping of material into water resources. Avoid bathing and washing.	The proposed project is the restoration of existing protection works and will not lead to any disturbance. After the implementation of mitigation measures, the residual impacts will be insignificant.

	Issues	Yes	No	Don't Know	Mitigation Measures	Residual Impacts/Notes
14	Is the proposed project located in an area with designated cultural properties such as archaeological, historical and/or religious sites?		✓			There are no archaeological, historical, or religious sites in the vicinity of the proposed project.
15	Is the proposed project in an area with religious monuments, structures and/or cemeteries?		✓			The proposed project area does not have any religious monuments, structures, and/or cemeteries.
16	Is the project located in an area from where people have been displaced?		✓			The proposed project area does not have displaced people.
17	Is the project located in an area where Internally Displaced Persons (IDPs) are temporarily settled?		✓			The proposed project is not located in an area where IDPs are temporarily settled.
18	Is the project in a politically sensitive area?		✓			The proposed project is not in a politically sensitive area.
19	Is the proposed project in a polluted or contaminated area?		✓			The proposed project is not in a polluted or contaminated area.
20	Is the proposed project located in an area of high visual and landscape quality?		✓			The proposed project is not located in an area of high visual and landscape quality.
21	Is the proposed project located in an area susceptible to landslides or erosion?	✓			Erosion control measures will be implemented.	Restoration/ protection work on existing protection works does not have landslides or erosion problems.
22	Is the proposed project located in an area of seismic faults?		✓			The proposed project is not very much prone to seismic faults.
23	Is the proposed project located in a densely populated area?		✓			The proposed project is not in a densely populated area.

	Issues	Yes	No	Don't Know	Mitigation Measures	Residual Impacts/Notes
24	Is the proposed project located on prime agricultural land?		✓		Borrow areas will not be located in cultivated lands.	The proposed project is being restored as a protection works, so prime agricultural land is not involved.
25	Is the proposed project located in an area of tourist importance?		✓			The proposed project is not located in an area of tourist importance.
26	Is the proposed project located near a waste dump?		✓			The proposed project is not located near a waste dump.
27	Does the proposed project have access to potable water?	✓			-	The proposed project has access to potable water.
28	Is the proposed project located far (1-2 kms) from accessible roads?	✓			-	The proposed project is around 1 km away from the national highway link road.
29	Is the proposed project located in an area with a wastewater network?		✓			No wastewater network is present in the vicinity of the project.
30	Is the proposed project located in the urban plan of the city?		✓			The proposed project is outside the urban plan of the city.
31	Is the proposed project located outside the land use plan?	✓			-	The proposed project is located outside the land use plan.

7. Environmental & Social Management & Monitoring Plan

7.1 General

This section provides the measures to be adopted during each phase of the project to avoid, contain, mitigate or compensate the potential impacts identified in **Section 6**. Environmental & Social Management and Monitoring Plan (ESMMP) is the major part of this section and forms the gist of this study. ESMMP not only includes Best Management Practices (BMPs) but also includes Monitoring Indicators, frequency, responsibility, and estimated Environmental Budget. A summary of the mitigation measures for potential impacts is also given in this section to support ESMP. Moreover, the framework for the implementation of ESMP has been discussed in this section.

7.2 Objectives of ESMP

The main objectives of ESMP are to:

- Provide details of the project impacts along with the proposed mitigation measures and the corresponding implementation activities;
- Define the roles and responsibilities of the Project Proponent, Contractor, Supervisory Consultants, and other players and effectively communicate environmental issues among them;
- Define a monitoring mechanism, and reporting frequency and identify monitoring parameters to ensure that all the mitigation measures are completely and effectively implemented, and identify the resources required to implement the ESMP and outline the corresponding financing arrangements.
- Ensure that the project will adopt COVID-19 best international practice during the construction and operational phases.

7.3 Implementation Of Environmental and Social Management And Monitoring Plan (ESMMP)

The institutional arrangement for the implementation of ESMMP for proposed rehabilitation works is presented in **Figure 7.1**. The proponent PIU-KWSSIP will be responsible for compliance with the environmental and social safeguard requirements of the proposed project.

The proposed project activities will be monitored and managed by the PIU-KWSSIP. The Environmental and Social Cell (ESC) staffed by qualified environmental and social specialists has already been established under PIU-KWSSIP. The ESC will be the custodian of the ESMMP. ESC will support ensuring the compliance of ESMMP. ESC will submit the progress report for the

implementation of the ESMMP to WB and SEPA as per environmental approval/ NOC conditions for the KWSSIP.

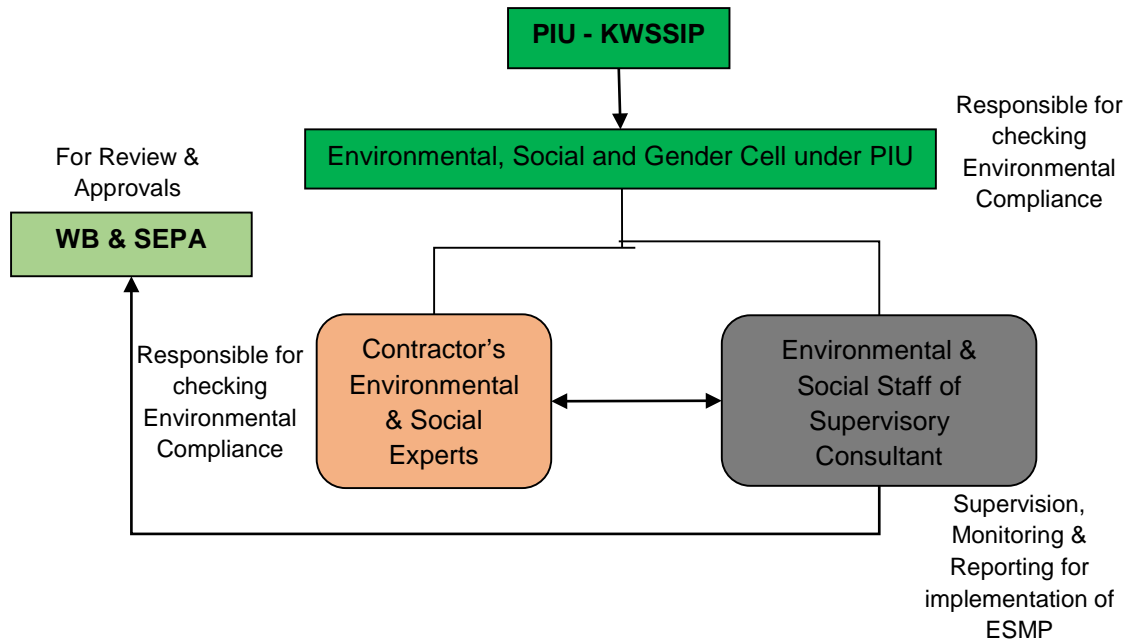


Figure 7.1: Organizational Setup for implementation of ESMMP

7.3.1 Roles and Responsibilities of the Functionaries involved in ESMMP Implementation

A. Sindh Environmental Protection Agency (SEPA)

As per Sindh Environmental Protection Act, 2014, SEPA is responsible for environmental protection and pollution control. The SEPA is responsible for the approval of the environmental documents of all the developmental projects under their jurisdictions. A meeting was convened with Deputy Director (Technical), SEPA and in view of the limited impacts of proposed rehabilitation works, it was conveyed that SEPA does not require any instrument to be prepared for environmental clearance.

B. PIU-KWSSIP

Project Director of PIU-KWSSIP is the in-charge of the financial and technical matters related to the KWSSIP project. The PD's responsibilities for ESMMP implementation will consist of:

- Ensure that all E&S requirements are fulfilled during all stages of the project
- Ensuring that ESMMP is effectively implemented
- Ensuring that the required E&S training are provided to the concerned PIU staff;

- To carry out random site visits to the construction sites to review the environmental performance of the Contractor;
- Review monitoring reports for the progress of environment-related activities;
- Make sure that the Contractor is implementing the additional measures suggested by the Supervision Consultant (SC) in environmental monitoring reports;
- To assist the Contractor in obtaining necessary approvals from the concerned departments;
- Maintaining interface with the other lined departments/ stakeholders; and
- Reporting to the SEPA on the status of ESMMP implementation.

C. Environmental and Social Cell (ESC)

ESC has already been established in the PIU-KWSSIP. The ESC is responsible to:

- Ensure that all E&S requirements are fulfilled during all stages of the project
- Ensuring that ESMP is effectively implemented
- Supervise SC during construction phase for the ESMP implementation
- Make sure that all the contractual obligations related to E&S compliance are met;
- Monitor the progress regarding the implementation of E&S safeguards as provided in the ESMMP;
- Oversee the compliance of all the monitoring programs as given in ESMMP;
- Check randomly whether monitoring of the E&S aspects of the proposed project during construction and operational phases is being properly carried out;
- Document and disclose monitoring results and identify necessary corrective and preventive actions in the periodic monitoring reports, and make follow-up on these actions to ensure progress toward the desired outcomes;
- Make sure that the contractor implements the additional measures suggested by the SC and PIU; and
- Report the status of ESMMP compliance to the Project Director, PIU-KWSSIP.

D. Supervisory Consultant (SC)

SC will be bound to appoint site-based Environmental and Social personnel with relevant educational backgrounds and experience for KWSSIP. The roles and responsibilities of SC will be:

- To oversee the performance of the Contractor to make sure that the Contractor is complying with ESMMP;
- Ensuring that the day-to-day construction activities are carried out in an environmentally and socially sound, gender sensitive and sustainable manner;
- Strong coordination with the Contractor and PIU-KWSSIP;

- Preparing training materials and implementing programs;
- Ensure the implementation of the mitigation measures suggested in ESMMP;
- To supervise and monitor environmental activities being performed at the site;
- Periodic reporting as mentioned in ESMMP; and
- Suggest any additional mitigation measures (if required).

E. Construction Contractor

Contractors will be bound to appoint site-based Environmental and Social manager with relevant educational backgrounds and experience for KWSSIP. The contractors' Environmental and Social manager will carry out the following activities:

- Implementation of ESMP particularly the mitigation and monitoring plans
- Implementation of the mitigation measures at the construction site;
- Contractor will be bound through the contract to take actions against all the special and general provisions of the contract document;
- Contractor will make sure the compliance of ESMMP recommendations related to construction;
- Provision of proper Personal Protective Equipment (PPE) to the workers and train them for their proper use;
- Compliance with international best SOPs for COVID-19;
- To conduct the environmental and health & safety trainings to the workers/labour; and
- Coordinate with the Environmental Specialist, Gender Specialist Social Development Specialist (SDS) of SC and PIU.

In addition to the above, the CC will also follow the Environmental Code of Practice (ECOPs) attached as **Annex-III**

7.3.2 Institutional Arrangement for Implementation of ESMMP by KW&SB during O&M Phase

The proposed project will be administrated by KW&SB during the O&M phase. The Project Director, KWSSIP with his ESC will be responsible for the following:

- Compliance with ESMMP requirements for O&M phase;
- Coordinating with the operational staff working under the ESC to monitor environmental compliance during project operation;
- Advising on, and monitoring tree plantations along the buffer zone of the project area;
- Reporting on the progress of environmental compliance with the SEPA;
- Assessing the long-term environmental impacts of project operation;

- Sustaining a working partnership among the PIU-KWSSIP, SEPA, Agriculture, Irrigation, Forest and Wildlife departments of Sindh, NGOs and other related public-private sector organizations; and
- Reporting to the Managing Director (MD), KW&SB about the progress of the work.

7.4 Reporting

The contractor will prepare and submit monthly monitoring reports for compliance with implementation to the supervision consultant (SC) environmental team.

The distribution of periodic reports is given in **Table 7.1**.

Table 7.1: Distribution of Periodic Reports

Report	Prepared by	Reviewed by	Distribution
Monthly	Contractor	Reviewed by PIU-Environmental, Gender and Social Unit; KWSSIP	The Engineer and Project Implementation Unit and The World Bank
Quarterly	Contractor	Reviewed by PIU-Environmental, Gender and Social Unit; KWSSIP	The Engineer, Project Implementation Unit, and The World Bank
Final	Contractor	Reviewed by PIU-KWSSIP-Environmental, Gender and Social Unit; KWSSIP	The Engineer, Project Implementation Unit, and The World Bank

7.5 Non-Compliance With the ESMMP

The implementation of the proposed ESMMP involves inputs from various functionaries as discussed earlier. The contractor will be primarily responsible for ensuring the implementation of the mitigation measures proposed in the ESMMP, which will be part of the contract documents. The provision of the environmental mitigation cost will be made in the total cost of the project. However, if the contractor fails to comply with the implementation of ESMMP and submission of the monthly compliance reports, deductions will be made from the payments to the Contractor claimed under the heads of environmental components.

7.6 CONTRACTOR'S ESMP

The contractor will prepare a site-specific Contractor's ESMP (C-ESMP) based on the current ESMP and will get it approved by PIU-KWSSIP before the start of work. This will ensure the implementation of the ESMP based on the site conditions at the time of execution, by the contractor.

The C-ESMP will include following sub-plans:

- Traffic management plan,
- OHS plan,
- Pollution prevention plan,
- Camp management plan

7.7 Inclusion of ESMP in Bidding/ Contract Documents

The present ESMP will be included in the bidding/contract documents and their implementation will be contractual binding for the contractors.

7.8 Environmental and Social Mitigation and Monitoring Plan

Monitoring will be carried out to ensure that the mitigation plans are regularly and effectively implemented. It will be performed at three levels. At the PIU level, the ESC will do ESMMP monitoring to ensure that the mitigation plans are being effectively implemented. The environmental engineer of the Supervision Consultant will regularly monitor the ESMMP implementation by the contractor. At the contractor's level, the environmental monitoring checklist will be filled on daily basis by their environmental manager and countersigned by the engineer (EE) of the Supervision Consultant.

Table 7.2 outlines the parameters that will be monitored, the expected frequencies of monitoring, and the responsible agency for monitoring. The Environmental Monitoring checklist is attached as **Annex-IV**.

Table 7.2: Environmental and Social Mitigation and Monitoring Plan (ESMMP)

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
Pre-Construction / Design Phase							
Engineering Design	Earthquake	<ul style="list-style-type: none"> Seismic provisions in all engineering and structural design will be ensured as per the Seismic Building Code of Pakistan (2007). i.e., manholes, sewer bedding, etc. will be designed with seismic provisions. 	DC, PIU-KWSSIP	Design Parameters as defined by Seismic Building Code	Once (after completion of Detailed Design)	PIU	N/A
	Incompatible layout plans	<ul style="list-style-type: none"> All structural, layout, and engineering designs of the project are in strict accordance with the applicable national and international guidelines/ codes/ standards and engineering practices. 	DC, PIU-KWSSIP	Design provisions	Once (after completion of Detailed Design)	PIU	N/A
	Flooding	<ul style="list-style-type: none"> Water level gauges will be installed by the Contractor at a reasonable distance (approximately 8 km) upstream of the construction site to monitor the flood magnitude that may reach the construction site as well as upstream of the coffer dam; The contractor will make a close liaison with Pakistan Meteorological Department (PMD) for actual rainfall observations at the closest available rainfall gauging station. Data of water level gauges and PMD will be submitted by the Contractor to the Project Manager on daily basis during dry days and a 3-hourly basis during wet days; 	DC, PIU-KWSSIP	Design provisions	Once (after completion of Detailed Design)	PIU	N/A

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
		<ul style="list-style-type: none"> • Flood alert at the site to abstain from working within the river will be issued based on rainfall magnitude observed at the designated gauging station and the water level gauge installed upstream of the construction site. The threshold rainfall magnitude will be defined by the Hydrologists of the Supervision Consultant and the Contractor; • The coffer dam/diversion arrangement has been designed for a 2.33-year return period discharge and the corresponding depth of rainfall is 53.2 mm (2.1 inches) which should be kept as the threshold rainfall. In case the threshold value is recorded at the gauge installed, Emergency Action Plan will be activated and the construction site will be evacuated immediately; The threshold rainfall magnitude will be validated and finalized by the Hydrologists of the Supervision Consultant and the Contractor. • On issuance of a flood alert, the Contractor will evacuate the site on an immediate basis and reinstate the construction activities after the end of that specific flood event. • Upon issuance of a flood alert, the Dur Mohammad Baloch Goth community will be notified as per Emergency Action Plan to follow evacuation procedures. • Contractor should prepare the contractor's Emergency Response Plan as per the 					

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
		<p>framework for Emergency Response Plan (Annex – IX). Contractor’s Emergency Response Plan should be prepared before the start of construction and reviewed and cleared by the Supervision Consultant.</p> <ul style="list-style-type: none"> • Evacuation procedure of the Dur Mohammad Baloch Goth community and communication mechanism should be established and defined in the Contractor’s Emergency Action Plan as per the consultation with Dur Mohammad Baloch Goth community. • For flood vigilance, the following measures will be implemented; • Monitoring of weather forecast / Warnings at the PMD website Monitoring of qualitative weather outlook at; https://ffd.pmd.gov.pk/uploads/flood_bulletin_a.pdf Monitoring of PMD rainfall forecast at; https://ffd.pmd.gov.pk/uploads/flood_bulletin_b.pdf • Contractor camp, construction material, machinery, and site facilities will not be placed in the areas that are prone to flooding / active creeks. • Emergency Response Plan should be displayed at the work site as well as Dur Mohammad 					

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
		<p>Baloch Goth settlement, about 3500 ft upstream of Malir River.</p> <ul style="list-style-type: none"> Flyers will be distributed to raise awareness regarding emergency response. Warning signs of potential flooding will be installed at work sites as well as at Dur Mohammad Baloch Goth community. Warning signs of potential flooding and evacuation procedure will be installed at work sites as well as at Dur Mohammad Baloch Goth community settlement Entry to riverine areas beyond Dur Mohammad Baloch Goth community settlement will be restricted. The community awareness sessions on the potential flooding and mitigations including evacuation drill before and during monsoon seasons at Dur Mohammad Baloch Goth community will be undertaken. 					
Disturbance/ damage to existing infrastructure	Possible disturbance to the public and existing infrastructure	<ul style="list-style-type: none"> Incorporate technical design features to minimize the effect on public utilities including bulk water lines and sewerage lines in the ROW of the project. K-Electric poles are close to the proposed project alignment and hence special attention will be paid to avoid any damage to them. 	DC, PIU- KWSSIP	Design provisions	Once (after completion of Detailed Design)	PIU	N/A
Construction Phase							

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
Establishment of camp and machinery/equipment/stone stacking yard/workshop.	Social conflicts due to the influx of external workforce	<ul style="list-style-type: none"> Establishment of construction camp at the designated area or at the alternative suitable site within Right of Way; Hiring of workforce from local communities; Implementation of Workers' Code of Conduct (see Annex-V) Awareness raising of laborers to ensure respect for local customs. The contractor will adopt environmental code of practices (ECOPs) as Annex-III The contractor will follow the Sanitation Plan attached as Annex-VI 	CC	Camp established at least 500m away from the nearest community; Local hired workforce; Any complaint from the local community.	Fortnightly	SC and PIU	
	Conflicts arising due to the mixing of local and migratory job seekers	<ul style="list-style-type: none"> Preference to provide jobs to local job seekers; Motivation to the workers for good workmanship. 	CC	Jobs given to locals; Any complaint registered.	Fortnightly	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
Workers' safety and hygienic conditions	Health risks due to unsafe and unhygienic living Environment	<ul style="list-style-type: none"> • Contractor will prepare and implement OHSM with the help of an outline Plan given in Annex VII • Provision of Personal Protective Equipment (PPE); • Provision of first aid facilities; • Provision of emergency vehicle; • Safe storage of hazardous material; • Provision of first aid facilities etc.; • The workers will be advised to stay hydrated, avoid dehydrating liquids, wear protective clothing, schedule frequent breaks, use a damp rag, avoid getting sunburn, be alert to signs of heat-related illness, avoid direct sun and eat smaller meals. • Contingency measures in case of accidents; • Obligatory insurance of contractor's staff and laborers against accidents; • Provision of adequate sanitation, washing, lighting, cooking and dormitory facilities. • Implementation of SOPs for COVID-19 attached as Annex-VIII • Provision of fire alarms at the construction camps. • The Emergency Reponses Plan attached as Annex-IX will be adopted. • Implementation of Labor Management Procedures (LMP) 	CC	<p>Healthy environment for workers;</p> <p>Adequate hygienic conditions ;</p> <p>Accident/ Incident reported.</p>	Daily	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
Campsite security	Security hazards Security-related conflicts with the local community	<ul style="list-style-type: none"> • Proper fencing of the campsite; • Deployment of guards for security; • Friendly relations with the local community. • The contractor will adopt environmental code of practices (ECOPs) as Annex-III 	CC	Any security issue emerged.	Monthly	SC and PIU	
Parking/ repair of machinery and equipment	Soil and water contamination due to spillage of liquid wastes (lubricants, fuel, chemicals from the machinery yard)	<ul style="list-style-type: none"> • Proper maintenance of machinery and equipment; • Ensuring proper storage and disposal of used oil etc.; • Ensuring good housekeeping practices at workshop areas; • Avoiding waste oil spills into the soil. 	CC	Any spill observed; Availability of sealed containers for used oils and lubricants; Disposal options (e.g., local vendor) explored.	Daily	SC and PIU	
Operation of diesel-operated generators	Deterioration of air quality; Noise exceeding 85 dB is harmful to receptors	<ul style="list-style-type: none"> • Proper tuning and maintenance of generators. 	CC	Low smoke emissions ;	Daily	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
				Noise levels within permissible limits (75dB at day time and 65dB at night time).			
Use of water for construction and consumption	Conflict with local water demand	<ul style="list-style-type: none"> The contractor to make his own arrangements for water required for construction ensuring that water availability and supply to nearby communities remain unaffected. The contractor will follow the resource conservation plan attached as Annex-X 	CC	Any conflict on the water availability.	Fortnightly	SC and PIU	
Water supply to the labor camp	Water-related health risks (Gastroenteritis, Diarrhea etc.)	<ul style="list-style-type: none"> Provision of safe drinking water supply at the camp as well as at workplaces by the contractor. Ensuring water quality analysis from a certified laboratory. 	CC	Any waterborne disease observed; Water quality reports submitted	Quarterly	SC and PIU	
Sanitation and	Soil and water contamination	<ul style="list-style-type: none"> Avoid the disposal of sewage into adjoining area; 	CC	Monitoring	Monthly	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
wastewater disposal		<ul style="list-style-type: none"> Provision of sewage treatment arrangements such as lined septic tank and collection chamber. 		<p>compliance to Regular disposal of sanitary waste;</p> <p>Photographic record;</p>			
Solid waste generation	Land pollution	<ul style="list-style-type: none"> Ensure proper collection and disposal of waste generated from the camp and excess soil/spoil at a designated disposal pit (away from the camp site on outer side of the flood embankment) approved by the Engineer; Prohibition on burning of waste; Good housekeeping practices to minimize waste generation. The contractor will adopt environmental code of practices (ECOPs) as Annex-III 	CC	<p>Covered disposal containers placed at camp;</p> <p>Designated disposal pit available;</p> <p>Visual inspections.</p>	Weekly	SC and PIU	
Storage, handling, and transport of hazardous materials	Work safety and human health risks	<ul style="list-style-type: none"> Provision of double containment for the storage of hazardous material (if any). 	CC	Record of harmful incidents that occurred.	Weekly	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
Restoration of the camp area	Low esthetic value if campsite is not restored to its original landscape	<ul style="list-style-type: none"> Remove all the material from the campsite. The Contractor will adopt Site Rehabilitation Plan (see Annex-XI) 	CC	Camp area restored.	At time of demobilization of the contractor	SC and PIU	
Operation and movement of machinery and equipment	Deterioration of air quality due to exhaust gases and dust emissions	<ul style="list-style-type: none"> Proper engine tuning of machinery/equipment; Water sprinkling at dust-prone areas. 	CC	Gas emissions minimized ; Dust emissions controlled .	Fortnightly	SC and PIU	
	Noise from vehicles, compaction rollers, concrete mixers and construction equipment exceeding 85 dB is harmful to receptors	<ul style="list-style-type: none"> Proper engine tuning of machinery/equipment; Avoid nighttime traffic, particularly near communities. 	CC	Noise levels within permissible limits (75dB at day time and 65dB at night time).	Daily	SC and PIU	
Transportation of construction material	Smoke and dust generation;	<ul style="list-style-type: none"> Use of mud from the designated borrow areas i.e. Kalu Naddi, Jo Shahi Dam, Run Pathani or Nooriabad; 	CC	Vehicles properly maintained;	Daily	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
	Fall of transported material; Chance of accidents; Damage to access roads	<ul style="list-style-type: none"> Regular inspection, tuning, and maintenance of transport vehicles; Material transport in closed containers or covered with canvas sheets.; Avoid night time activity; Repair of damaged roads. 		Designated borrow and quarry areas used; No fall of transported material; Damaged road repaired.			
	Soil erosion and contamination	<ul style="list-style-type: none"> Restrict vehicle speeds to 30km/h.; Restriction on the repair of vehicles and equipment in the field. 	CC	Monitoring compliance; Log of vehicle and equipment repairs; Soil erosion observed	Fortnightly	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
	Air pollution	<ul style="list-style-type: none"> • Use of machinery and vehicles properly tuned to avoid the exhaust emissions; • Sprinkling of water on site and on routes near communities. 	CC	Route maps of vehicle movement; Log of vehicle maintenance.	Daily	SC and PIU	
	Water pollution	<ul style="list-style-type: none"> • Avoiding washing of vehicles near the water ponded in the river bed; 	CC	Monitoring compliance; Water quality testing.	Monthly	SC and PIU	
	Noise pollution	<ul style="list-style-type: none"> • Use of muffles (silencers) in vehicles to minimize noise; • Avoiding movement of vehicles at night near communities. 	CC	No construction activities at night; Log of vehicle movement;	Daily	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
				Visual inspections of the vehicles.			
	Occupational, Health and Safety issues	<ul style="list-style-type: none"> • Fixing of signboard at detours; • Use of PPE; • Awareness raising of drivers; • Avoiding speedy movement of vehicles near communities; • Training of construction workers and others; • Regular liaison with communities. 	CC	PPEs used by workers; ReflectORIZED road signs; Visual inspections.	Fortnightly	SC and PIU	Cost of PPEs is provided in Table 7.8 below.
	Damage to infrastructure	<ul style="list-style-type: none"> • Restoration/ rehabilitation of damaged infrastructure (buildings, bridges etc.) 	CC	Visual inspections; Photographic records; Infrastructure restoration records.	Fortnightly	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
Construction works	Soil erosion and contamination	<ul style="list-style-type: none"> • Proper compaction to minimize wind and water erosion; • Excavated patches will not be left unattended during construction works; • Machinery and equipment will not be repaired and maintained at the site; • No waste effluents will be released to the adjoining areas. 	CC	Erosion observed; Photographic record; Contamination signs observed.	Fortnightly	SC and PIU	
	Accident risks	<ul style="list-style-type: none"> • Provision of PPEs; • Provision of first aid kits and emergency vehicle. 	CC	PPEs provided; Record of any accident.	Daily	SC and PIU	Cost of PPEs is provided in Table 7.8 below.
	Loss of natural vegetation and associated fauna	<ul style="list-style-type: none"> • Minimize tree/shrub clearance. • Contractor to prepare inventory of trees/shrubs to be cleared and get approval from SC • Compensatory tree plantation (10 trees to be planted against every single tree that will be cut) along the protection works; • Selection of borrow area with least vegetation cover and get approval from SC before the decision; • Restriction on shooting, trapping and poaching of local wildlife species. 	CC	Record of tree cutting; Evidence of plantation ; Photographic record;	Daily	SC and PIU	Included in the ESMP cost Table 7.3

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
				Any mortality of wild animal.			
	Damage to infrastructure	<ul style="list-style-type: none"> Restoration/ rehabilitation of damaged infrastructure i.e. K-Electric Poles. 	CC	Visual inspections; Photographic records; Infrastructure restoration records.	Fortnightly	SC and PIU	
	Noise pollution	<ul style="list-style-type: none"> Use of noise reduction devices; Regular inspection, maintenance, and lubrication of the construction vehicle and equipment; Use of PPEs such as earplugs and earmuffs by the workers; Avoid nighttime activity. 	CC	Visual inspections; Noise levels measured.	Daily	SC and PIU	Cost of PPEs is provided in Table 7.8 below.
	Air pollution	<ul style="list-style-type: none"> Proper engine tuning of machinery/equipment; Water sprinkling particularly at work sites near the communities. 	CC	Dust emission controlled; Monitoring on stack	Daily	SC and PIU	Cost of environmental monitoring

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
				of machinery and equipment; Evidence of measurement records.			
Coffer Dam	<p>Diversion of water into Creek 2 and 3 from active Creek-1;</p> <p>Overtopping of coffer dam during flood of return period greater than 5-years</p>	<ul style="list-style-type: none"> Water level gauges will be installed by the Contractor at a reasonable distance (approximately 8 km) upstream of the construction site to monitor the flood magnitude that may reach the construction site as well as upstream of the coffer dam; The contractor will make a close liaison with Pakistan Meteorological Department (PMD) for actual rainfall observations at the closest available rainfall gauging station. Data of water level gauges and PMD will be submitted by the Contractor to the Project Manager on daily basis during dry days and a 3-hourly basis during wet days; Flood alert at the site to abstain from working within the river will be issued based on rainfall magnitude observed at the designated 	CC	Flood alert	During monsoon	SC and PIU	Covered in the project's cost estimate

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
		<p>gauging station and the water level gauge installed upstream of the construction site.</p> <ul style="list-style-type: none"> • The coffer dam/diversion arrangement has been designed for a 2.33-year return period discharge and the corresponding depth of rainfall is 53.2 mm (2.1 inches) which should be kept as the threshold rainfall. The threshold rainfall magnitude will be validated and finalized by the Hydrologists of the Supervision Consultant and the Contractor. In case the threshold value is recorded at the gauge installed, the construction site will be evacuated immediately as per Contractor's Emergency Response Plan; • On issuance of a flood alert, the Contractor will evacuate the site on an immediate basis and reinstate the construction activities after the end of that specific flood event. • Upon issuance of a flood alert, the Dur Mohammad Baloch Goth community will be notified as per Emergency Action Plan to follow evacuation procedures. • Warning signals for evacuation of employees in case of emergency should be developed and posted. • Cofferdam walkways, bridges, or ramps with at least two means of rapid exit shall be provided with guardrails 					

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
		<ul style="list-style-type: none"> • Contractor camp, construction material, machinery, and site facilities will not be placed in the areas that are prone to flooding / active creeks. • Contractor should prepare the contractor's Emergency Response Plan as per the framework for Emergency Response Plan (Annex – IX). Contractor's Emergency Response Plan should be prepared before the start of construction and reviewed and cleared by the Supervision Consultant. • Evacuation procedure of the Dur Mohammad Baloch Goth community and communication mechanism should be established and defined in the Contractor's Emergency Action Plan as per the consultation with Dur Mohammad Baloch Goth community. • For flood vigilance, the following measures will be implemented; • Monitoring of weather forecast / Warnings at the PMD website • Monitoring of qualitative weather outlook at; • https://ffd.pmd.gov.pk/uploads/flood_bulletin_a.pdf • Monitoring of PMD rainfall forecast at; • https://ffd.pmd.gov.pk/uploads/flood_bulletin_b.pdf 					

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
		<ul style="list-style-type: none"> Contractor camp, construction material, machinery, and site facilities will not be placed in the areas that are prone to flooding / active creeks. Emergency Response Plan should be displayed at the work site as well as Dur Mohammad Baloch Goth settlement, about 3500 ft upstream of Malir River. Flyers will be distributed to raise awareness regarding emergency response. Warning signs of potential flooding will be installed at work sites as well as at Dur Mohammad Baloch Goth community. Warning signs of potential flooding and evacuation procedure will be installed at work sites as well as at Dur Mohammad Baloch Goth community settlement Entry to riverine areas beyond Dur Mohammad Baloch Goth community settlement will be restricted. The community awareness sessions on the potential flooding and mitigations including evacuation drill before and during monsoon seasons at Dur Mohammad Baloch Goth community will be undertaken. 					
	Land degradation; Soil erosion;	<ul style="list-style-type: none"> Excavation of borrow sites as per specifications. 	CC	Visual inspections;	Fortnightly	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
	Pooling of water and drainage problem			Photographic records.			
	Residual wastes; construction material waste	<ul style="list-style-type: none"> Remove any leftover construction material/wastes from the construction sites. 	CC	Waste material removed.	End of the rehabilitation works	SC and PIU	
Excavation and restoration of Borrow Area	Change in land use pattern Soil erosion; Visual sores in the landscape; Public health risks due to mosquito-breeding places; Land disputes; Loss of potential cropland; Loss of vegetation; Loss of fauna	<ul style="list-style-type: none"> Ensuring that cultivated areas are not used as borrow areas; Leveling and dressing of borrow areas; Avoid tree cutting; restriction on hunting, shooting, trapping, and poaching, etc. of wild faunal species; Rescue of any encountered species. 	CC	Visual observation; Photographic records.	Weekly	SC and PIU	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
Encountering Archaeological sites during earthwork	Possible impacts on historically important sites and damage to fossils, artifacts, tombs, and structures as defined in Antiques Act 1975.	<ul style="list-style-type: none"> In case of detecting any Archaeological artifact, structure, or tomb, the contractor will be required to stop immediately all works at the site and brief the Engineer/ PIU at once; Upon receiving information from the contractor, the Engineer notify the Archaeological Department within one working day; In the event of chance finding, the contractor has to secure the site against any intrusion until the Archaeological Department decides further action; Implementation of Chance Find Procedures (see Annex-XII) 	CC	Any chance finds	Daily	SC and PIU	
Labor Living and Working Conditions	Provision of inadequate facilities to labour and workforce may arise grievances among them. Issues related to labor influx Gender Based Violence (GBV)	<ul style="list-style-type: none"> The worker's Grievance redressal mechanism must be developed and communicated among workers to lodge complains; Workers should be provided with clean drinking water and hygienic food for free; Avoiding Gender Based Violence. Contractor will prepare and implement robust measures to address the risk of gender-based violence that include (i) mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women; (ii) informing workers about national laws that make sexual harassment and gender-based violence a 	CC, SC and PIU-KWSSIP	Visual observation	Twice a week	CC, SC & PIU	N/A

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
		<p>punishable offence which is prosecuted; (iii) Introducing a Worker Code of Conduct as part of the employment contract, and including sanctions for noncompliance (e.g., termination), and (iv) contractors adopting a policy to cooperate with law enforcement agencies in investigating complaints about gender based violence.</p> <ul style="list-style-type: none"> • The contractor shall pay equal wages to both male and female workers; • Use of child and forced labor will be strictly prohibited.; • The Contractor will adopt gender sensitive and GBV free code of conduct during the construction • Implement the Labor Management Plan (LMP) attached as Annex - XIV. • The contractor shall adopt environmental code of practices (ECOPs) 					
Gender Based Violence (GBV)	Possible gender related issues due to construction activities	<p>PIU has prepared an umbrella Gender Action Plan for KWSSIP, which will be implemented throughout the project. However, the proposed project-specific mitigation measures are given hereunder:</p> <ul style="list-style-type: none"> • Workers' code of conduct (CoC) (attached as Annex-V) will be strictly implemented; • Contractor will ensure that workers are not allowed to accumulate or gather in the residential communities near the site. 	CC	Visual inspection GRM Register	During construction phase of the project (Weekly basis)	CC, SC & PIU	N/A

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
		<ul style="list-style-type: none"> • Raise awareness among the stakeholders specifically the resident communities and the labor of the potential risks of GBV, and establish response services in the nearby communities that can respond to instances of GBV (particularly those related to issues of labor inflow). • Implement the Labor Management Plan (LMP) attached as Annex - XIV. • Preference will be given to the local people to work with contractor, and contractor should hire maximum labor force from the project area, this will reduce the labor inflow. • Awareness will be created among the work force to ensure respect for local customs, norms and traditions. • Construction work will be completed in stipulated period of time. 					
Operation Phase							
Erosion	Damage to toe wall due to rain, floods and illegal soil mining etc.	<ul style="list-style-type: none"> • Inspection of protection works and filling/compaction of rain cuts etc. 	KW&SB	Visual observation during monsoon.	After each rainy day; After seasonal flooding in the river bed.	KW&SB	

Activity	Impacts	Mitigation Measures	Implementation Responsibility	Monitoring Indicators	Monitoring Frequency	Monitoring Responsibility	Cost
Flooding	Wear and tear of protection works Damage to KW&SB's structures (i.e., conduits)	<ul style="list-style-type: none"> • Inspection of protection works • Regular maintenance of damaged parts 	KW&SB			KW&SB	

Legend:

DC	Design Consultant	SC	Supervision Consultant
CC	Construction Contractor	PIU	Project Implementation Unit
KWSB	Karachi Water and Sewerage Board		

Table 7.3: Tree Plantation Cost

Sr. #	Plants	Quantity	Unit	Rate (PKR)	Cost (PKR)
1	Shady trees				
1.1	Gul Mohar (Delonix Regia) 18"(Bag)	2500	Each	2500	6250000
1.2	Prosopis Juliflora	10000	Each	500	5000000
1.3	Neem (Azadirachta Indica) 18"(Bag)	2500	Each	600	1500000
Total					12,750,000
1.3	Transportation charges	-	%	5	637,500
1.4	Mortality	-	%	15	1,912,500
1.5	Contractors Profit (of total cost)	-	%	20	2,550,000
Sub Total					17,850,000
2	Development (For 3 Years)				
2.1	Head Gardner	1	Man-Month	48,000	1,728,000
2.2	Gardner	2	Man-Month	30,000	2,160,000
Total					3,888,000
2.3	Miscellaneous (Vehicle expenditures, wear & tear of tools etc.)	15	%	-	583,000
2.4	Contractors Profit (of total cost)	20	%	-	777,000
Sub Total					9,136,800
Grand Total					26,986,800

7.9 Monitoring

The overall objectives of the monitoring activities are to:

- Ensure that Mitigation Plan is implemented.
- Ensure regulatory requirements are met;
- Check that impacts do not exceed project standards and other environmental standards;
- Verify that mitigation measures are effective and implemented in the manner described in **Table 7.1**;
- Provide early warning of potential environmental impacts; and

- Inform future operations and contribute to continuous improvement in the management of environmental and social issues related to the project.

7.9.1 Monitoring Approach

Monitoring will be carried out by the Supervision Consultants (SC) and Project Implementation Unit (PIU), and its contractors pursuant to their contractual obligations to undertake inspections, monitoring and reporting. The following four types of inspections and monitoring will be employed.

- **Inspections** planned and conducted on a regular basis to ensure that mitigation measures and commitments are properly maintained and implemented, and that specific management procedures are being following (e.g., practices on waste storage and disposal).
- **Receptor monitoring** undertaken to verify predictions made in the screening report and to confirm that the activities at the site are not resulting in an unacceptable deterioration in the quality of habitats or infrastructure (e.g., monitoring disturbance to affected residents through a grievance mechanism).
- **Compliance monitoring** involving periodic sampling or continuous recording of specific environmental quality indicators or discharge levels to ensure compliance of discharges and emissions with project standards (e.g., produced water discharges and air emissions).

The frequency of inspections, monitoring and audits and subsequent reporting will be based on the project risks. The outputs will be used in the following ways.

- To provide early warning for site management and to adjust mitigation measures on a day-to-day basis to cater evolving conditions.
- To enable contractors to demonstrate that mitigation measures and procedures laid down in mitigation plans are being followed and operations are being conducted within compliance limits.
- To provide formal assurance to PIU that the project is compliant with regulations and agreed limits and that relevant mitigation / enhancement measures are being adhered to.

The monitoring checklist is attached as **Annex-IV**.

Table 7.4: Environmental Monitoring Cost

Components	Parameters	Quantity			Frequency	Responsibility	Unit	Rate (PKR)	Duration	Amount (PKR)
		Sampling Points	Frequency	Total						
Construction Phase (12 months)										
Air Quality	All SEQs parameters	2	4	8	Quarterly	Contractor	Each	68000	24 hours	544,000
Ground Water Quality	All SEQs parameters	2	4	8	Quarterly	Contractor	Each	63000	-	504,000
Surface Water Quality	All SEQs parameters	4	4	16	Quarterly	Contractor	Each	42000	-	672,000
Noise Level	-	2	4	8	Quarterly	Contractor	Each	12000	24 hours	96,000
									Sub-Total	1,816,000

7.10 Reporting

The contractor will prepare and submit monitoring reports for compliance with implementation to the supervision consultant environmental team. The distribution of periodic reports is given in **Table 6.2**.

Table 7.5: Distribution of Periodic Reports

Report	Prepared by	Reviewed by	Distribution
Start of the Project	Contractor	Reviewed by PIU-Environmental, Social & Gender Unit; KWSSIP	The Engineer and Project Implementation Unit
End of the Project	Contractor	Reviewed by PIU-KWSSIP-Environmental Social & Gender Unit; KWSSIP	The Engineer, Project Implementation Unit and The World Bank

7.11 Grievance Redress Mechanism (GRM)

The purpose of the Grievance Redress Mechanism (GRM) is to receive, review and resolve grievances from project affectees or community members and ensure smooth and fair implementation of proposed project activities. The Grievance Redress Committee (GRC) and Gender Based Violence (GBV) Committee have been established in PIU-KWSSIP through a notification.

7.11.1 GRM Principles

A GRM is established to address any complaints or grievances arising during the implementation period of the projects. People of the project area may perceive risks to themselves or their property or their legal rights or have concerns about the possible adverse environmental and social impact that a project may have. Any concerns or grievances will be addressed quickly and transparently, and without retribution to the project affectees or community members or complainant.

The primary principle of GRM is that all complaints or grievances are resolved as quickly as possible in a fair and transparent manner. All minor complaints regarding E&S issues, land or property issues or business/livelihood losses will be addressed immediately at community level Grievance Redress Committee (GRC) through involvement of project affectees and community members. In case the grievances cannot be resolved at the community GRC, the project affectees or community members may make a complaint to the project GRC and afterward at PIU-GRC, the details of which are provided under sub-sections. The focus of the GRM is to resolve issues in a customarily appropriate fashion and record details of the complaint, the complainant and the resolution.

7.11.2 Objectives

The objectives of the GRM are to:

- Develop an organizational framework to address and resolve the grievances of individual(s) or community(s), fairly and equitably;
- Provide enhanced level of satisfaction to the aggrieved;
- Provide easy accessibility to the aggrieved/affected individual or community for immediate grievance redress;
- Ensure that the targeted communities and individuals are treated fairly at all times;
- Identify systemic flaws in the operational functions of the project and suggest corrective measures; and
- Ensure that the operation of the project is in line with its conception and transparently to achieve the goals for the sustainability of the project.

7.11.3 Type of Complaints

The major complaints that may arise during the execution of the proposed project at site include but not limited to:

- Environment and social issues (dust, noise, air pollution, social and cultural issues);
- Damage and blockage of public utilities;
- Traffic inconvenience;
- GBV and harassment.
- Resettlement issues including loss of livelihood;
- Issues related to compensation of resettlement impacts.

7.11.4 Disclosure of GRM

The GRM will be disclosed at PIU-KWSSIP, KWSBKW&SB head offices, and concerned Executive Engineer (XEN) and Superintendent Engineer (SE) offices, KWSSIP website as well as on project sites by organizing consultations with the community members. The site specific GRM mechanism will be developed that will connect with KWSSIP GRM. A site specific GRM committee will be formed that will include the representation of community male and female, one focal point from consultant and contractor staff. The GRM banner including all contact details and available mechanism like register, complaint box, PIU website, contact address and phone number of PIU GRM will be displayed.

7.11.5 Structure of Grievance Redress Mechanism

The project will establish a three-tier GRM comprising Community GRC, project GRC; and PIU-GRC. These tiers are described below.

A. Site GRC (Tier-1)

The Site-GRC will provide a platform for the nearby community members to raise and discuss their concerns, resolve the E&S issues at the site level and coordinate with project management to communicate these E&S issues and concerns. Community-GRC will be established to maintain a close rapport and coordination with affected persons and community members throughout the project implementation. The Social Development Specialist (SDS) of PIU will facilitate for the establishment of community-GRC that is representative of the ethno-cultural and gender diversity within the community. The community-GRC will comprise the following six members with one as the committee convener:

- Three female members (from the nearby community); and
- Three male members (from nearby community).

The project E&S and engineering staff will coordinate with community-GRC to review and resolve the environmental and social concerns preferably within five (05) working days from receipt of the grievance. Any complaints that cannot be resolved at community-GRC will be forwarded to the next tier.

B. Project GRC (Tier-2)

Project will constitute a GRC headed by the Project Manager (PM) to resolve all grievances and complaints of the project affectees or community members. Project GRC will comprise of the following members:

- Project Manager (PM), as head/convener of project GRC;
- Environment, SDS and Gender specialists of PIU;
- E&S specialists of Supervision Consultant (SC)
- Resident Engineer of supervision consultant;
- A representative (E&S specialist) of contractor will act as focal point; and
- A representative of local community.

Representative from any other district government department may be called as and when required by the project GRC. Environmental Specialist of PIU and SC will join project GRC meeting related to environmental issues only.

Project GRC will meet once a month and when the need arises. The project GRC will review grievances involving all E&S issues that may arise due to project implementation. Project GRC will perform following functions:

- Record, categorize and prioritize the grievances that need to be resolved by the committee and resolve them within ten (10) working days;
- Invite and hear aggrieved persons/parties to produce evidence of their claims and record their

view point;

- Communicate its decisions and recommendations on all resolved issues to project executors and the aggrieved persons for smooth implementation;
- Forward the unresolved cases/ complaints to PIU-GRC within an appropriate time frame with reasons recorded and its recommendations;
- Develop an information dissemination system and acknowledge the aggrieved persons/parties about the development regarding their grievance;
- Maintain a complaint register accessible to the project affectees or community members with brief information about complaints and project GRC decision with status report; and,
- Maintain complete record of all complaints received by the project GRC with actions taken.

Any complaint that cannot be resolved by the project GRC, will be forwarded to the next tier – the PIU-GRC.

C. PIU-GRC (Tier-3)

At the third tier, the PIU has constituted a GRC (PIU-GRC). The committee has the following composition:

- Project Director KWSSIP, (Chairman of PIU-GRC);
- SDS, Member
- Gender Specialist, Member;
- Concerned Project Manager – PIU, Member;
- SDS of SC, Member; and
- Representative of Civil Society.

Representative from any other district government department may be called as and when required by the PIU-GRC. Environmental Specialist of PIU and SC will join PIU-GRC meeting related to environmental issues only.

The PIU-GRC through authorized representative, will acknowledge the complainant about his/her complaint, scrutinize the record, investigate the remedies available and request the complainant to produce any record in favour of his/her claim. After thorough review and scrutiny of the available record on the complaint, field visit will be conducted to collect additional information, if required. Once the investigations are completed, the PIU-GRC will give decision within twenty (20) working days of receipt of the complaint. If the complainant is still dissatisfied with the decision, he/she can go to the court of law, if he/she wishes so. Organization of the GRM is shown in **Figure 6.1**.

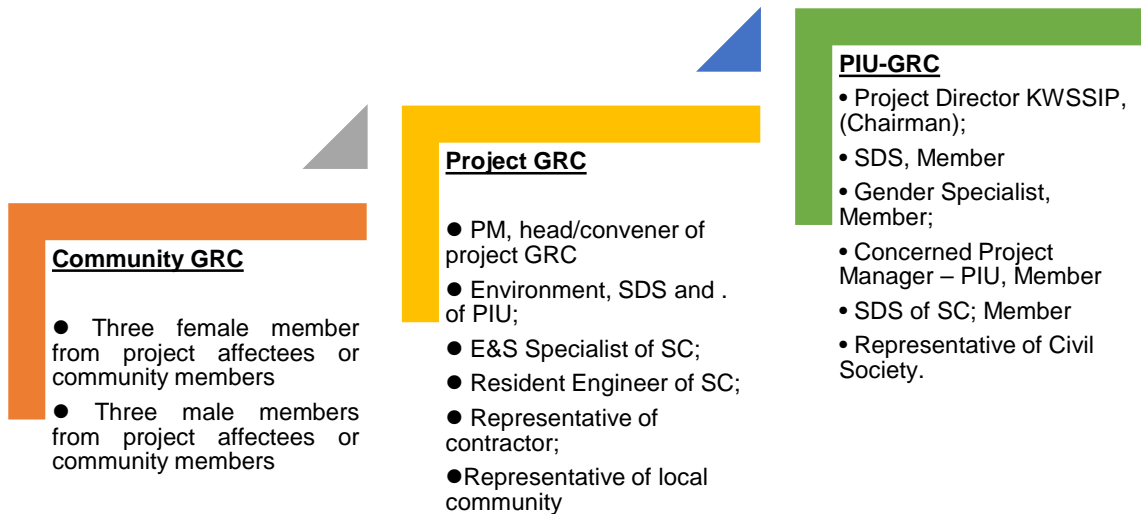


Figure 7.2: Organogram for GRM

Gender representation will be ensured by inducting a female member in all GRCs. The mechanism will ensure the access of project affectees or community members to a GRM that openly and transparently deals with the grievances and makes decision in consultation with all concerned that are consistent with the WB requirements.

D. Gender Based Violence (GBV) Committee

Besides PIU-GRC, GBV committee has also been established and notified consisting of the following members;

- Concerned Project Manager, Head/ Convener of GBV Committee
- Gender Expert KWSSIP, Secretary
- SDP KWSSIP, Member

GBV Committee will address the gender related issues due to project activities during implementation.

7.11.6 Grievance Redress Procedure

The intention of GRM is to resolve a complaint as quickly and at as low a level as possible to avoid a minor issue becoming a significant grievance. Irrespective of the stage of the process, a complainant has the option to pursue the grievance through the court as is his/her legal right in accordance with law.

The GRCs will work at site, project and PIU levels. The E&S and engineering staff of PIU, in coordination with site staff will inform the project affectees and community members about the GRCs and its mechanism through consultations and by posting at prominent places. The

complaints received through any media will be screened by type & category and registered in Community Complaints Register (CCR), where the name and address of complainant, date, description of complaint and action taken will be recorded. The Following procedure will be considered to redress the grievances:

- First, complaint resolution will be attempted to be addressed at community-GRC through the involvement of the field E&S/engineering staff. The community-GRC will give decision within 05 working days of receipt of the complaint. If unsettled, grievance can be lodged to the project GRC by the complainant to proceed under law and communicate decision in least possible time.
- Project GRC will acknowledge the receipt within 02 working days of lodging of complaint. Initial review and consultation with the project GRC will be conducted within 05 working days of receipt of complaint. If required, project GRC will advise the E&S/engineering specialists to conduct field visits in consultation with the aggrieved persons/parties and local community and submit a fact-finding report. Preferably, the fact finding will be completed within 08 working days from receipt of complaints. Proposed project GRC will give decision within 10 working days of receipt of the complaint. If unresolved, a grievance will be lodged to the (PIU-GRC) by the complainant.
- The PIU-GRC will give decision within 20 working days of receipt of the complaint. If the complainant is still not satisfied, he/she can pursue further by submitting to the appropriate court of law.

All the E&S issues will be dealt according to the above GRM procedures. GRC will clarify the legal course of action and guide aggrieved persons/parties to approach appropriate legal forum. The GRCs will hear and clarify with the complainant (if required so) about the E&S issue and will conclude and communicate its recommendations for further implementation in due course of time. Complainant will be kept informed during the process and the GRC decision will be communicated accordingly. In case of any delay, the complainants will be informed on the progress and process about their grievances. The GRC proceedings will be documented step by step and all records will be maintained and summarized in the project progress and internal monitoring reports.

7.11.7 Lodging of Complaint

The complainant(s) can lodge their grievances by online, mail, phone, WhatsApp, e-mail and complaint box. Moreover, PIU has established E-Portal for filing and tracking progress of the application online the detail has been provided below:

- An electronic complaint lodging system (application) that will be accessible through a link on the PIU KWSSIP website;
- The focus of the e-portal is the quick complaint lodging for all types of primary stakeholders;

- Any project affectee or community member with internet access can lodge a complaint with option for anonymous complaints. Uploading of photos for better understanding of the problem will also be an option;
- Each complainant will get a unique Grievance Number to track their complaints through the e-portal;
- Each complaint will go through a quick resolution mechanism being managed by a dedicated team at the PIU. Each complainant will be contacted to ensure that his/her issue is resolved;
- The portal will differentiate between types of complaints for targeted decision-making and action on behalf of PIU; and
- The portal will allow a quick and easy method for monitoring of the entire complaint lodging and resolution mechanism.

Direct workers' GRM structure: To mitigate the risks related to direct workers a GRM for Direct Workers will be established. GRM structure for KWSSIP:

- **First level.** The Project Coordinator/Human Resources of PIU-KWSSIP depending on the nature of the issue raised will be responsible to receive, consider and address in a timely manner the grievances, including the concerns on unaccounted working hours and lack of compensation for overtime, delay in/nonpayment of salaries. If the issue cannot be resolved at the first level within 7 working days, then it will be escalated to the next level.
- **Second level.** The Project Director of KWSSIP is a second-level GRM for direct workers if there is a situation in which there is no response from HR or if the response is not satisfactory then complainants and feedback providers have the option to appeal directly to the Project Director to follow up on the issue. The complaints should be considered and feedback provided within the next 7 working days.

Contracted worker's GM structure: To mitigate the risks related to direct workers a GM for Contracted Workers will also be established:

- **Contractor's level.** Contractors should develop their own GRM and resolve the grievances of contracted workers. Grievance Focal Point (GFP) assigned by the Contractor will file the grievances and appeals of contracted workers and will be responsible to facilitate addressing the grievances. If the issue cannot be resolved at the contractor's level within 7 working days, then it will be escalated to the PIU of the KWSSIP local level.
- **Local level.** The Social Specialist of PIU local level in Karachi will serve as Grievance Focal Point (GFP) to file the grievances and appeals of the project workers. He/She will

be responsible to coordinate with relevant departments/organizations and persons to facilitate addressing these grievances. If the issue cannot be resolved at the PIU level within 7 working days, then it will be escalated to the Agency level.

- **Central level:** If there is a situation in which there is no response from the PIU Local level, or if the response is not satisfactory then complainants and feedback providers have the option to contact the Project Director of KWSSIP or Focal Person in KW&SB Central Office directly to follow up on the issue.

7.12 Training Program

The primary responsibility of providing the E&S trainings to all project personnel will be that of the contractor and ESC. The trainings will be provided to different professional groups separately such as managers, skilled personnel, unskilled labors. Capacity building will be aimed at strengthening the ESC, and operational staff in the field of environmental management, social and gender development. **Table 6.3** provides details of trainings required for implementation of ESMMP during construction and operational phase.

Table 7.6: Training Program

Training Activity	Participants		Content	Scheduling	Amount (PKR)
Environment code of practices	Contractor Staff	Lecture	Awareness & applicability of environmental code of practices	Once	200,000
Awareness workshop regarding Covid 19 and other vector borne diseases	Contractor Staff	Lecture	Risk, Prevention and available treatment	Once	200,000
Waste Management	Contractor Staff	Lecture	Awareness associated with waste Storage, collection and safe disposal	Once	200,000
Workshop on Emergency Response	Contractor Staff	Workshop	Potential natural and other hazard/emergencies and dealing with emergency to minimize damage	Once	300,000

Training Activity	Participants		Content	Scheduling	Amount (PKR)
			specifically Flood Preparedness		
Workshop on Community/ occupational health and safety	Contractor Staff	Workshop	Awareness on EHS Guidelines	Once	350,000
Gender Aspects	Contractor Staff	Lecture	Awareness on gender inequalities/GBV OP 4.20	Once	200,000
Total					1,450,000

7.13 Capacity Building & Institutional Strengthening

In order to ensure that the ESMMP provisions are implemented efficiently and effectively, capacity building/ strengthening of the implementing parties are required. Therefore, based on the assessment of the institutional capacities of the parties involved in the implementation of the ESMMP, the following broad areas of capacity building/ strengthening have been identified and recommended for effective implementation of the ESMMP.

Table 6.4 shows the positions proposed for institutional strengthening for an effective implementation of environmental and social mitigation measures along with their responsibilities while **Table 6.5** presents cost of institutional strengthening.

Table 7.7: Institutional Strengthening

Institutional strengthening	Position	Schedule (Months)	Responsibility
Contractor	Environmental/ HSE Expert	12	<ul style="list-style-type: none"> ▪ Complete understanding of WB, local and federal environmental regulations. ▪ Implement environmental guidelines and practices. ▪ Review and recommend improvements to existing environmental programs for compliance assurance. ▪ Generate environmental reports as requested by regulatory agencies. ▪ Provide guidance and direction to management for ensuring environmental compliance. ▪ Prepare permit applications and agreements as needed by regulatory agencies. ▪ Obtain, maintain, modify and renew environmental permits and licenses. ▪ Work with emergency response team to address environmental incidents such as chemical leaks and spills. ▪ Identify and solve environmental violations. ▪ Conduct regular environmental inspections to determine pollution level. ▪ Investigate environmental accidents and propose corrective actions. ▪ Educate workers on environmental health and safety procedures.
	Social/ Resettlement / Gender Expert	12	<ul style="list-style-type: none"> ▪ Collect baseline social data to assess the social impacts associated ▪ Conduct and document surveys, group discussions and interviews with stakeholders and local people. ▪ Identify social negative impacts and benefits likely to result from the construction and operation of the project. ▪ Provide input into the feasibility design of the project based on the preferred option, proposing measures to minimize social impacts during construction and operation. Propose measures to mitigate negative impacts. ▪ Analyze country's gender policies ▪ Provide advice and support to on gender issues. ▪ Participate in meetings with the client, project team and other key stakeholders

Institutional strengthening	Position	Schedule (Months)	Responsibility
	Social Mobilizer	6	<ul style="list-style-type: none"> ▪ To raise awareness among the community i.e., Dur Muhammad Goth, regarding emergency preparedness in floods; ▪ To educate the community regarding the effects of flood; ▪ To train the community regarding emergency response actions.

Table 7.8: Cost of Institutional Strengthening

Sr. No.	Description (Position)	Quantity	Unit	Rate (PKR)	Amount (PKR)
1	Environmental Expert/ HSE Expert	12	Month	240,000	2,880,000
2	Social	12	Month	240,000	2,880,000
3	Gender Expert	12	Month	240,000	2,880,000
4	Social Mobilizer	6	Month	60,000	360,000
					9,000,000

7.14 E&S Budget

7.14.1 Health and Safety Cost

The cost of Health and Safety during the construction phase is worked out in **Table 6.6** below.

Table 7.9: Health and Safety Cost during Construction Phase

Sr. No.	Description	Quantity	Unit	Rate (PKR)	Amount (PKR)
1	Medical screening for workers	200	Persons	5000	1,000,000
2	Tarpaulins	10	L.S.	30,000	300,000
3	Handling of hazardous material	12	Months	10,000	120,000
4	Handling of solid waste	12	Months	50,000	600,000
5	DCP Fire extinguishers in case of fire	5	Each	3,500	17,500
	CO2 Fire extinguishers in case of fire	5	Each	10,000	50,000
	Fire alarm	2	Each	10,000	20,000

Sr. No.	Description	Quantity	Unit	Rate (PKR)	Amount (PKR)
6	Special Measures for Covid-19		L.S.		1,000,000
7	Cost of Personal Protective Equipment (PPE)*		L.S.		1,420,000
Total Cost					4,527,500

Details of PPE cost are given in tables below

Table 7.10: Break-up for PPEs Cost during Construction Phase

Item No.	Description	Quantity	Unit	Rate (PKR)	Amount
					PKR
1	Ear plugs	1,200	Each	100	120,000
2	Helmets	100	Each	1500	150,000
3	Safety shoes	100	Each	3000	300,000
4	Protective goggles	100	Each	2000	200,000
5	Gloves	1,200	Each	300	360,000
6	Dust Mask	2,400	Each	100	240,000
7	First Aid Kit	10	Each	5000	50,000
Total					1,420,000

7.14.2 Summary of Cost

The total estimated cost for the implementation of ESMP is worked out to be **PKR 45,969,315/-**. A summary of cost is given in **Table 7.11**.

Table 7.11: Summary of Cost

Environmental Management Cost		
a) Environmental Monitoring		1816000
b) Institutional Strengthening		9,000,000
c) Training		1,450,000
e) Tree Plantation		26,986,800
f) Health & Safety		4,527,500
	Sub-Total	43,780,300
	Contingencies @ 5%	2,189,015
	Grand Total	45,969,315

Annex - I
Environmental Monitoring Results

TEST REPORT

Ref No: AV/LAB/2022-004/AAQ

Date: 09-Nov-2022

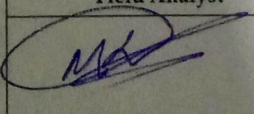
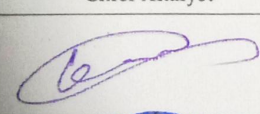
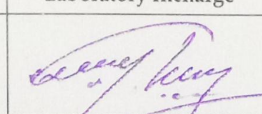
Name of Industry/Client: NESPAK
 Address of Industry: Protection/Rehabilitation Work for G.K Conduit, K-II, K-III, 84'Diameter, Balance Conveyance & 36'diameter Malir Main at Malir River Bed Phase-I and Phase-III.
 Nature of Monitoring: Ambient Air (Ground Floor)
 Monitoring Instrument: Air Sampler IMP-FDS
 Monitoring By: Asian Verification Pvt Ltd.
 Monitoring Date: 02-Nov-2022
 Monitoring Duration: Actual Time

Sr. No.	Parameters	SEQS Limits	Concentration
1	Nitrogen Oxides as (NO)	40 µg/m ³	7.97
2	Particulate Matter (P.M 2.5)	35 µg/m ³	28.20
3	Particulate Matter (P.M 10)	150 µg/m ³	46.45
4	Suspended Particulate Matter (SPM)	500 µg/m ³	74.65
6	Carbon Monoxide (CO)	5 mg/m ³	BDL
7	Sulphur Dioxide (SO ₂)	120 µg/m ³	BDL

SEQS: Sindh Environmental Quality Standards
 NGVS: No Guideline Value Set

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- The report is not valid for any negotiations.
- Dually calibrated instrument was used during monitoring.

Field Analyst	Chief Analyst	Laboratory Incharge
		



Technical Report

Ref #: AV/LAB/2022-005/NA

Date: 09-Nov-22

Name of Industry/Client:
Address of Industry:

NESPAK
Protection/Rehabilitation Work for G.K Conduit, K-II, K-III,
84'Diameter, Balance Conveyance & 36'diameter Malir Main at
Malir River Bed Phase-I and Phase-III.

Nature of Monitoring:
Monitoring Time:
Monitoring Instrument:
Monitoring By:
Monitoring Date:

Noise Level
Real Time
Noise Meter Land-Tech SL-5868P
Asian Verification Pvt Ltd.
02-Nov-22

Results:

Sr. No.	Location	Equivalent Noise Level dB (A)
1.	Near Pipe Line (Open Area)	55.6
OSHA permissible limit for 8hour exposure		90 dB(A) TWA
OSHA permissible limit for 1hour exposure		105 dB(A) TWA

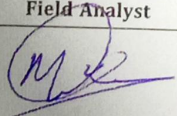

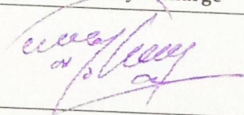
OSHA: Occupational Safety and Health Administration

Remarks: Noise level at all monitoring points is in compliance.

TWA: Time Weighted Average

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Field Analyst	Chief Analyst	Laboratory Incharge
		



0000294



TEST REPORT

Ref No: AV/LAB/2022-001/WW

Date:09-Nov-2022

Name of Industry/Client:
Address of Industry:

NESPAK
Protection/Rehabilitation Work for G.K Conduit, K-II, K-III,
84'Diameter Balance Conveyance & 36'Diameter Malir Main at
Malir River Bed, Phase-I & Phase-III

Nature of sample:
Sampling By:
Sample source:
Sampling type (Grab/Composite):
Sample receiving Date:

Wastewater
Asian Verification Pvt Ltd.
Ground/Canal Sewerage Wastewater
Grab
02-Nov-22

Sr. No.	Parameters	Method / Technique	Unit	SEQS	Results
1.	pH	APHA-4500-H* B	----	6-9	8.2
2.	Temperature	APHA-2550 B	°C	≤40	32
3.	Biological Oxygen Demand (BOD ₅ at 20 °C)	APHA-5210 B	mg/l	<80	118
4.	Chemical Oxygen Demand (COD)	APHA-5220 D	mg/l	<150	330
5.	Total Suspended Solids (TSS)	APHA-2540 D	mg/l	<200	500
6.	Greases & Oil	APHA-5520 B	mg/l	<10	18
7.	Total Chromium	APHA-3111 B	mg/l	<1	0.9
8.	Sulphide (S ²⁻)	APHA-4500-S ²⁻ F	mg/l	<1.0	3.6
9.	Color	HACH 8025	mg/l	<15	55
10.	Total Dissolved Solid (TDS)	APHA 2540	mg/l	<1000	5500
11.	Fecal Coliform	AOAC 991.14	Count/ml	-	110
12.	Total Coliform	AOAC 991.14	Count/ml	-	290
13.	E-Coliform	AOAC 991.14	Count/ml	-	88
14.	Chlorides	APHA 4500 CL-B	mg/l	<250	1190
15.	Fluorides	HACH 8029	mg/l	≤1.5	29
16.	Cyanide	HACH 8027	mg/l	<0.05	0.09
17.	An-Ionic Detergents	Titration	mg/l	-	57
18.	Sulfate	HACH 8051	mg/l	-	236
19.	Ammonia	HACH 8038	mg/l	-	6.8
20.	Pesticides	GC-MS	mg/l	-	BDL
21.	Cadmium	AAS/ICP-OES	mg/l	<0.01	BDL
22.	Copper	AAS/ICP-OES	mg/l	<2	1.1
23.	Lead	AAS/ICP-OES	mg/l	<0.05	0.01
24.	Mercury	AAS/ICP-OES	mg/l	<0.001	BDL
25.	Selenium	AAS/ICP-OES	mg/l	<0.01	BDL
26.	Nickel	AAS/ICP-OES	mg/l	<0.02	BDL
27.	Silver	AAS/ICP-OES	mg/l	-	BDL
28.	Zinc	AAS/ICP-OES	mg/l	<5	11
29.	Arsenic	AAS/ICP-OES	mg/l	<0.05	BDL
30.	Barium	AAS/ICP-OES	mg/l	<0.7	0.5
31.	Iron	AAS/ICP-OES	mg/l	-	10
32.	Manganese	AAS/ICP-OES	mg/l	<0.5	BDL
33.	Total Chlorine	HACH 10069	mg/l	-	2.3

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34.	Boron	AAS/ICP-OES.	mg/l	<0.3	BDL
35.	Phenolic Compound (As Phenol)	APHA-5530 D	mg/l	>0.1	BDL

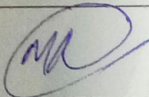

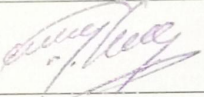
.....End of Report.....

SEQS: Sindh Environmental Quality Standards

Remarks: Parameters are not in compliance with SEQs Limits.

Term & Conditions:

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Lab Analyst	Chief Analyst	Laboratory In charge
		



No: 0000274



TEST REPORT

Ref No: AV/LAB/2022-002/DW

Date: 09-Nov-2022

Name of Industry/Client:
Address of Industry:

NESPAK
Protection/Rehabilitation Work for G.K Conduit, K-II, K-III,
84'Diameter Balance Conveyance & 36'Diameter Malir Main at
Malir River Bed, Phase-I & Phase-III

Nature of sample:
Sampling By:
Sample source:
Sampling type (Grab/Composite):
Sample receiving Date:

Drinking Water
Asian Verification Pvt Ltd.
Ground Water
Grab
02-Nov-22

Results:

Sr. No.	Parameters	Unit	WHO	SEQS	Method / Technique	Results
1.	E Coli	MPN/100ml	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	AOAC 991.14	Nil
2.	Total Coli-form	MPN/100ml	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	AOAC 991.14	Nil
3.	Fecal Coliform	MPN/100ml	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	AOAC 991.14	Nil
4.	Color	TCU	≤ 15	≤ 15	HACH 8025	0.01
5.	Taste	-	Non-Objectionable / Acceptable	Non-Objectionable / Acceptable	Organoleptic	Non-Objectionable
6.	Odor	-	Non-Objectionable / Acceptable	Non-Objectionable / Acceptable	Organoleptic	Non-Objectionable
7.	Turbidity	NTU	< 5	< 5	Turbidity Meter	0.62
8.	Total Hardness ^	mg/L	-	<500	ASTM D-1126	484
9.	Total Dissolved Solids ^	mg/L	< 1000	< 1000	APHA-2540 C	926
10.	pH ^	-	6.5-8.5	6.5-8.5	APHA-4500-H* B	7.73 at 25°C
11.	Aluminum (Al)	mg/L	0.2	≤ 0.2	AAS/ICP-OES	PDL
12.	Antimony (Sb)	mg/L	0.02	≤0.005	AAS/ICP-OES	BDL
13.	Arsenic (As)	mg/L	0.01	≤ 0.05	AAS/ICP-OES	BDL
14.	Barium (Ba)	mg/L	0.7	0.7	AAS/ICP-OES	BDL
15.	Boron (B)	mg/L	0.3	0.3	AAS/ICP-OES	BDL
16.	Cadmium (Cd)^	mg/L	0.003	0.01	AAS/ICP-OES	BDL
17.	Chloride (Cl ⁻) ^	mg/l	250	< 250	APHA-4500-Cl B	339.5
18.	Chromium (Cr)^	mg/L	0.05	≤ 0.05	AAS/ICP-OES	BDL
19.	Copper (Cu)^	mg/L	2	2	AAS/ICP-OES	BDL
20.	Fluoride (F)	mg/L	1.5	≤ 1.5	HACH 8029	0.67

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Sr. No.	Parameters	Unit	WHO	SEQS	Method / Technique	Results
21.	Lead (Pb)^	mg/L	0.01	≤ 0.05	AAS/ICP-OES	BDL
22.	Manganese (Mn)^	mg/L	0.5	≤ 0.5	AAS/ICP-OES	BDL
23.	Mercury (Hg)	mg/L	0.001	≤ 0.001	AAS/ICP-OES	BDL
24.	Nickel (Ni)	mg/L	0.02	≤ 0.02	AAS/ICP-OES	BDL
25.	Nitrate^	mg/L	50	≤ 50	HACH 8039	9.4
26.	Nitrite^	mg/L	3	≤ 3	HACH 8507	0.477
27.	Selenium (Se)	mg/L	0.01	0.01	AAS/ICP-OES	BDL
28.	Residual Chlorine (Cl ₂)	mg/L	-	0.2-0.5 at consumer end 0.5-1.5 at source	HACH 10069	0.2
29.	Pesticides	mg/L	-	<3	GC-MS	BDL
30.	Phenolic Compound (As Phenol)	mg/L	0.002	<0.1	APHA-5530 D	BDL
31.	Cyanide	mg/L	-	<0.05	HACH 8027	0.005

.....End of Report.....

SEQS: Sindh Environmental Quality Standards

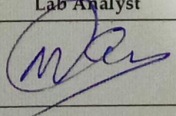
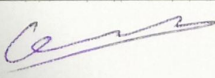
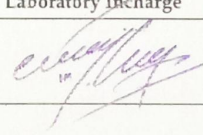
WHO: World Health Organization

MPN: Most Probable Number

Remarks: All Parameters are in compliance with SEQs Limits.

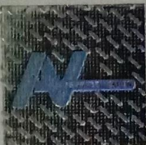
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Lab Analyst	Chief Analyst	Laboratory Incharge
		



No. 0000278



TEST REPORT

Ref No: AV/LAB/2022-003/WW

Date: 09-Nov-2022

 Name of Industry/Client:
 Address of Industry:

 NESPAK
 Protection/Rehabilitation Work for G.K Conduit, K-II, K-III,
 84'Diameter Balance Conveyance & 36'Diameter Malir Main at
 Malir River Bed, Phase-I & Phase-III
 Wastewater
 Asian Verification Pvt Ltd.
 Surface Wastewater
 Grab
 02-Nov-22

 Nature of sample:
 Sampling By:
 Sample source:
 Sampling type (Grab/Composite):
 Sample receiving Date:

Sr. No.	Parameters	Method / Technique	Unit	SEQS	Results
1.	pH	APHA-4500-H+ B	----	6-9	8.1
2.	Temperature	APHA-2550 B	°C	≤40	31
3.	Biological Oxygen Demand (BOD ₅ at 20 °C)	APHA-5210 B	mg/l	<80	99
4.	Chemical Oxygen Demand (COD)	APHA-5220 D	mg/l	<150	285
5.	Total Suspended Solids (TSS)	APHA-2540 D	mg/l	<200	300
6.	Greases & Oil	APHA-5520 B	mg/l	<10	12
7.	Total Chromium	APHA-3111 B	mg/l	<1	0.5
8.	Sulphide (S ²⁻)	APHA-4500-S ²⁻ F	mg/l	<1.0	3.1
9.	Color	HACH 8025	mg/l	<15	44
10.	Total Dissolved Solid (TDS)	APHA 2540	mg/l	<1000	4300
11.	Fecal Coliform	AOAC 991.14	Count/ml	-	100
12.	Total Coliform	AOAC 991.14	Count/ml	-	170
13.	E-Coliform	AOAC 991.14	Count/ml	-	54
14.	Chlorides	APHA 4500 CL-B	mg/l	<250	970
15.	Fluorides	HACH 8029	mg/l	≤1.5	33
16.	Cyanide	HACH 8027	mg/l	<0.05	0.06
17.	An-Ionic Detergents	Titration	mg/l	-	44
18.	Sulfate	HACH 8051	mg/l	-	190
19.	Ammonia	HACH 8038	mg/l	-	5.4
20.	Pesticides	GC-MS	mg/l	-	BDL
21.	Cadmium	AAS/ICP-OES	mg/l	<0.01	BDL
22.	Copper	AAS/ICP-OES	mg/l	<2	BDL
23.	Lead	AAS/ICP-OES	mg/l	<0.05	BDL
24.	Mercury	AAS/ICP-OES	mg/l	<0.001	BDL
25.	Selenium	AAS/ICP-OES	mg/l	<0.01	BDL
26.	Nickel	AAS/ICP-OES	mg/l	<0.02	BDL
27.	Silver	AAS/ICP-OES	mg/l	-	BDL
28.	Zinc	AAS/ICP-OES	mg/l	<5	7.2
29.	Arsenic	AAS/ICP-OES	mg/l	<0.05	BDL
30.	Barium	AAS/ICP-OES	mg/l	<0.7	BDL
	Iron	AAS/ICP-OES	mg/l	-	8.9
	Manganese	AAS/ICP-OES	mg/l	<0.5	BDL

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TEST REPORT

33.	Total Chlorine	HACH 10069	mg/l	-	1.9
34.	Boron	AAS/ICP-OES	mg/l	<0.3	BDL
35.	Phenolic Compound (As Phenol)	APHA-5530 D	mg/l	<0.1	BDL

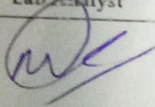

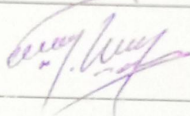
End of Report.

SEQS: Sindh Environmental Quality Standards

Remarks: Parameters are not in compliance with SEQS Limits.

Term & Conditions:

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Lab Analyst	Chief Analyst	Laboratory In charge
		

ASIAN VERIFICATION



N: 0000285



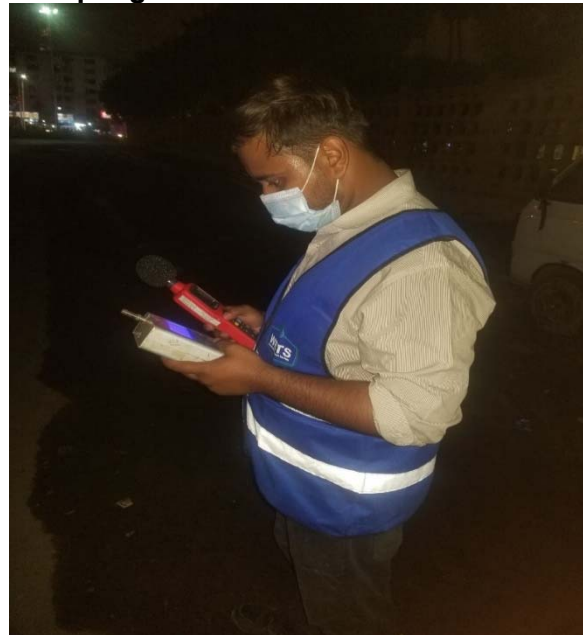
Envirnomental Monitoring Photolog



Surface Water Sampling



Wastewater Sampling



Noise Monitoring

Annex - II
Photolog of Public & Department Consultations

PHOTOLOG OF PUBLIC CONSULTATION



Consultation Meeting at Tuck Shop, Durr Muhammad Goth



Consultation Meeting at Tea Hotel, Durr Muhammad Goth



Consultation Meeting Residents near Durr Muhammad Goth

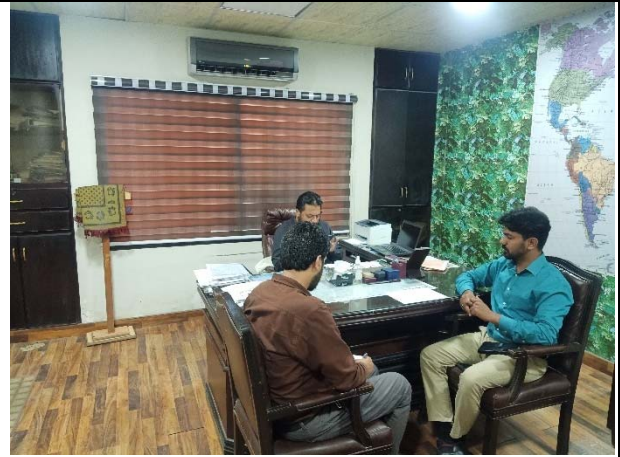


Gender Consultation Meeting at Haji Somar Goth



Consultation Meeting with MNA Abdul Hakeem Baloch

Photolog Consultation with Government Departments



Meeting with Deputy Director Technical SEPA



Meeting with Assistant Commissioner, Karachi



Meeting with Public Affairs Officer K. Electric



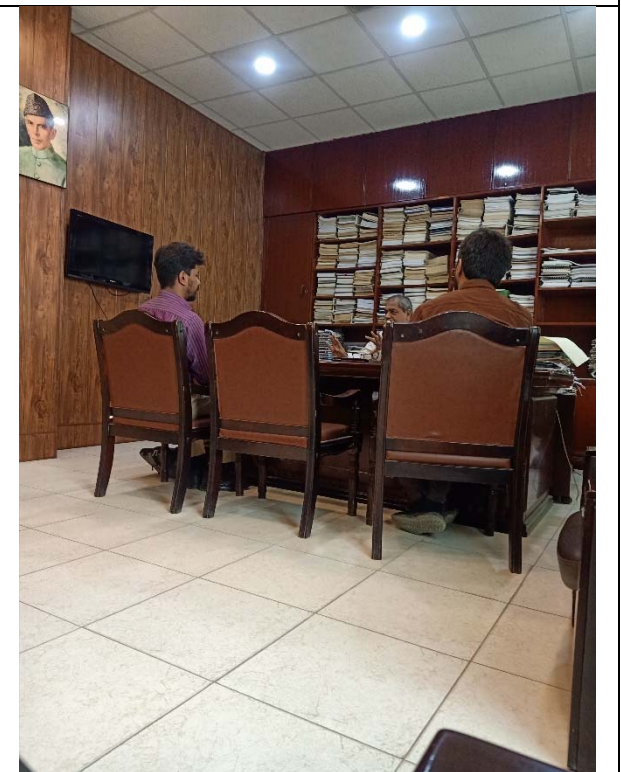
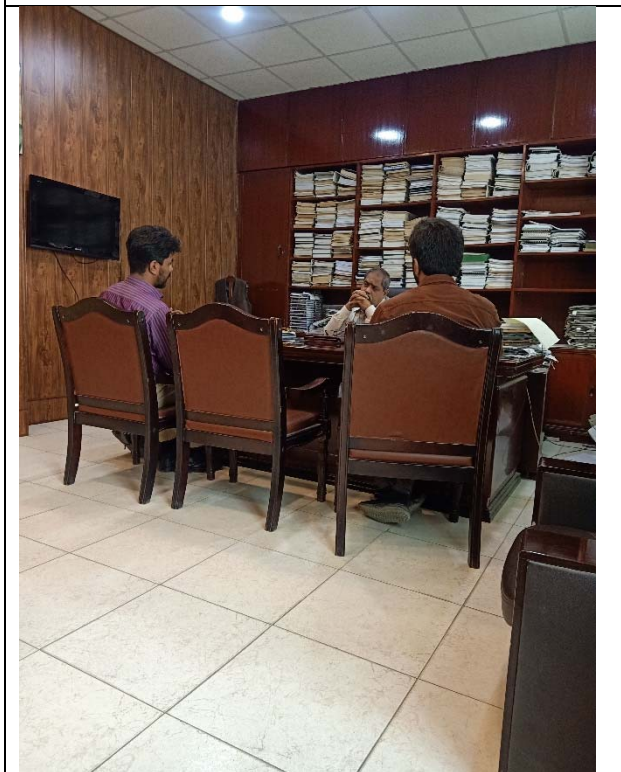
Meeting with Senior GM Distribution SSGC



Meeting with DG Livestock and Fisheries Department



Meeting with DFO Forest and Wildlife Department



Meeting with Additional Secretary Technical Irrigation Department



Meeting with SDO Mines and Minerals Department

Annex - III
Environmental Codes of Practice (ECOP)

Environmental Codes of Practice

1. Rationale of this ECOPs

This Environmental Codes of Practice (ECOPs) sets out standards and procedures for managing the potential environmental impacts associating with the minor construction activities for proposed repair/ rehabilitation works around GK Conduit, K-II, K-III and 36" balancing main. The environmental impacts associated with this small civil work are considered to be minor, temporary and reversible, and readily managed with good practices during implementation. The ECOPs lay out outline simple rules and procedures regarding identification, monitoring and mitigation of those environmental impacts. The ECOPs shall be included in all relevant contracts.

2. Environmental Screening and Assessment

During construction, the potential impacts include dust and solid waste generation associated with minor civil work activities. These impacts are small, localized and can be mitigated by incorporating good civil work practices, including proper housekeeping measures, proper material storage and disposal of solid waste and pollution control.

In addition, to ensure the environmental sanitation and safety during operation, it is requested that design for chlorination stations shall be in line with the quality standards including appropriate ventilation, trash bin, lighting, fire extinguisher, eye-wash facilities and toilet facilities etc.

3. Project ECOP Implementation Arrangements

a. The Project Implementation Unit (PIU) – KWSSIP

The PIU-KWSSIP will be responsible for over-sighting the implementation of project. During implementation, the PIU is responsible for ensuring that the ECOPs will be incorporated in the bidding document and complied by contractors. The PIU has ultimate responsibility in the event of non-compliance with the ECOP during construction.

b. The Contractor

The Contractor, has the responsibility of establishing and maintaining contact with the PIU or delegated agencies and local residents and keeping them informed of construction matters likely to affect them. The Contractor and any agents or Sub-Contractors will be contractually required to comply with the requirements as specified in the ECOPs. The Contractor will responsible for implementation of the ECOPs, including workplace safety, and will ensure adequate resources are available for the implementation of the ECOPs throughout the construction period.

The Contractor has a duty to inform local residents likely to be affected by such activities at least 14 days prior to undertaking the works, as well as applying for the appropriate permits and licenses.

4. Construction Activities and Environmental Rules for Contractors

a. Management of Construction Site

This part describes basic requirements for all Contractors carrying out minor construction activities. It will be included in all construction contracts of the civil works. The Contractor is required to minimize, as far as reasonably practicable, any adverse environmental impact of their construction activities.

Prohibitions

The following activities are prohibited on or near the project site:

- (a) Cutting of trees for any reason outside the approved construction area;
- (b) Illegal dumping of demolition material and debris.
- (c) Use of unapproved toxic materials, including lead-based paints, asbestos, etc.;
- (d) Disturbance to anything with architectural or historical value;
- (e) No burning of waste
- (f) Use of alcohol by workers.

Working hours: Core working hours will be from 0800 to 1800 on weekdays and 0800 to 1300 on weekend. Individual site requirements which differ from the above will be considered on a site-by-site basis. Noisy operations shall not take place outside these hours without prior approval from the PIU and/or delegated agencies and local authorities.

Good housekeeping: The Contractor will follow a 'good housekeeping' policy at all times. This will include, but not necessarily be limited to the following: Ensure considerate site behavior of the Contractor's staff; Prohibit open fires; Ensure that appropriate provisions for dust control and road cleanliness are implemented; Remove rubbish at frequent intervals, leaving the site clean and tidy; Remove food waste; Frequently inspect, repair and re-paint as necessary all site hoardings to comply with the local conditions and local regulations, all flying post/ board is to be removed as soon as reasonably practicable and within 24 hours of notice; Maintain toilet facilities and other welfare facilities for its staff;

Public information and site access: As a minimum, the Contractor will provide public information on the site program (start and finish dates), plus the telephone for public contacts and/or requests especially during the school year. Any un-authorized entry to or exit from the sites should be control as much as possible.

Site layout and facilities: Location of site huts, office accommodation, toilets and welfare facilities should be accommodated within the boundaries of the site.

Emergency Procedures: The Contractor will ensure that emergency procedures are developed to facilitate effective actions in case of medical/fire emergency as well as environmental pollution (major spillage of gasoline, used oil, and/or toxic chemicals, etc.). The emergency procedure will contain emergency phone numbers and the method of notifying the statutory authorities. Contact numbers for the key staff of the contractor will also be included.

Fire prevention and control: All construction sites and associated accommodation or welfare facilities will have in place appropriate plans and management controls to prevent fires. The site fire plans will be prepared and will have due regard to the GoS regulations. During operation and maintenance of equipment and vehicles, the Contractor will ensure that its workers are well aware of the procedures and have enough knowledge to comply with them. The specification of non-combustible materials, products and packaging will be pursued wherever reasonably practicable. The project will also have to comply with GoS requirements as may be appropriate at specific sites.

Operation of equipment: The Contractor must take all reasonable precautions to ensure that equipment is operated in a manner so as not to cause safety risk and/or nuisance to surrounding residents and occupiers. Operations of crane and other large equipment will have to be closely supervised. Permission may be required as per GoS regulations.

Clearance of the construction site after completion: On completion of the works the Contractor will clear away and remove all materials and rubbish and temporary works of every kind. The site will be left clean and in a condition to the satisfaction of the PIU and/or delegated agencies.

5. Management of Environment and Sanitation

Nuisance, Dust and Noise Control

To control nuisance, dust and noise in the construction sites the Contractor should:

- (a) To the extent possible, maintain noise levels associated with all machinery and equipment at or below 90 db.
- (b) In sensitive areas (including residential neighborhoods, hospitals, etc.) more strict measures may need to be implemented to prevent undesirable noise levels. Minimize production of dust and particulate materials at all times, to avoid impacts on surrounding families and businesses, and especially to vulnerable people (children, elders).
- (c) Place dust screens around construction areas, fencing should be provided along the boundary so that the emissions do not affect the immediate neighbors, paying particular attention to areas close to housing, commercial areas, and recreational areas.
- (d) Spray water periodically as needed on construction areas, especially at site located near residential area
- (e) Apply proper measures to minimize disruptions from vibration or noise coming from construction activities.

Disposal of Construction Waste

The Contractor shall establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for construction debris.

Debris generated due to the demolition of the existing structures shall be suitably reused, to the extent feasible. The disposal of remaining debris shall be carried out only at sites identified and approved by local authorities. The contractor should ensure that these disposal sites: (a) are not located within designated forest areas; (b) do not impact natural drainage courses; Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas. Dispose in authorized areas all of garbage, metals, used oils, and excess material generated during construction, incorporating recycling systems and the separation of materials. In the event

any debris or silt from the sites is deposited on adjacent land, the Contractor shall immediately remove such debris and restore the affected area to its original state to the satisfaction of the PIU and/or delegated agencies and local communities.

Water quality

The Contractor must take all the efforts to prevent wastes (solid and liquid) discharge into all rivers and canals and to protect surface and groundwater from pollution and other adverse impacts including changes to water levels, flows and general water quality. Whenever possible, the Contractor must minimize the amounts of wastewater that need to be discharged and find alternative means of disposal. Liquid spills of lubricant, fuel and oil within the site should be attended at the earliest in order to minimize land & groundwater contamination. The Contractor will ensure that any seepage and wastewater arising from the works must be collected and discharged via a settlement tank. Water drainage must be designed to avoid stagnant conditions that could create bad smell and unsanitary condition in the construction area and surrounding environment.

Workforce and Workers; Sanitation

The Contractor should whenever possible locally recruit the majority of the workforce and shall provide appropriate training as necessary.

The Contractor shall not allow the use of fuel wood for cooking or heating at the construction site or surrounding area.

The Contractor shall ensure that site offices, depots, and workshops are located in appropriate areas. Clean and well-maintained toilets should be made available.

Clean water shall be adequately provided for workers by the Contractor.

Safety during Construction

The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all government safety requirements and any other measures necessary to avoid accidents, including the following:

- (a) Notice signs/board shall properly be installed at the construction sites
- (b) If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours;
- (c) Conduct safety training for construction workers prior to beginning work;
- (d) Provide necessary personal protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed and –shanked boots, etc.,) for construction workers and enforce their use;
- (e) During emergencies of any kind, suspend all work.

Community Relations

To enhance adequate community relations the Contractor shall:

- (a) Inform the local authorities and community about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, as appropriate.

- (b) Limit construction activities at night. When necessary, ensure that night work is carefully scheduled and the community is properly informed so they can take necessary measures.

Physical Cultural Property Chance-finds Procedures

If the Contractor discovers archeological sites, historical sites, remains and objects the Contractor shall:

- (c) Stop the construction activities in the area of the chance find;
- (d) Delineate the discovered site or area;
- (e) Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Directorate of Archeology take over;
- (f) Notify the supervisory Engineer who in turn will notify the responsible local authorities immediately (within 24 hours or less);
- (g) Responsible local authorities, would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;
- (h) Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;
- (i) Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities; and
- (j) Construction work could resume only after permission is given from the responsible local authorities concerning safeguard of the heritage.

Annex - IV
Environmental Monitoring Checklist

Monitoring and Supervision Checklist

Project					
Site Location					
Current Status					
Supervision Date					
Supervised By					
Inspection Items	Implementation			Remarks (i.e., specify location, good practices, problem observed, possible cause of nonconformity, and/or proposed corrective/preventative actions)	
	Yes	No*	N/A		
1. Air Pollution Control					
1.1. Vehicle loads covered with any suitable material while transporting construction material?					
1.2. Are stockpiles of dusty materials covered or watered?					
1.3. Does the Construction Contractor (CC) have the proper material handling practices at the site?					
1.4. Others (please specify)					
2. Surface and Ground Water Pollution Control					
2.1. Area chemicals or hazardous material stored at designated places?					
2.2. Are effluents from the construction sites released to drinking water sources, cultivation fields, irrigation channels, and critical habitats?					
2.3. Does the CC have tarpaulin sheets available at the site?					
2.4. Others (please specify)					
3. Noise Control					
3.1. Are machinery operations and high noise activities carefully planned and scheduled?					
3.2. Are high noise activities ceased between 20:00 and 06:00hrs?					
3.3. Is the noise level monitoring carried out periodically? And is the monitoring register maintained?					
3.4. Others (please specify)					
4. Solid Waste Management					
4.1. Is recycling of solid waste carried out?					
4.2. Are the construction sites equipped with temporary refuse bins?					
4.3. Is the waste dumped or thrown?					

around the project site?				
4.4. Is the waste tracking register maintained at the site?				
4.5. Is the waste properly disposed of in designated areas and not affecting the drinking water sources, cultivation fields, irrigation channels, natural drainage paths, the existing waste management system in the area, local routes, and the general aesthetic value of the area?				
4.6 Is Covid 19 prevention waste being handled and stored properly?				
4.7. Others (please specify)				
5. Occupational Health and Safety				
5.1. Are WB Group's Environment, Health, and Safety(EHS) Guidelines implemented in letter and spirit?				
5.2. Are appropriate personal protective equipment (PPE) provided to minimize risks, such as appropriate outerwear, boots, and gloves; safety helmets as well as per COVID-19 requirements?				
5.3. Are first-aid equipment at works provided?				
5.4. Is water stagnation observed near the construction site?				
5.5 Are protocols for slips and trips being followed?				
5.6. Are protocols for work at height being followed?				
5.7. Is training for workers for the use of PPE provided?				
5.8. Are procedures for documenting and reporting accidents, diseases, and incidents implemented at the site?				
5.9. Others (please specify)				
6. Labor Issues				
6.1. Are labor locally procured for the construction activities?				
6.2. Is there any child working?				
6.3. Others (please specify)				
7. Project Exclusions				
7.1. Is the GRM implemented for the amicable resolution of disputes or conflicts?				
7.2. Others (please specify)				

Annex - V
Workers' Code of Conduct

Workers' Code of Conduct

I, _____, acknowledge that preventing any misconduct as stipulated in this code of conduct, including sexual exploitation and abuse (SEA), sexual harassment (SH), and child abuse/exploitation 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 of those who commit any such misconduct will be pursued as appropriate. I agree that while working on this project, I will:

1. Consent to security background check;
2. 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;
3. Not use language or behaviour towards men, women or children/learners that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate;
4. Carry out his/her duties competently and diligently;
5. Comply with this Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other Contractor's Personnel and any other person;
6. Maintain a safe working environment including by:
 - a. Ensuring that workplaces, machinery, equipment and processes under each person's control are safe and without risk to health;
 - b. Wearing required personal protective equipment;
 - c. Using appropriate measures relating to chemical, physical and biological substances and agents; and
 - d. Following applicable emergency operating procedures.
7. Report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and danger to his/her life or health;
8. Treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers or children;
9. Not engage in any form of sexual harassment including unwelcome sexual advances, requests for sexual favours, and other unwanted verbal or physical conduct of a sexual nature with other Contractor's or Employer's Personnel;
10. 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 defence;
11. Not exchange money, employment, goods, or services for sex, with community members including sexual favours or other forms of humiliating, degrading or exploitative behaviour;
12. Attend trainings related to HIV and AIDS, SAE/SH, occupational health and any other relevant courses on safety as requested by my employer;

13. 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 breaches of this code of conduct provided it is done in good faith;
14. Regarding children (under the age of 18):
 - a) 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.
 - b) Comply with all relevant local legislation, including labour laws in relation to child labour.
15. Refrain from any form of theft for assets and facilities including from surrounding communities.
16. Remain in designated working area during working hours;
17. Refrain from 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 working hours;
18. Follow prescribed environmental occupation health and safety standards;
19. 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/Contractor

Signed by: _____

Signature: _____

Date: _____

Annex - VI
Sanitation Plan

Sanitation Plan

1. Introduction

This plan outlines the measures that can improve conditions of sanitation at construction sites during construction and operation phase.

2. Purpose of the plan

The plan intends to ensure sanitation including the control of water supplies, excrete and wastewater disposal, refuse disposal, vectors of diseases, housing conditions, food supplies and handling, atmospheric conditions, and the safety of the working environment.

3. Management of Sanitation During Construction Phase:

i) Responsibility:

The Health and safety Inspector designated by construction contractor shall inspect sanitation conditions and ensure safe working environment for workers.

ii) Location of Camp Sites

The construction camps shall be located away from residential community. The accommodation and ancillary facilities for labour shall be constructed and maintained to standards and scales approved by the Resident Engineer.

The camps must be located such that the drainage from and through the camps shall not endanger any domestic or public water supply.

All sites must be managed to avoid ditches/depressions to minimize nuisance due to stagnant water.

iii) Water Supply

An adequate and convenient water supply, approved by the appropriate health authority, must be provided in each camp for drinking, cooking, bathing and laundry purposes.

Potable water supply systems for labour camps occupants shall meet the drinking water quality standards of Pakistan. In addition, the design of water system facilities shall be based on the suppliers Engineer's estimates of water demands. The drinking water must be monitored regularly for drinking water quality parameters.

At all construction camps and other workplaces, good and sufficient water supply shall be maintained to eliminate chances of waterborne/water-related/water-based diseases to ensure the health and hygiene of the workers.

iv) Toilet Facilities and Hygiene

According to health and safety guidelines OR-OSHA number of toilets required at construction site is as 1 toilet for 20 workers. **Table 1** shows the number of toilets required in accordance with the number of employees at construction site. The total numbers of employees at construction site are estimated to be 50 persons.

Table-1: No. of Toilets Required for Employees at Construction Site:

No. of Employees	No. of Toilets and Urinals by OSHA	Total No. Toilets and Urinals Required at Construction Site
Up to 20	1 toilet	3 toilets
Up to 40 employees	1 urinal	2 urinals

Within the premises of every workplace, toilets and urinals shall be provided in an accessible place. A toilet must be located within 200 feet of the camp. No toilet may be closer than 100 feet to kitchen and sleeping area. These toilets must be distinctly marked by signs printed in native language of the persons occupying the camp, or marked with easily understood pictures or symbols.

Proper facility for hand washing and other cleaning activities to be provided, e.g;

- Providing hand soap and industrial hand cleaner for removing paints and other contaminants;
- Prohibited use of gasoline or solvent for hand washing; and
- Keep the floor of facilities dry to prevent spills and falls.

v) Waste Disposal

The sewage system for the camp must be designed, built and operated in compliance with the relevant legislation so that no health hazard occurs and no pollution to the air, ground or adjacent watercourse takes place.

Garbage bins must be provided in the camps and regularly emptied and garbage disposed of in a hygienic manner. Unless otherwise arranged for by the local sanitary authority, arrangement for disposal of excreta should be done in the already existing sewerage system in the area.

On completion of the works, all such temporary structures shall be cleared away, all rubbish burnt, excreta tank and other disposal pits or trenches filled in and effectively sealed off and the outline site left clean and tidy, at the Contractor's expense, to the entire satisfaction of the engineer.

vi) Maintenance of Sanitary Facility

Proper maintenance of toilets and other sanitary facilities should be assured at construction camp site by the construction contractor. Toilets and other sanitary facilities shall be cleaned at least four times daily and at least twice during working hours and kept in a strict sanitary condition.

All buildings, rooms and equipment and the grounds surrounding them shall be maintained in a clean and operable condition and be protected from rubbish accumulation. All necessary means shall be employed to eliminate and control any infestations of insects and rodents within all parts of any labor camp.

vii) Site Clearance:

The construction contractor shall assure the clearance of construction machinery, vehicle and other equipment used during the construction period after the completion of the project.

viii) Storm Water/Sewage Clearance:

One of the main issue that may arise during construction and operational phase is the clogging of drainage/sewer pipelines as a result of construction material, oil spillage from vehicles, throwing of solid waste by the road users due to lack of bins into the nearby drainage/sewer pipes, etc. the blockage of these drainage pipes will cause over flow of water on road, which will have negative impacts on the road in form of deterioration of road surface as well as standing water acts as a source of water-through disease in the area.

Responsible Authorities:

In case of storm water drains/sewer pipes clogging the concerned department is responsible for un-clogging of these sewer and drainage pipelines.

ix) Awareness and Training:

A training and awareness sessions shall be conducted by the construction contractor for workers before commencement of the project. The implementation of sanitation plan would be more effective if the importance of hygiene; sanitation and safety are known to the workers.

Annex - VII:
Health & Safety Management Plan (HSMP)

Health & Safety Management Plan (HSMP)

1.0 Introduction

This health and safety management plan has been prepared to identify and outline the manner in which construction site health and safety aspects will be managed to ensure the safe and efficient performance of the construction phase activities and to minimize adverse effects on the existing community and workers arising from construction activities. HSMP plan is prepared under the guidelines given in Health and Safety Framework for South Asia Region by the World Bank.

This plan is designed to identify, evaluate, and control health and safety hazards for the purpose of protecting employees. The plan provides for emergency response activities at the job site as well as covering site hazard analysis, training requirements, engineering controls, materials handling, and safe construction operations. This plan is intended to provide guidance and information in dealing with the hazards that may be faced on the construction site by the contractor and its workers.

The consultant as a third-party validator will monitor the compliance of the plan by the contractor and its workers on each construction site.

The purpose of this plan is to illustrate safety issues specific to the KWSSIP. This plan is intended to maintain a safe work environment and effectively reduce the number of accidents resulting in personal injury, property damage, and damage to construction equipment.

2.0 Scope of Project

2.1 Scope of Work

Karachi Water and Sewerage Board (KWSB) is the sole provider of bulk water to Karachi. The Indus is considered to be the only reliable source of water via Keenjhar Lake. On the route from Keenjhar to Karachi, the Greater Karachi (G.K), K-II, and K-III conduits and Ø84" balancing conveyance main and Ø36" water main (nonoperational), crosses Malir river near Dumlottee. The system passing through the Malir bed. All the crossing works were designed as buried structure under the river bed with upstream and downstream protections to provide safety against erosion and piping. The recent erratic rains due to climate change has increased the risk factors therefore, it is required to be design on emergency basis to avoid any unforeseen situation. KWSB cannot afford nor has the capacity to manage any disaster on emergency basis.

KWSSIP has been directed to take-up the design and construction activities on urgent basis to avoid any unforeseen and damage to the existing system

This HSMP focuses on protection/rehabilitation work for G.K Conduit, K-II, K-III, 84-inch diameter balance conveyance, and 36-inch diameter Malir main at Malir river bed.

2.2 Site Location

The proposed protection/ rehabilitation works shall be carried out in the bed of Malir river in Dumlotee near Dur Muhammad Goth.

3.0 Health and Safety Responsibilities

The effectiveness and success of the safety plan implementation depend upon the active participation and cooperation of all employees. The duties and responsibilities of all employees under this policy are the following:

3.1 Project Engineer

- Prepare the Site-Specific Safety Plan.
- Direct and coordinate health and safety regulations related to the construction site.
- Participate in post-accident investigations.
- Assist in formulating policy matters.
- Implement contractor Safety Program and Policy

3.2 Foremen/Supervisors

- Be familiar with, explain, and enforce health and safety plan under his jurisdiction.
- Direct and coordinate health and safety activities within the area or responsibility
- Ensure safety devices and proper PPE are used by employees under supervision.
- Instruct and train all employees within the area of responsibility in job health and safety requirements, including (but, not limited to) hazard recognition and avoidance. Also, foreman/front-line supervisors must require compliance by employees with the established safety rules.
- Direct the correction of unsafe conditions.
- Ensure safety equipment is available, maintained, used, and stored correctly.
- Ensure injuries are treated promptly and reported properly.
- Participate in post-accident investigations.
- Coordinate daily job site inspection.
- Implement health and safety plan at each site as per required.

3.3 Construction Workers

The main responsibility of every worker at the construction site will be to follow the health and safety instructions and procedures.

- Be familiar with and comply with proper health and safety practices.
- Use the required safety devices and proper PPE.
- Notify the supervisor immediately of unsafe conditions/- acts, accidents, and injuries.
- Implement the health and safety plan

3.4 Subcontractors

By the contract, the subcontractors will have to comply with and ensure the compliance of their employees with the provisions of health and safety policy as well as their own safety program. Failure to fulfill this requirement is a failure to meet the conditions of the subcontract.

3.5 Supervision Consultant (SC)

SC will validate the effective implementation of the health and safety plan at the site. PIU-KWSSIP will be overall responsible for the safe construction work at each site.

4.0 General Health and Safety Procedures

4.1 Personal Protective Equipment (PPE)

The contractor provides Personal Protective Equipment (PPE) to all employees. Hard hats, safety glasses, and safety work boots are required to be worn at all times when on the job site. Reflective vests are required when working outside around equipment or traffic. Exceptions may be made to this PPE requirement only under an approved contractor work plan. Employees learn where to get PPE during their new-hire orientation and are responsible for wearing and maintaining the required PPE. Additional PPE may be required depending on the task and if there is a potential for exposure to hazardous conditions. PPE requirements are reviewed by the foreman. Employees are expected to use reasonable judgment regarding whether additional PPE (beyond the required) is necessary for certain tasks. If employees are unsure of the type of PPE required for a specific task or job, they should ask the supervisor.

4.2 Equipment Use and Operation

Equipment is used only for its intended use and as recommended by the manufacturer. Using equipment for purposes other than what it is designed for is prohibited. Employees are prohibited from operating a vehicle in a reckless manner or at a speed greater than is reasonable and proper, with due regard for weather, traffic, the character of roadway, load, type of vehicle, and any other conditions which may affect the safe operation of the vehicle. The vehicle must be kept under control at all times and special care is exercised when transporting personnel.

Employees may only ride equipment if there are seats or equal protection available for each person. Seatbelts are worn at all times while operating equipment with seats. No cell phone or earbud is used while operating equipment.

4.3 Repair

Employees are prohibited from making repairs, alterations, or attachments to equipment in the field except with the permission of the superintendent, foreman, or equipment mechanic. Only

qualified personnel will perform repairs on equipment. Such repairs, alterations, or attachments are documented on the appropriate shop forms.

Employees are prohibited from removing a guard, safety device, or appliance from equipment or machinery except to make repairs. While making repairs, employees use appropriate lockout/tag-out procedures. When repairs are complete, the guard, safety device, or appliance is replaced immediately.

4.4 Conduct

The following conduct is prohibited and may result in discipline up to and including termination:

- Horseplay and scuffling on the job.
- Making a false report or misrepresentation.
- Fighting.
- Use of alcohol or any other drugs
- Dishonesty and theft of the property.
- Deliberate misuse of the equipment.
- Unnecessary risk-taking.
- Violating or disobeying any instruction given by a supervisor

5.0 General Jobsite Procedures

5.1 New Hire Orientation

New-hire orientation may consist of, but is not limited to, the following:

- Have the employee read the health and safety plan and other safety requirements, guidelines etc. Answer any questions the new hire may have about these policies and request a signature on the Statement of Understanding.
- Orient the employee to the job site indicating the location of the emergency facilities, portable fire extinguishers, first-aid station, emergency phone numbers, public notices, and any job site-specific information.
- Explain the injury and accident policy.
- Review the written hazard communication program. Discuss hazards, container labeling, and the use of protective equipment.
- Explain the emergency response plan for catastrophic events such as fire, explosion, etc.
- Issue PPE as required for the job

5.2 Training

Training and education are necessary for the success of this policy. Employees are trained to recognize job site hazards and the procedures to follow to minimize these hazards. Training may consist of (but is not limited to) the following:

- Weekly job site safety meetings.
- Orientation training for new hires.
- Individual job/task training, including the applicable regulations/standards for the specific job/task.

Supervisors and management receive ongoing safety training throughout the year.

5.3 Safety Meetings

Weekly safety meetings are held on the job site. All employees and subcontractors are required to attend. The meetings may cover a range of safety-related topics. The format and content of the meetings are up to the discretion of the superintendent. Monthly safety meetings are held for all foremen, superintendents, project managers, project engineers, contractors, and other management personnel. These meetings are for the purpose of discussing companywide safety issues and providing continued safety training and education.

5.4 Safety Inspections

The superintendent and foreman conduct an initial safety inspection at the beginning of each project. In addition, a daily safety inspection of the job site is conducted by the contractor employees, employees of a subcontractor, or some combination thereof. The inspection is rotated between all workers on the job site. Any safety concern found during the inspection is reported. If a worker is unclear about any safety aspect, the foreman or project Engineer helps. If the area being inspected requires a *competent person*, the employee conducts the inspection with the competent person. Also, if time allows, the foreman for the worker conducting the inspection is encouraged to walk through it with them.

5.5 Hazard Communication

The contractor needs to develop a written hazard communication plan. It will be explained to each employee during the new-hire orientation. The purpose of the hazard communication plan is to provide employees with information on the chemical and physical hazards that may be present at the job site. Safety Data Sheets for all chemicals will be kept on site.

5.6 Job Hazard Analysis

A job hazard analysis may be developed covering the major activities of construction, the hazards associated with these activities, and ways to mitigate these hazards.

5.7 Housekeeping

Housekeeping is one of the most important factors for a safe job site. Form material should be scraped and all protruding nails pounded down. All other debris is cleared from work areas, passageways, and stairs. Excess materials are stacked neatly out of the way. Tools should be stored in the toolbox so these are available for all employees to use.

Combustible scrap and debris are removed at regular intervals during the course of construction. Containers with covers are provided for the collection and separation of waste, trash, oily and used rags, and other such refuse, which is removed safely and on a regular basis.

Foreign object and debris (FOD) is a significant concern in nearby occupied spaces and construction areas. It is extremely important to keep all trash and debris contained at this site. Housekeeping will be strictly enforced

5.8 Fall Protection

The contractor provides fall protection when employees are exposed to fall hazards.

Fall protection may consist of, but is not limited to, the following:

- A stairway or ladder is provided at any point of access where there is a break in elevation of 19 inches or more.
- Guardrails are installed for all leading-edge work. For loading bay locations fall-arrest systems or fall-restraint systems are used.
- Safety harnesses with approved lanyards and tie-off points are used for all other fall protection unless an appropriate procedure or device was approved in advance by a competent person.
- Stilts may be used on job sites but work area floors must be clean/clear of all debris, materials, and equipment.

5.9 Electrical Safety

Electrical safety may consist of, but is not limited to, the following:

- Live electrical parts are guarded against accidental contact by cabinets, enclosure, location, or guarding.
- Extension cords are kept in safe, working condition.
- All lamps for general illumination have the bulbs protected against breakage. All light sockets are filled with a working bulb.
- Employees will not work in such close (able to contact) proximity to any part of an electric power circuit unless the circuit is de-energized, grounded, or guarded by insulation.
- De-energized equipment or circuits are locked out and tagged out. The tags identify the equipment or circuits being worked on.
- All generators used for temporary power shall be grounded according to manufacturers' specifications.

- Equipment shall not be operated closer than 10 feet from power lines less than 50kV. Safe distance will increase near higher voltage power lines, (over 50kV)

5.10 Tools

The contractor provides tools for employees to use. Only trained employees are allowed to use such tools. The safe use of tools may consist of, but is not limited to the following:

- Unsafe or defective tools are removed from service and tagged out.
- Power tools are turned off and motion stopped before setting down.
- Tools are disconnected from the power source before changing drills, blades, or bits and before any repair or adjustment is made. Running tools are not left unattended.
- Portable abrasive grinders have guards installed covering the upper and back portions of the abrasive wheel.

5.11 Scaffolds

Scaffolds are erected, moved, dismantled, or altered under the supervision of a competent person for scaffolding. Scaffold use consists of, but is not limited to, the following procedures:

- Standard guardrails are installed on all open sides and ends of scaffold platforms and/or work levels more than ten feet below the ground.
- Scaffolds four to ten feet in height with a minimum horizontal dimension in any direction less than 45 inches have standard railings installed on all open sides/ends.
- Platforms at all working levels are fully planked. Planking is laid tight with no more than one inch space between them, overlap at least 12 inches, and extends over end supports 6-12 inches unless cleats are used.
- The front edge of all platforms is no more than 14 inches from the face of the work, except plastering/lathing may be 18 inches.
- Mobile scaffolds are erected no more than a maximum height of four times their minimum base dimension.
- Scaffold casters/wheels are locked whenever the platform is occupied.
- Scaffolds are not overloaded beyond their design loadings.
- Scaffold components are not used as tie-off/anchor points for fall-protection devices.
- Portable ladders, hook-on ladders, attachable ladders, integral prefabricated scaffold frames, walkways, or direct access from another scaffold or structure are used for access when platforms are more than two feet above or below a point of access.
- Cross braces are not used as a means of access to scaffolds.
- Scaffolds are not erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come close to exposed and energized power lines than the following:
 - Three feet from insulated lines of less than 300 volts;
 - Ten feet plus for any other insulated or uninsulated Lines

5.12 Excavation and Trenches

Excavation and trenching are done in the presence of a competent person and in compliance with, but not limited to, the following procedures:

- Any excavation or trench five feet or more in-depth is provided cave-in protection through shoring, sloping, benching, or the use of hydraulic shoring, trench shields, or trench boxes. Trenches less than five feet in depth and showing potential of cave-in are also provided cave-in protection. Specific requirements of each system are dependent upon the soil classification as determined by a competent person.
- A competent person inspects each excavation/trench daily prior to the start of work, after every rainstorm or other hazard-increasing occurrence, and as needed throughout the shift.
- Any material and equipment are kept at least two feet from the edge of the trench or excavation.

5.13 Ladders

Ladders are inspected during the weekly inspections to identify any unsafe conditions. Any ladders found to be unsafe are taken out of service. Extension ladders extend three feet above the work surface and are 100 percent tied off. Step ladders are only used in the open position. Ladders are stored lying down. No standing on the top step or first rung below the top of a step ladder.

5.14 Illumination

Construction areas and storage areas where work is in progress are lighted with either natural or artificial illumination.

5.15 Motor Vehicles and Mechanized Equipment

Vehicles and equipment are only operated by qualified persons (training or experience). All equipment operators are responsible for checking, on a daily basis, all fluid levels, drive components, and hydraulics. In addition, operators visually inspect the engine and look for structural breaks and cracks on the machine. Any and all deficiencies must be reported to a supervisor immediately.

When equipment is stopped or parked, parking brakes are set and other safety precautions are taken as required for the type of equipment such as placing the forks flat on the ground. Keys shall be removed from equipment at the end of each shift.

5.16 Severe Weather

Outside construction operations including, but not limited to site work, and concrete work are suspended if severe wind or rain conditions present safety hazards at the worksite. Rain and wind storm hazards are evaluated and appropriate measures are taken to abate potential hazards.

5.17 Accident

All accidents and near misses must be reported immediately to the foreman or superintendent. An accident report is then filled out by the employee and the supervisor. Filling out an accident report does not require the delay of medical attention. Any injury is treated first. Employees file such reports without fear of reprisal by management. The accident or incident may be discussed at weekly safety meetings to avoid that sort of accident in the future.

5.18 First Aid

First-aid kits are available in the project office, at the appropriate and accessible locations as indicated during orientation. In addition, foremen and superintendents maintain current first aid boxes at the site.

5.19 Fire Protection

The contractor maintains appropriate fire extinguishers at the fire-prone areas of the construction site. All equipment is fitted with portable fire extinguishers. Employees are instructed on the location and usage of these fire extinguishers. Emergency telephone numbers for fire protection and emergency medical services are posted on the field office bulletin board.

5.20 Emergency Action Plan

Each job site develops an emergency action plan that is reviewed with each employee during orientation. The emergency action plan covers emergency escape procedures, procedures followed by employees remaining to operate critical operations before they evacuate, procedures to account for all employees, rescue and medical duties, and how to report emergencies.

5.21 Environmental Protection Plan

This health and safety plan also contains an Environmental Protection Plan for the control, prevention, management, containment, cleanup, and disposal of petroleum products or other hazardous substances which may be generated on each project site. The Project Engineer directs measures to control and prevent accidental discharge of petroleum products or other hazardous substances during storage and transfer on all job sites. Any onsite storage is in approved containers. Absorbent pads and other recovery equipment shall be available to contain and recover any fuel accidentally spilled. Any spills and contaminated soils are cleaned and disposed of in accordance with applicable requirements.

5.22 Traffic and Pedestrian Control

A traffic control plan will be developed and put in place prior to beginning work on the project for the protection of workers and the general public. Barricades and signage must be placed around job site areas to reroute vehicle traffic and keep pedestrians out of the job site.

Project Engineers and Superintendents will evaluate the site before work starts to plan site control. Fencing, signage, and barricades shall be erected and secured as to keep pedestrians out.

Any time while performing work near or on a roadway and a worker has a sense of traffic patterns not being controlled properly or speeds too extreme for conditions, the worker should remove himself from the area and notify Supervisor. The Project Engineer shall stress and discuss, at weekly meetings, for all workers to be aware of traffic hazards and pedestrians.

5.24 Concrete Work

The project involves concrete work. There are many hazards associated with this work including but not limited to; Slips Trips, Falls, Strains and Sprains, Eye Injuries, Chemical Burns, and Silica Exposure. The risk assessment shall be performed for all concrete work to minimize the associated hazards

6.0 Monitoring and Reporting

Monitoring the implementation of the health and safety plan and progress reporting will be very important for the effective enforcement of the plan. PIU project team along with the supervision consultant will validate effective reinforcement of HSMP. The supervision consultant will frequently visit the construction sites and monitor the effectiveness of the plan implementation. The status of implementation will be reported to the PIU fortnightly.

Annex - VIII
Standard Operating Procedures (SOPs) for
COVID-19

STANDARD OPERATING PROCEDURES (SOPs) FOR COVID-19

(Based on World Bank Guidelines)

1 Introduction

The COVID-19 pandemic presents Governments with unprecedented challenges. Addressing COVID-19 related issues in both existing and new operations starts with recognizing that this is not business as usual and that circumstances require a highly adaptive responsive management design to avoid, minimize and manage what may be a rapidly evolving situation. In many cases, reasonable efforts must be put in during the circumstances, recognizing that what may be possible today may be different next week (both positively, because more supplies and guidance may be available, and negatively, because the spread of the virus may have accelerated).

2 Challenges with Construction/ Civil Works

Projects involving construction/ civil works frequently involve a large work force, together with suppliers and supporting functions and services at the designated location. The work force may comprise workers from local areas more specifically. They may need to live in on-site accommodation, lodge within communities close to work sites or return to their homes after work. There may be different contractors permanently present on site, carrying out different activities, each with their own dedicated workers.

Given the complexity and the concentrated number of workers, the potential for the spread of infectious disease in projects involving construction is extremely serious, as are the implications of such a spread. Projects may experience large numbers of the work force becoming ill, which will strain the project's health facilities, have implications for local emergency and health services and may jeopardize the progress of the construction work and the schedule of the project. Such impacts will be exacerbated where a work force is large and/or the project is in remote or under-serviced areas. In such circumstances, relationships with the community can be strained or difficult and conflict can arise, particularly if people feel they are being exposed to disease by the project or are having to compete for scarce resources. The project must also exercise appropriate precautions against introducing the infection to local communities.

3 Responsibility/ Planning of the PIU of KWSSIP

PIU shall ensure that sub projects (i) are taking adequate precautions to prevent or minimize an outbreak of COVID-19, and (ii) have identified what to do in the event of an outbreak.

4 Contractor cover

The Contractor should identify measures to address the COVID-19 situation. What will be possible will depend on the context of the project: the location, existing project resources, availability of supplies, capacity of local emergency/ health services, the extent to which the virus already exist in the area. A systematic approach to planning, recognizing the challenges associated with rapidly changing circumstances, will help the project put in place the best measures possible to address the situation. As discussed above, measures to address COVID-19 may be presented in different ways (as a contingency plan, as an extension of the existing project emergency and preparedness plan or as standalone procedures). PIU and contractor should refer to guidance issued by relevant authorities, both national and international (e.g., WHO).

Addressing COVID-19 at a project site goes beyond occupational health and safety, and is a broader project issue which will require the involvement of different members of a project management team. In many cases, the most effective approach will be to establish procedures to address the issues, and then to ensure that these procedures are implemented systematically. Where appropriate given the project context, a designated team should be established to address COVID-19 issues, including PIU representatives, the Supervising Engineer, management (e.g. the project manager) of the contractor and sub-contractors, security, and medical and OHS professionals. Procedures should be clear and straightforward, improved as necessary, and supervised and monitored by the COVID-19 focal point(s). Procedures should be documented, distributed to all contractors, and discussed at regular meetings to facilitate adaptive management. The issues set out below include a number that represent expected good workplace management but are especially pertinent in preparing the project response to COVID- 19.

(a) Assessing Workforce Characteristics

Many construction sites will have a mix of workers e.g., workers from the local communities specifically; workers from a different part of the country. Workers will be employed under different terms and conditions and be accommodated in different ways. Assessing these different aspects of the workforce will help in identifying appropriate mitigation measures:

- The Contractor should prepare a detailed profile of the project work force, key work activities, schedule for carrying out such activities, different durations of contract and rotations (e.g., 4 weeks on, 4 weeks off).
- This should include a breakdown of workers who reside at home (i.e., workers from the community), workers who lodge within the local community and workers in on-site accommodation. Where possible, it should also identify workers that may be more at risk from COVID-19, those with underlying health issues or who may be otherwise at risk.
- Consideration should be given to ways in which to minimize movement in and out of site. This could include lengthening the term of existing contracts, to avoid workers returning home to affected areas, or returning to site from affected areas.
- Workers accommodated on site should be required to minimize contact with people near the site, and in certain cases be prohibited from leaving the site for the duration of their contract, so that contact with local communities is avoided.
- Consideration should be given to requiring workers lodging in the local community to move to site accommodation (subject to availability) where they would be subject to the same restrictions.
- Workers from local communities, who return home daily, weekly or monthly, will be more difficult to manage. They should be subject to health checks at entry to the site (as set out above) and at some point, circumstances may make it necessary to require them to either use accommodation on site or not to come to work.

(b) Entry/ Exit to the Work Site and Checks on Commencement of Work

Entry/ exit to the work site should be controlled and documented for both workers and other parties, including support staff and suppliers. Possible measures may include:

Establishing a system for controlling entry/ exit to the site, securing the boundaries of the site, and establishing designating entry/ exit points (if they do not already exist). Entry/ exit to the site should be documented.

- Training security staff on the (enhanced) system that has been put in place for securing the site and controlling entry and exit, the behaviors required of them in enforcing such system and any COVID -19 specific considerations.
- Training staff who will be monitoring entry to the site, providing them with the resources they need to document entry of workers, conducting temperature checks and recording details of any worker that is denied entry.
- Confirming that workers are fit for work before they enter the site or start work. While procedures should already be in place for this, special attention should be paid to workers with underlying health issues or who may be otherwise at risk. Consideration should be given to demobilization of staff with underlying health issues.
- Checking and recording temperatures of workers and other people entering the site or requiring self-reporting prior to or on entering the site.
- Providing daily briefings to workers prior to commencing work, focusing on COVID-19 specific considerations including cough etiquette, hand hygiene and distancing measures, using demonstrations and participatory methods.
- During the daily briefings, reminding workers to self-monitor for possible symptoms (fever, cough) and to report to their supervisor or the COVID-19 focal point if they have symptoms or are feeling unwell.
- Preventing a worker from an affected area or who has been in contact with an infected person from returning to the site for 14 days or (if that is not possible) isolating such worker for 14 days.
- Preventing a sick worker from entering the site, referring them to local health facilities if necessary or requiring them to isolate at home for 14 days.

(c) General Hygiene

Requirements on general hygiene should be communicated and monitored, to include:

- Training workers and staff on site on the signs and symptoms of COVID-19, how it is spread, how to protect themselves (including regular handwashing and social distancing) and what to do if they or other people have symptoms (for further information see WHO COVID-19 advice for the public).
- Placing posters and signs around the site, with images and text in local languages.
- Ensuring handwashing facilities supplied with soap, disposable paper towels and closed waste bins exist at key places throughout site, including at entrances/exits to work areas; where there is a toilet, canteen or food distribution, or provision of drinking water; in worker accommodation; at waste stations; at stores; and in common spaces. Where handwashing facilities do not exist or are not adequate, arrangements should be made to set them up. Alcohol based sanitizer (if available, 60-95% alcohol) can also be used.
- Review worker accommodations, and assess them in light of the requirements set out in IFC/EBRD guidance on Workers' Accommodation: processes and standards, which provides valuable guidance as to good practice for accommodation.
- Setting aside part of worker accommodation for precautionary self-quarantine as well as more formal isolation of staff who may be infected (see paragraph (f)).

(d) Cleaning and Waste Disposal

Conduct regular and thorough cleaning of all site facilities. Review cleaning protocols for key construction equipment (particularly if it is being operated by different workers). This should include:

- Providing cleaning staff with adequate cleaning equipment, materials and disinfectant.
- Review general cleaning systems, training cleaning staff on appropriate cleaning procedures and appropriate frequency in high use or high-risk areas.
- Where it is anticipated that cleaners will be required to clean areas that have been or are suspected to have been contaminated with COVID-19, providing them with appropriate PPE: gowns or aprons, gloves, eye protection (masks, goggles or face screens) and boots or closed work shoes. If appropriate PPE is not available, cleaners should be provided with best available alternatives.
- Training cleaners in proper hygiene (including handwashing) prior to, during and after conducting cleaning activities; how to safely use PPE (where required); in waste control (including for used PPE and cleaning materials).

(e) Adjusting Work Practices

Consider changes to work processes and timings to reduce or minimize contact between workers, recognizing that this is likely to impact the project schedule. Such measures could include:

- Decreasing the size of work teams.
- Limiting the number of workers on site at any one time.
- Adapting or redesigning work processes for specific work activities and tasks to enable social distancing, and training workers on these processes.
- Continuing with the usual safety trainings, adding COVID-19 specific considerations. Training should include proper use of normal PPE. While as of the date of this note, general advice is that construction workers do not require COVID-19 specific PPE, this should be kept under review (for further information see WHO interim guidance on rational use of personal protective equipment (PPE) for COVID-19).
- Reviewing work methods to reduce use of construction PPE, in case supplies become scarce or the PPE is needed for medical workers or cleaners. This could include, e.g. trying to reduce the need for dust masks by checking that water sprinkling systems are in good working order and are maintained or reducing the speed limit for haul trucks.
- Arranging (where possible) for work breaks to be taken in outdoor areas within the site.

At some point, it may be necessary to review the overall project schedule, to assess the extent to which it needs to be adjusted (or work stopped completely) to reflect prudent work practices, potential exposure of both workers and the community and availability of supplies, taking into account Government advice and instructions.

(f) Project Medical Services

- Training medical staff, which should include current WHO advice on COVID-19 and recommendations on the specifics of COVID-19. Where COVID-19 infection is suspected, medical providers on site should follow WHO interim guidance on infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected.

- Training medical staff in testing, if testing is available.
- Assessing the current stock of equipment, supplies and medicines on site, and obtaining additional stock, where required and possible. This could include medical PPE, such as gowns, aprons, medical masks, gloves, and eye protection. Refer to WHO guidance as to what is advised (for further information see WHO interim guidance on rational use of personal protective equipment (PPE) for COVID-19).
- If PPE items are unavailable due to world-wide shortages, medical staff on the project should agree on alternatives and try to procure them. Alternatives that may commonly be found on construction sites include dust masks, construction gloves and eye goggles. While these items are not recommended, they should be used as a last resort if no medical PPE is available.
- Ventilators will not normally be available on work sites, and in any event, intubation should only be conducted by experienced medical staff. If a worker is extremely ill and unable to breathe properly on his or her own, they should be referred immediately to the local hospital (see (g) below).
- Review existing methods for dealing with medical waste, including systems for storage and disposal (for further information see WHO interim guidance on water, sanitation and waste management for COVID-19, and WHO guidance on safe management of wastes from health-care activities).

(g) Local Medical and Other Services

Given the limited scope of project medical services, the project may need to refer sick workers to local medical services. Preparation for this includes:

- Obtaining information as to the resources and capacity of local medical services (e.g. number of beds, availability of trained staff and essential supplies).
- Conducting preliminary discussions with specific medical facilities, to agree what should be done in the event of ill workers needing to be referred.
- Considering ways in which the project may be able to support local medical services in preparing for members of the community becoming ill, recognizing that the elderly or those with pre-existing medical conditions require additional support to access appropriate treatment if they become ill.
- Clarifying the way in which an ill worker will be transported to the medical facility, and checking availability of such transportation.
- Establishing an agreed protocol for communications with local emergency/medical services.
- Agreeing with the local medical services/specific medical facilities the scope of services to be provided, the procedure for in-take of patients and (where relevant) any costs or payments that may be involved.
- A procedure should also be prepared so that project management knows what to do in the unfortunate event that a worker ill with COVID-19 dies. While normal project procedures will continue to apply, COVID-19 may raise other issues because of the infectious nature of the disease. The project should liaise with the relevant local authorities to coordinate what should be done, including any reporting or other requirements under national law.

(h) Instances or Spread of The Virus

- If a worker has symptoms of COVID-19 (e.g. fever, dry cough, fatigue) the worker should be removed immediately from work activities and isolated on site.
- If testing is available on site, the worker should be tested on site. If a test is not available at site, the worker should be transported to the local health facilities to be tested (if testing is available).
- If the test is positive for COVID-19 or no testing is available, the worker should continue to be isolated. This will either be at the work site or at home. If at home, the worker should be transported to their home in transportation provided by the project.
- Extensive cleaning procedures with high-alcohol content disinfectant should be undertaken in the area where the worker was present, prior to any further work being undertaken in that area. Tools used by the worker should be cleaned using disinfectant and PPE disposed of.
- Co-workers (i.e. workers with whom the sick worker was in close contact) should be required to stop work, and be required to quarantine themselves for 14 days, even if they have no symptoms.
- Family and other close contacts of the worker should be required to quarantine themselves for 14 days, even if they have no symptoms.
- If a case of COVID-19 is confirmed in a worker on the site, visitors should be restricted from entering the site and worker groups should be isolated from each other as much as possible.
- If workers live at home and has a family member who has a confirmed or suspected case of COVID-19, the worker should quarantine themselves and not be allowed on the project site for 14 days, even if they have no symptoms.

(i) Training and Communication with Workers

- Training of workers should be conducted regularly, as discussed in the sections above, providing workers with a clear understanding of how they are expected to behave and carry out their work duties.
- Training should address issues of discrimination or prejudice if a worker becomes ill and provide an understanding of the trajectory of the virus, where workers return to work.
- Training should cover all issues that would normally be required on the work site, including use of safety procedures, use of construction PPE, occupational health and safety issues, and code of conduct, taking into account that work practices may have been adjusted.
- Communications should be clear, based on fact and designed to be easily understood by workers, for example by displaying posters on handwashing and social distancing, and what to do if a worker displays symptoms.

Annex -IX
Emergency Response Plan

Emergency Response Plan

1. Introduction

Emergency management can be defined as the organization, coordination, and implementation of a range of measures to prevent, mitigate, respond to, overcome, and recover from the consequences of emergency events affecting the community, its assets, and the environment.

2. Purpose of Plan

This plan intends to provide a framework for the safety and security of infrastructure, people, and vehicles. It assigns responsibility to organizations and individuals for carrying out specific actions at projected times and places in an emergency situation that exceeds the capability or routine responsibility of any individual or agency.

The emergency response plan provides guidance to;

- Flood preparedness and response;
- Prevent any other potential sources causing hazards to the resources during all stages of the project;
- Coordinate between various organizations to take actions in case of emergencies;
- Protect people and property in emergencies and disasters;
- Develop procedures to respond to emergencies efficiently;
- Identify and ensure availability of personnel, equipment, facilities, supplies, and other resources for use in order to provide a timely and efficient response and recovery operations; and
- Confirm that measures taken in an incident are adequate to recover the affected resources or that further improvements are needed.

3. Planning

i. Emergency Response Team

A group/ team within the contractor will be dedicated to identifying and controlling potential emergencies during the construction and operation of the project. The roles and responsibilities of the group members shall be clearly defined.

The primary responsibilities of the group are described below:

- Identify the potential hazard or risk sources that can lead to emergency situations;
- Ensure availability of adequate resources, procedures, and communication systems to deal with the identified emergency situations;
- Ensure awareness and training of the staff to facilitate the implementation of the emergency response plan;

- Maintaining the records of any previous incidents; and
- Post-event analysis to bridge the gaps in the existing risk prevention procedures.

The emergency response team shall include but not be limited to the following;



A. Site Incharge

- Approve/ modify devised measures to prevent or mitigate the risks associated with the identified risk sources;
- Arrange resources for dealing with potential emergencies including, financial, equipment, and personnel required to deal with emergencies;
- Assure that the Emergency Response Plan is adequate, effective, and implementable.

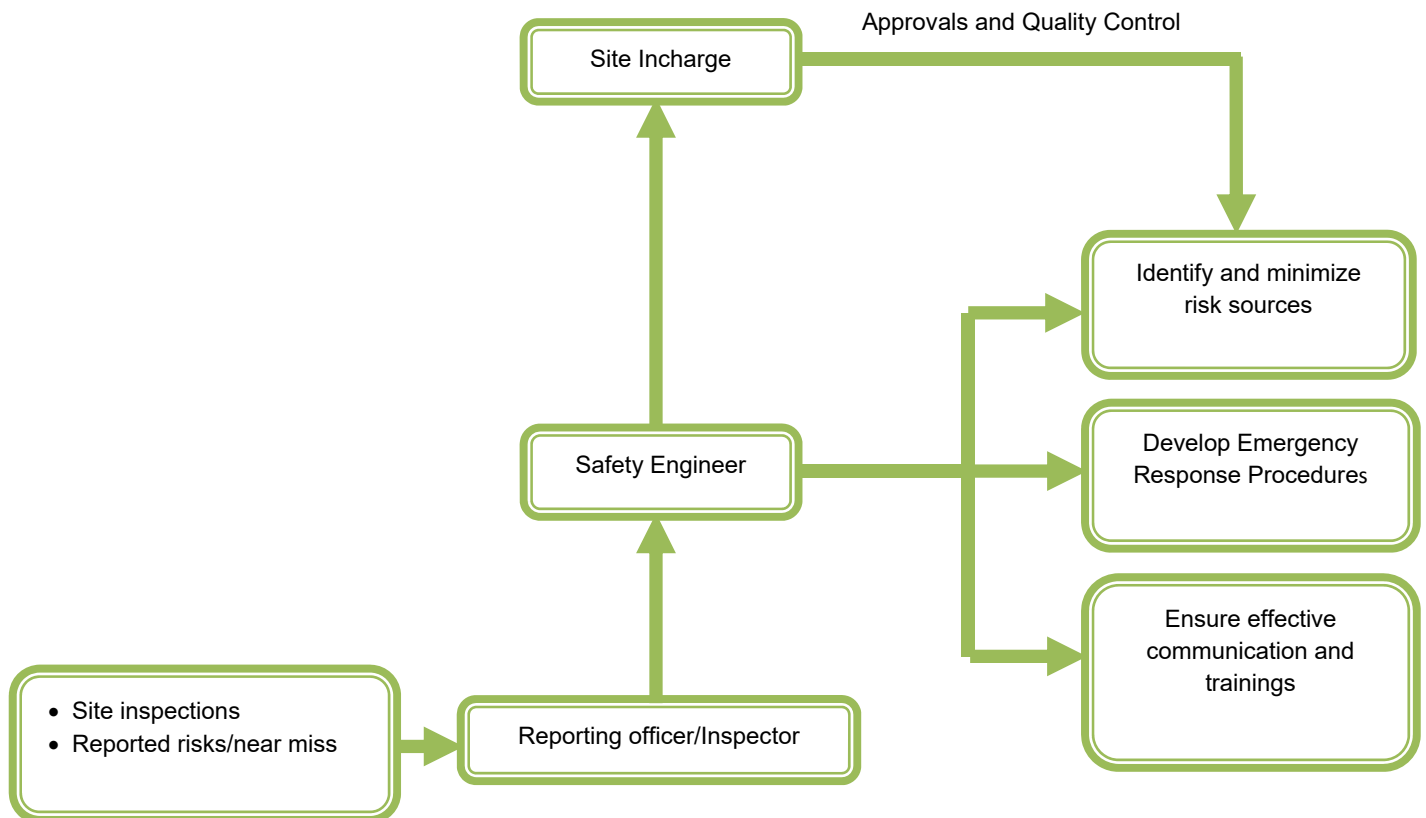
B. HSE/Safety Engineer

- Coordinate with Contractor regarding data related precipitation, flood gauges, water levels at coffer dam, and device flood preparedness measures/alerts, communicate to site in-charge and contractor.
- Analyze the Identified risk sources and devise measures to prevent or mitigate the risks in close consultation with the Team Leader;
- Develop and implement the Emergency Response Procedures, in case of possible emergencies arise;
- Ensure effective internal and external communication; and
- Provide regular training and arrange drills to make people aware of dealing with emergencies.

C. Reporting Officer/Inspector

- Regular inspections of the site, to identify potential risks associated with equipment, materials, and work practices;
- Anybody from the site can notify the reporting officer about potential risks and/ or near-misses on the site;
- Record any identified risks and mitigation measures to control the identified risk; and
- Notify the issue and control measures taken thereby to the safety engineer.

The designation, roles, and responsibilities of each member shall be clearly defined and communicated to the employees. An outline of the framework of responsibilities is presented in the following organizational chart:



ii. Hazard Identification

Comprehensive identification and evaluation of the hazards/ risks likely to cause an emergency shall be done by Emergency Response Team (ERT). Major potential emergencies identified in projects are as follows:

- Floods
- Fire
- Earthquake
- Terrorism (including bombing)
- Disease Outbreak
- Structural failure
- Disruption of Utilities (Power, Water, Telecommunications, Gas, etc.)
- Accidents (falls, slips, electric shocks etc.)
- Vehicular accident
- Power/ equipment failure
- Vandalism

iii. Prevention and Mitigation

The ERT shall work to eliminate or reduce the impact of identified emergencies and increase the resilience of an affected community to recover from the consequences of such events. These activities include:

- Design considerations to control flooding, earthquakes, and other hazards;
- Regular inspection and maintenance of construction machinery and structural integrity;
- Review of work schedules based on weather updates; and
- Security controls based on political situations.

Specific measures to deal with the flood are given hereunder:

- Water level gauges will be installed by the Contractor at a reasonable distance upstream of the construction site to monitor the flood magnitude that may reach the construction site as well as upstream of the coffer dam;
- The contractor will make a close liaison with Pakistan Meteorological Department (PMD) for actual rainfall observations at the closest available rainfall gauging station. Data of water level gauges and PMD will be submitted by the Contractor to the Project Manager on daily basis during dry days and a 3-hourly basis during wet days;
- Flood alert at the site to abstain from working within the river will be issued based on rainfall magnitude observed at the designated gauging station and the water level gauge installed upstream of the construction site. The threshold rainfall magnitude will be defined by the Hydrologists of the Supervision Consultant and the Contractor;
- The coffer dam/diversion arrangement has been designed for a 2.33-year return period discharge and the corresponding depth of rainfall is 53.2 mm (2.1 inches) which should be kept as the threshold rainfall. In case the threshold value is recorded at the gauge installed, the emergency is activated and the construction site and Dur Mohammad Baloch Goth settlement shall be evacuated immediately, following evacuation procedures.
- On issuance of a flood alert, the Contractor will evacuate the site on an immediate basis and reinstate the construction activities after the end of that specific flood event.
- For flood vigilance, the following measures will be implemented;
 - a. Monitoring of weather forecast / Warnings at the PMD website
 - b. Monitoring of qualitative weather outlook at;
https://ffd.pmd.gov.pk/uploads/flood_bulletin_a.pdf
 - c. Monitoring of PMD rainfall forecast at;
https://ffd.pmd.gov.pk/uploads/flood_bulletin_b.pdf
- Contractor camp, construction material, machinery, and site facilities will not be placed in the areas that are prone to flooding / active creeks.
- Warning signals/signs for evacuation of employees and nearby communities in case of emergency should be developed and posted;
- Cofferdam walkways, bridges, or ramps with at least two means of rapid exit shall be provided with guardrails.

- Contractor should prepare the contractor’s Emergency Response Plan as per the current Emergency Response Plan before the start of construction and get it reviewed and cleared by the Supervision Consultant.
- Emergency Response Plan should be displayed at the work site as well as Dur Mohammad Baloch Goth settlement, about 3500 ft upstream of Malir River.
- The part of the settlement where NSL is lower than the normal flood levels will be declared as a “No Entry Zone” during monsoon and barricaded to restrict entry and strict instructions will be imposed in this regard.
- Flyers will be distributed to raise awareness regarding emergency response.

Table: Risk Evaluation Matrix

Sr. No.	Scenario	Risk	Mitigation Measures
1	No Cofferd Dam	Failure of G.K Conduit	-
2	Cofferd Dam as proposed i.e., @ 5-year return period Discharge	Flood is < 5 years return period discharge	No threats and construction may proceed
		Flood is equal to a 5-year return period discharge	Construction activity shall be stopped immediately once the water levels upstream of Cofferd dam embankment starts encroaching the freeboard.
		Flood is > 5-year return period discharge	The cofferd dam embankment shall overtop / breach without posing any hindrance to the flood.
3	Cofferd Dam is provided for discharges greater than 5- year return period	Ponding at upstream	-

4. Emergency Preparedness

The ERT shall be prepared with all necessary resources and the personnel shall be trained regularly.

i. Resources

Finance and Administration

The financial resources will be reserved for dealing with any emergencies arising on-site during construction. The responsibilities of the person managing the resources in case of emergencies will be clearly defined and the required resources will be adequate and updated regularly.

Equipment

All the necessary equipment needed in an event of emergencies will be made available, as a minimum, the equipment needed includes;

- Personal Protective Equipment
- Alarms/ Warnings
- Fire extinguishers
- Crowd control, flashlights, signs, barricades
- First Aid Facility
- Detection instruments, e.g., personal alarm kits; smoke detection instruments
- Tools to fix minor vandalism

Communication

All external and internal communication systems will be made available. Local emergency numbers will be clearly posted and communicated to the personnel involved in construction.

The local emergency numbers are given below, which will be regularly updated.

Emergency Numbers

	Service	Karachi (021)
1	Edhi Services	241 3232
2	Edhi Ambulance	115
3	Emergency Police	15
4	Fire Brigade Center	16
5	Civil Hospital	021-99215740
6	Chippa Service	1020

Trainings

Personnel will be made aware of the importance of safety, potential emergencies, and how to respond in case of emergencies. One-day training and mock exercise will be done to prepare, the personnel to deal with emergencies.

One day workshop to explain Emergency Response Plan including emergency communication and evacuation drill for nearby communities, especially Dur Mohammad Baloch Goth settlement will be carried out by PIU, Supervision Consultant and Contractor

5. Emergency Response

The response includes actions taken to reduce the impacts of an emergency event and to limit the threat to life, property, and the environment.

The emergencies can be dealt with:

- On-site Management of the situation
- Off-site coordination to arrange necessary resources to support the on-site management
- Providing advice and reports of the situation to stakeholders

i. Emergency Response Procedure:

Any person can report an emergency, an on-site worker, an outside agency, or the public. Circumstances change during the course of an emergency in different events; thus, the procedure will vary as per the specific situation on the ground. However, a basic action plan to be followed in an emergency is discussed below. This order of response is applicable to almost any emergency and should be followed in sequence.

Assess the situation:

The most important thing to do in case of an emergency is to stay calm and avoid panic. Assess the situation, the cause and the most immediate requirement to control, limit and/ or manage the immediate, ongoing, or further damage.

Immediate control:

The most senior person on the scene should take control and contact, or delegate someone to contact emergency services as posted and communicated by ERT and inform the reporting officer of ERT and explain the situation. The area of emergency will be restricted by barricades, tapes, and adequate signage, if and as required.

Protection from further losses:

- Once the site is restricted, to provide protection and reduce further losses, the source causing the emergency will be controlled including equipment, materials, environment, and accident scene from continuing damage or further hazards to the area and people. e.g., suppress fire, prevent objects from falling, shut down equipment or utilities, and take other necessary measures as required depending upon the type of emergency;
- Provide first aid if required or in doing so; designate people to emergency duties. e.g., assign personnel to guide emergency services on arrival;
- Headcount people/ personnel to identify any missing persons;
- People/ personnel will be directed to a safe location,

- Preserve the accident scene until experts mark it safe; only disturb what is essential to maintain life or relieve human suffering and prevent immediate or further losses.

ii. Communication:

Emergency Service Providers:

Emergency service providers need to be kept informed of the situation. On-site, personnel from the emergency services will be guided towards the emergency scene, brief about the event, ongoing and potential hazards, and cause(s), if known.

Emergency Response Team and Management:

Members of ERT will be immediately informed and the management will also be kept informed.

Public:

Timely notifications to the public will be disseminated through electronic and print media depending upon the requirement and urgency of the emergency so that they can adopt alternate routes and avoid the hazards associated with the emergency encountered.

The notification procedures to the nearby communities, especially to Dur Mohammad Baloch Goth settlement should be established and be part of Contractor's Emergency Action Plan.

Utilities:

In case of disruption of utilities, the utility control authorities will be immediately contacted to control the situation.

iii. Evacuation

Evacuation procedures for workers and community, especially Dur Mohammad Baloch Goth settlement, including emergency warning system, evacuation route, traffic control, reentry into affected areas should be developed as part of contractor's Emergency Action Plan.

6. Recovery:

The emergency-affected individuals, communities, and infrastructure will be restored in terms of emotional, economic, and physical well-being including the following as a minimum:

- A detailed analysis and assessment of causes of the emergency, extent of damage, and gaps if any, in managing the emergency;
- Recovery/ replacement of the assets and infrastructure;
- Reinstatement of disrupted services;

- Updating of safety arrangements and Emergency response procedures to ensure better safety and security in any other arising emergencies.

Annex -X
Resource Conservation Plan

Resource Conservation Plan

1. Introduction:

The resources in this world are not infinite. We are completely dependent on the resources of the earth to fulfill all our day-to-day requirements. Sustainable development calls for the need to conserve resources, especially the non-renewable resources.

2. Objective of the plan:

The Resource Conservation Plan is intended to make an effort towards achieving sustainable development. The objective of the resource conservation plan is to:

- Minimize the use of natural resources; and
- Mitigate/ prevent pollution contaminating the natural resources.

3. Planning:

Careful estimations of quantities of material, fuel, water and energy required directly or indirectly shall be done to avoid excessive or unnecessary wastage of these materials. In addition to this, pollution prevention strategies shall also be devised to prevent contamination of resources.

The estimations include the following:

1. Estimation of construction material required for the project
2. Estimation of fuel consumption for construction machinery, construction vehicles and generators etc.
3. Estimations of the energy requirements during all the stages of the project
4. Estimations of water consumption for construction activities and construction camp sites.

The pollution prevention strategies include the following

1. Strategies shall be planned to reduce loads on the identified resources to be consumed;
2. Best management practices shall be devised to control or reduce pollution resulting from the activities during different stages of the project; and
3. An inspector shall be assigned responsibility to oversee the ongoing activities to check the compliance of the planned strategies.

4. Execution of the plan:

The planned strategies shall be implemented to conserve the natural resources including but not limited to the following:

Material

- Material supplied shall be in conformance with the estimated quantities and excess material shall be returned to the supplier;
- Material wastage shall be avoided by using best management practices;
- Waste produced during the project execution shall be disposed of safely to the designated disposal sites through approved contractors; and
- Reuse of the materials shall be appreciated.

Fuel/Energy

- Reduce trips and optimize routes to and from the construction site for all kinds of activities;
- Regular maintenance of equipment and vehicles to avoid leaks and sustain efficient fuel consumption;
- Switch off/plug off idle equipment and vehicles to avoid wastage of fuel;
- Minimize warm up time, unnecessary acceleration and deceleration of the construction equipment and vehicles;
- Avoid unnecessary burning of fuel for cooking in construction camps;
- Avoid unnecessary heating/cooling systems during extreme weathers;
- Construction shall start in early hours of the day to avoid heat in summers and utilization of day light; and
- Alternate energy sources shall be considered for electricity generations during construction to conserve fossil fuel as it is nonrenewable resource.

Water

- Avoid using potable water for sprinkling, curing and washing of equipment/ vehicles. Surface water or treated effluent can be used instead;
- Wastage of water should be controlled through providing proper valves and through controlling pressure of the water;
- Unnecessary equipment washings should be avoided;
- Awareness amongst workers shall be raised to conserve water and immediately report for any leaks detected; and

Pollution:

- Emissions shall be reduced/controlled as far as possible and direct discharges to air shall be avoided by strictly adhering to the mitigation measures outlined in ESMP report;
- Waste water shall not be discharged directly into the water body and must be managed as per the recommendations presented in ESMP; and

- Construction & demolition waste and municipal solid waste shall not be dumped/ burnt openly and shall be handled according to the preventative measure given in ESMP study.

5. Checking and Corrective Actions

The proponent shall bind the construction contractor through contract agreement to comply the strategies outlined in Resources Conservation Plan. The proponent shall also appoint an Inspector who shall monitor the daily onsite activities and shall report any issues/ concerns raised in relation to Resource Conservation Plan. The inspector shall recommend adequate corrective actions to mitigate the issues raised.

Annex - XI
Site Rehabilitation Plan

SITE REHABILITATION PLAN

The project site should be rehabilitated after the completion of construction work. The rehabilitation will include following:

- Rehabilitation of construction camp site
- Removal of construction waste and debris
- Rehabilitation of road after laying of water/ sewer pipes

1. Rehabilitation of construction camp site

The construction camps will damage the camp site/area by following:

- Generation of solid waste;
- Generation of wastewater;
- Damage to soil due to compaction by the camps/containers;
- Damage to air quality by the operation of generators or burning of fuels;
- Hunting and poaching of animals; and
- Damage to resources.

Following measures should be adopted to rehabilitate the campsite:

- The removed/damaged flora should be replanted;
- The solid waste should be removed from the site and disposed of to the dumping area;
- Wastewater generated from the site should be either directed to the sewerage system or removed through the suction trucks;
- Soil should be reclaimed and rehabilitated; and
- Buildings may be used for any other purpose

2. Removal of construction waste and debris from site

The construction waste and debris generated at the site should be segregated and removed from the site by a licensed contractor.

Annex -XII
Chance Find Procedures

CHANCE FIND PROCEDURES

Project may involve deep excavation. Therefore, the possibility of chance find is not ignorable. In case of any chance find, the contractor will immediately report through Supervision Consultant to Directorate General (DG) of Antiquities & Archaeology, Government of Sindh to take further suitable action to preserve those antique or sensitive remains. Representative of the "Director Archaeology and Museum (DAM)" will visit the site and observed the significance of the antique, artifact and Cultural (religious) properties and significance of the project. The documentation will be completed and if required suitable action will be taken to preserve those antiques and sensitive remains.

In case any artifact, antiques and sensitive remains are discovered, chance find procedures should be adopted by contractor workers as follows:

- Stop the construction activities in the areas of chance find;
- Delineate the discovered site or area;
- Consult with the local community and provincial Archeological Department
- The suggestion of the local communities and the concerned authorities will be suitably incorporated during taking the preventive measures to conserve the antique, artifact and cultural (religious) properties
- Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remain, a night guard shall be arranged until the responsible local authorities take over;
- After stopping work, the contractor must immediately report the discovery to the Supervision Engineer.

The contact Address of Directorate General of Antiquities & Archaeology is given below:

Antiquities House. C/82, Block-2,
Near Bilal Masjid, Clifton, Karachi,
Sindh 75600

Tel: 021-99212126
021-99212127

ANNEX-XIII
Consultation Meetings with Institutional Stakeholders

Consultation Meetings with Institutional Stakeholders

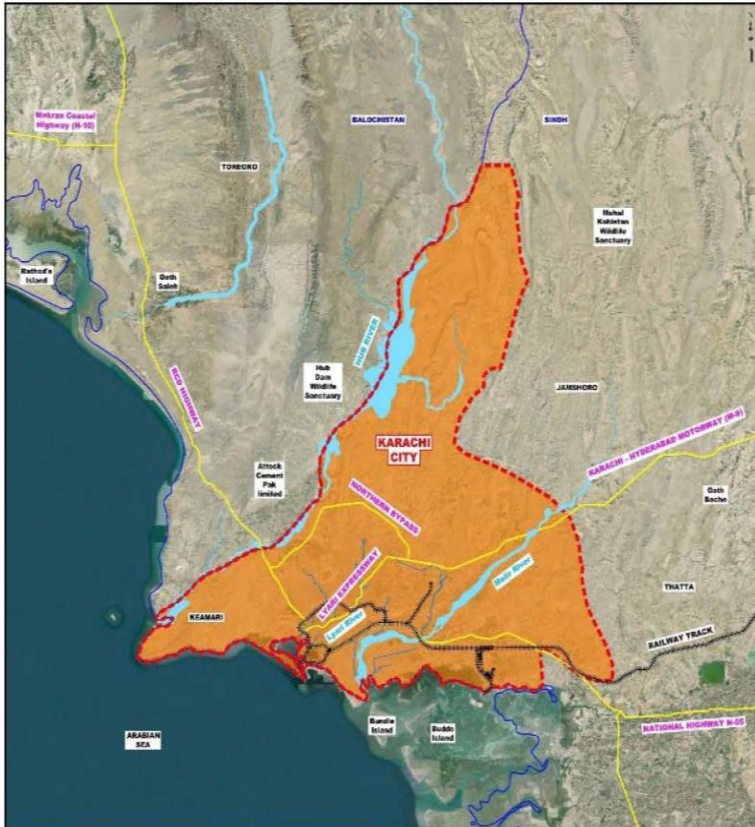
Sr. No	Department	Participants
1	KW&SB	<p style="text-align: center;">Akram Baloch (Project Manager 84" Conduit)</p> <p style="text-align: center;">Syed Zeeshan Abbas (Senior Engr. NESPAK)</p> <p style="text-align: center;">Abdul Manan (Senior Engr. NESPAK)</p> <p style="text-align: center;">M. Anns (Junior Engr. NESPAK)</p>
2	K. Electric	<p style="text-align: center;">Mr. Sarmad (Public Relations Officer)</p> <p style="text-align: center;">Syed Zeeshan Abbas (Senior Engr. NESPAK)</p> <p style="text-align: center;">Abdul Manan (Senior Engr. NESPAK)</p> <p style="text-align: center;">M. Anns (Junior Engr. NESPAK)</p>
3	Sindh Environmental Protection Agency (SEPA)	<p style="text-align: center;">Mr. Imran Sabir (Deputy Director Technical, SEPA)</p> <p style="text-align: center;">Ms. Kiran (PIU)</p> <p style="text-align: center;">Mr. Aneeqe Ahmad (NESPAK)</p> <p style="text-align: center;">Mr. Syed Zeeshan Abbas (NESPAK)</p>
5	Irrigation	<p style="text-align: center;">Muhammad Ayub Sumro (Additional Secretary Technical)</p> <p style="text-align: center;">Syed Zeeshan Abbas (Senior Engr. NESPAK)</p> <p style="text-align: center;">Abdul Manan (Senior Engr. NESPAK)</p> <p style="text-align: center;">M. Anns (Junior Engr. NESPAK)</p>
5	Forest	<p style="text-align: center;">Mr. Shahzad Sadiq District Forest Officer (social wing)</p> <p style="text-align: center;">Syed Zeeshan Abbas (Senior Engr. NESPAK)</p> <p style="text-align: center;">Mrs. Adeera (Social/ Gender Specialist. NESPAK)</p> <p style="text-align: center;">M. Anns (Junior Engr. NESPAK)</p>
6	Fisheries	<p style="text-align: center;">Dr. Muhammad Ali (Director General Fisheries)</p> <p style="text-align: center;">Syed Zeeshan Abbas (Senior Engr. NESPAK)</p>

		<p>Abdul Manan (Senior Engr. NESPAK)</p> <p>M. Anns (Junior Engr. NESPAK)</p>
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Annex-XIV
Labor Management Procedures



Labor Management Procedures



Karachi Water & Sewerage Services Improvement Project

Series of Project-1 (SOP-1)

December 2022



LIST OF ABBREVIATIONS

AIIB	Asian Infrastructure Investment Bank
BMP	Best Management Practice
CBA	Collective Bargaining Agent
CNIC	Computerized National Identity Card
CoC	Code of Conduct
COVID-19	Corona Virus Disease 2019
DSC	Design and Supervision Consultants
E&S	Environment and social
ECA	Employment of Child Act
EHS	Environmental Health & Safety
EOAB	Employees Old-Age Benefits
ESF	Environmental and Social Framework
ESHS	Environmental, Social, Health and Safety
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESS	Environmental and Social Standard
GBV	Gender-based violence
GoS	Government of Sindh
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HR	Human Resource
IA	Implementing Agency
ILO	International Labour Organization
IRO	Industrial Relations Ordinance
KMC	Karachi Metropolitan Corporation
KW&SB	Karachi Water and Sewerage Board
KWSSIP	Karachi Water and Sewerage Services Improvement Project
LMP	Labor Management Procedures
NEBOSH	National Examination Board in Occupational Safety and Health
NFPA	National Fire Protection Association
O&M	Operation and maintenance
OHS	Occupational Health and Safety
OHSMP	OHS Management Plan
PD	Project Director
PIU	Project Implementation Unit
PPE	Personal Protective Equipment
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
SEA	Sexual Exploitation and Abuse
SEPA	Sindh Environmental Protection Agency
SH	Sexual Harassment
SOP	Standard Operating Procedure
SOP	Series of Projects
UN	United Nations

VPP Voluntary Protection Program
WB World Bank
WBG World Bank Group

EXECUTIVE SUMMARY

The Government of Sindh (GoS) through the Karachi Water and Sewerage Board (KW&SB) is implementing the Karachi Water and Sewerage Services Improvement Project (KWSSIP) (the project) with financial assistance from the World Bank (WB) and Asian Infrastructure Investment Bank (AIIB) for the implementation of the First Phase of Karachi Water and Sewerage Services Project (KWSSIP-1) (the proposed project). The KW&SB has prepared these Labor Management Procedures (LMP) to describe the requirements regarding labor and working conditions which will be applicable to the proposed project in line with the international best practice and broadly following the World Bank Environmental and Social Standards (ESSs).

The document aims to guide the management and control of activities that may pose labor-related risks during the project implementation. The LMP is a mandatory requirement applicable to all types of workers that will be employed by KW&SB including its consultants, contractors, sub-contractors, and labor supply contracting agencies, third parties, and all personnel related to the execution of the project.

1. Project Overview

KW&SB was established in 1981 by promulgating the Sindh Local Government (amendment) Ordinance of February 1983 leading to creation of KW&SB within Karachi Metropolitan Corporation (KMC). It is a service-based and consumer-oriented organization responsible for production, transmission and distribution, cost recovery of potable water to the citizen of Karachi, managing sewerage system within the city to ensure hygienic environment, development of scheme to cover short falls in services and collection of revenues for sustained economic viability.

There are four prominent, officially declared, and legal water sources for the city of Karachi. Out of which three sources are surface water sources which include; Lake Haleji, Lake Keenjhar and Hub Dam. Fourth water resource is categorized as groundwater source; the Dumlottee wells. City of Karachi has an allocated quota of 650 Million Gallons per Day (MGD) water from Keenjhar Lake and Hub Dam against a demand of 1,200 MGD. Water is collected and treated by the conventional water treatment plants and distributed by a system which is at least 40-45 years old with some new distribution facilities in the city. Approximately 210 MGD of water is supplied without treatment¹. River Indus feeds water to the Lake Keenjhar. From Keenjhar, water through conduits goes to Haleji, Gharo, Port Qasim, Steel Mills and to Dhabeji Pumping Station. From Dhabeji Pumping Station, water is pumped to different pumping stations to supply water among all districts of the city by using electrical pumping motors.

There is a huge unmet demand for water (550 MGD current capacity versus an estimated demand of 1200 MGD); a high non-revenue water percentage (50-60 percent); very large financial losses (estimated at Pak Rupees (PKR) 569 million/ United States Dollar (US\$) 5.4 million per month); and significant outstanding arrears (estimated at PKR 32 billion/US\$305 million). Most of KW&SB's 1.1 million customers get water through the piped network on an irregular basis, and some just 2-4 hours every other day.

There is currently no sewage treatment, as the city's treatment facilities are dilapidated and not working, resulting in an estimated 475 MGD of sewage being discharged into the Arabian Sea via the storm water network.

In order to address the above-described water supply and sewerage issues in Karachi, following Series of Projects (SOPs) have been conceived under KWSSIP:

- SOP-1 (KWSSIP-1): Focuses on reforms, maintenance and rehabilitation
- SOP-2 (KWSSIP-2): To scale-up investments
- SOP-3: Will focus on increasing water production and financing investments to ensure the additional wastewater created can be treated
- SOP-4: Will focus on improving services in informal settlements based on experience gained under the previous projects

Currently the SOP-1 is under implementation while the SOP-2 is under preparation stage. The SOP1 of KWSSIP has the following three components:

- Component 1- Operational and enabling environment reforms in KW&SB
- Component 2- Infrastructure investments
- Component 3 - Project Management and Studies.

The Component-2 of the project consists of three (03) investments as listed in Table ES-1:

Table ES-1: Component-2 of SOP-1, KWSSIP

Sr. No.		Activity
1	Assignment - A	Rehabilitation of water supply and sewerage in three low-income communities (the Proposed Project)
2	Assignment - B	Priority Water Network Rehabilitation including operation and maintenance (O&M) Equipment, Meters to Reduce NRW
3	Assignment - C	Priority Sewer Network Rehabilitation

The Environmental and Social Assessments for all these projects have been completed, whereas the specific impacts and mechanisms regarding labor commissioned for the project will be discussed in the labour management procedures.

Recent rain events have severely damaged the water and sewerage infrastructure of the city. It has been assessed that the present water supply network including both water trunk mains and the distribution mains have developed leakages while the sewerage system has also developed crown failure of its joints in the sewerage pipes at different locations in almost all districts of Karachi. As emergency work, several roads of different districts have been taken up by CLICK for repair and rehabilitation of road patches. In the meantime, Project Implementation Unit (PIU) of KWSSIP has been entrusted the task to identify and carry out the repair of water supply and/or sewerage lines under the selected patches of these roads of different districts after conducting a comprehensive survey to identify the locations of the damaged sections of water supply and sewerage networks and the extent of the damages to carry out their repairs/replacement. After completion of the repair /replacement of water and sewerage network by KWSSIP-1, repair and rehabilitation of

roads will be carried out on the damaged road sections under the project “CLICK”. This activity of emergency works carried out under three different packages described below.

Package 1: The proposed subproject sites are located in all the seven districts of Karachi including East, Korangi, Malir, Central, West, Keamari and South.

Package 2: The proposed subproject sites are located in districts Central, East, Malir & Korangi of Karachi.

Package 3: The proposed subproject sites are located in districts (South, West & Keamari) of Karachi.

2. Overview of Labor Use in the Project

The implementation of the Project will involve different categories of workers for different activities associated with the project. Project workers are divided into the following four categories under the WB Environment and Social Standard 2 (ESS2)²: (i) direct workers; (ii) contractual workers; (iii) primary supply workers; and (iv) community workers. The first three worker categories - contracted workers, primary supplier workers, and direct workers - apply to this project based on this classification and the labor requirements of the project; however, the type and number of workers are not yet fully known. The project is not envisaged to have community workers.

3. Assessment of Key Potential Labor Risks

The main labor risks associated with the project include the following:

- Occupational health and safety (OHS) risks,
- Child and forced labor,
- Labor influx,
- Labor disputes over terms and conditions of employment,
- Sexual exploitation and abuse (SEA)/ sexual harassment (SH),
- Risk from communicable disease,
- Risk from unsafe potable water,
- Lack of provision of basic facilities – water, food, toilets, washing hand facilities, medical aid,
- Unfair recruitment and selection practices which could discriminate against women, vulnerable groups,
- Poor work safety culture, accidents/incidents, lack of provision of personal protective equipment (PPE),
- Salary, wages, and benefits are not in accordance with the labor laws,
- Sub-standard campsite facilities and campsite management,

² KWSSIP has been prepared under the World Bank Operational Policies (OPs) and the WB Environmental and Social Framework and the allied Environmental and Social standards (ESSs) are not a requirement for this project. However, since a series of subprojects will be implemented, it was realized that there a need for LMP as a best practice to be followed.

- Lack of unified rules and regulations for all workers,
- Lack of proper grievance redress channel for workers.

The project is required to address and mitigate these risks and appropriate mitigation and control measures have been devised. The activities involved in construction and operation work of the project will be primarily responsible for the labor issues as well as health and safety risks that could affect the project's workforce, including Project Implementation Unit (PIU), consultants, and construction workers. The typical labor risks include child and forced labor, influx of workers, working conditions, employment terms and conditions, unfair treatment with the workers, poor working and living conditions, SEA/SH issues, and unavailability of a workers' grievance redress mechanism (GRM). The typical OHS risks include being exposed to the physical dangers of using heavy construction equipment, working near moving traffic, operating cranes, and hoisting equipment, working on or near scaffolding, tripping, and falling, handling bitumen, burns, being exposed to noise and dust, falling objects, traffic risks from operating project-related vehicles, exposure to hazardous materials, and exposure to electrical risks from using tools and machinery. Furthermore, the locations where these works are to happen also pose occupational health and safety hazards as these are highly polluted areas, e.g., wastewater treatment plants, filtration plants.

To reduce the risks to the health and safety of employees, it is crucial to identify hazards and manage associated risks. Additionally, it is projected that taking a proactive approach to risk management will lead to significant cost savings, a decrease in compensation claims, and a reduction in noncompliance with health and safety laws, with overall safer and better working conditions for all involved.

Labor related risks will be minimized by adhering to the mitigation hierarchy, which dictates:

- I. Following all the labor laws and the associated requirements for the working areas, living area, employment conditions, fair treatment of workers and availability of an effective workers' GRM, harassment and GBV free environment for all labor
- II. Hazard Elimination
- III. Substitution of process, substance, or tools
- IV. Prevention of contact with risky object i.e., create barriers, install guards, etc.
- V. Implementation of safe system of work such as permit to work systems, fixing of time limits on hazardous activities performance
- VI. Use of appropriate personal protective equipment (PPE).

To ensure a safe and healthy workplace, the PIU along with its consultants and contractors will take reasonable care to identify all foreseeable labor, health and safety hazards, which hold the potential to harm employees. Hazards may arise from the work process, the equipment and materials in use, the work environment, or other people involved.

The project and all associated workers will follow occupational labor, health and safety regulations. All contractors must include a comprehensive description of their labor, occupational health and safety management strategy with their bids. One of the factors the PIU will consider when choosing the contractors is the applicability of these provisions and

their previous track record in doing so. All contractors must make sure that workers use appropriate PPE, get safety training, and take other preventative measures as specified in the WB OHS Guidelines and in a setting that complies with ESS2 criteria. Both the company and the employee are accountable for safety, where they must work together to create and implement an OHS plan as well as safe work practices and procedures.

4. Overview of Labor Legislation

There are numerous labor laws, acts and regulations in Sindh and Pakistan. These labor laws apply to a wide range of industrial, commercial, and labor institutions.. Sindh is required to comply with a number of national and international legal obligations in terms of labor rights. The most relevant policies and laws include Sindh Labor Policy and Sindh Occupational Health and Safety Health. In addition, the government of Pakistan has also ratified 36 International Labor Organization (ILO) Conventions, including eight fundamental conventions.

The following is a list of the most important legislation pertaining to welfare and labor rights.

- National
 - Pakistan Labor Policy, 2010
 - Factories Act, 1934
 - Industrial Relation Act
 - Workman Compensation Act 1923
 - Minimum Wages Ordinance, 1961
 - Payment of Wages Act 1936
 - Industrial & Commercial Employment Standing Orders Ordinance 1968
 - Maternity Benefits Ordinance 1958
 - Apprenticeship Ordinance 1962
 - Employees Old Age Benefit Act 1976
 - Employments of Children Act 1991
 - Bonded Labor Abolition Act 1992
 - Workers Welfare Act 1971
 - Minimum Wages (unskilled workers), Amendment 2015
 - Disabled Persons (Employment and Rehabilitation) Act 2015
 - Protection Against Harassment of Women at the Workplace Act, 2010
 - Transgender Act 2018

- Provincial
 - Sindh Labor Policy 2018
 - Sindh Workers Compensation Act 2015
 - Sindh Minimum Wages Act 2015
 - Sindh Terms of Employment (Standing Orders) Act, 2015
 - Sindh Payment of Wages Act 2015
 - Sindh Bonded Labor (Abolition) Act 2015
 - The Sindh Prohibition of Employment of Children Act 2017
 - Sindh Occupational Health and Safety Act

- Protection against Harassment of Women at the Workplace Act (Amendment) 2022
- Sindh Prohibition of Child Employment Act 2017
- Sindh Differently Abled Persons (Employment, Rehabilitation and Welfare) Act 2017
- Sindh Employees' Social Security Act, 2016

In 2010, subjects of labor and employment were devolved to provinces under the 18th Amendment to the Constitution of Pakistan, as a result of which the federal labor laws were devolved and became applicable on provinces under Article 270 AA (6) of the Constitution of Pakistan. The 18th Constitutional Amendment in Pakistan has altered the landscape of the labor administration system in the country. Provinces now have a greater responsibility and resources in terms of legislation and implementation. Each province has developed its own labor policy to protect worker's rights. The policy relevant to the KWSSIP project is the Sindh Labor Policy, 2018. This policy incorporates the key thematic areas with primary focus on the effective implementation of labor standards, improvements in workplace safety, living wages, child/bonded labor, awareness raising, excellence in labor inspections regime.

The government of Pakistan has also ratified 36 International Labor Organization (ILO) Conventions, including eight fundamental conventions as of now. In the South Asia region, Pakistan is the second country that has ratified all eight fundamental conventions as enshrined in the ILO Declaration on Fundamental Principles and Rights at Work. The ILO works in close collaboration with its tripartite constituents towards achieving Pakistan's decent work objectives.

The ILO Governing Body has identified eight "fundamental" Conventions, covering subjects that are considered to be fundamental principles and rights at work, which are listed below:

- Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87)
- Right to Organize and Collective Bargaining Convention, 1949 (No. 98)
- Forced Labor Convention, 1930 (No. 29) (and its 2014 protocol)
- Abolition of Forced Labor Convention, 1957 (No. 105)
- Minimum Age Convention, 1973 (No. 138)
- Worst Forms of Child Labor Convention, 1999 (No. 182)
- Equal Remuneration Convention, 1951 (No. 100)
- Discrimination (Employment and Occupation) Convention, 1958 (No. 111).

The Sindh Occupational Health and Safety Act 2017 is the main applicable local OHS legislation as this Act applies to all Workplaces in Sindh province. The organization needs to formulate OHS Policy which is the requirement of the Act. The contractors and suppliers shall comply with the provisions of the Act.

5. Responsible Staff

The PIU of KWSSIP is in charge of the overall management of the Project and the LMP's implementation. The LMP must be followed throughout the procurement process. Consultants, contractor(s) and subcontractor(s) must be hired transparently based on their

experience and competency. Other entities relevant to this LMP are the supervision consultants (SC), construction contractors, and primary suppliers.

KWSSIP / Project Implementation Unit (PIU) Responsibility: The PIU of KWSSIP is in charge of the overall management of the Project and the LMP's implementation. The LMP must be followed throughout the procurement process. Consultants, contractor(s) and subcontractor(s) must be hired transparently based on their experience and competency.

Supervision Consultant's Responsibilities: The supervision consultants will oversee activities of the contractors in their implementation of the designs proposed under the various sub-projects, compliance of civil works with defined guidelines, and implementation of the Environmental and Social Management Plans. Their purview will also include the implementation and supervision of occupational health and safety measures along with labor working conditions.

Contractors' Responsibilities: To ensure that all LMP requirements are met, the contractor(s) must appoint Labor and OHS representatives. The contractor must provide the PIU with a monthly report on all incidents and accidents. The contractor is responsible for teaching/training employees how to use personal protective equipment and safety precautions. Contractors must keep records in accordance with the procedures outlined in this LMP. PIU may request records at any time to ensure that labor laws are followed. The PIU will compare records to actuals at least once a month and, if necessary, may order immediate corrective action. The Project staff will continue to have access to the KW&SB's current grievance procedures. Contractors will be required to set up a grievance redress system for employees that meet the LMP's minimum requirements. Every month, the PIU's social development specialist will go over all related records. Each contractor's site must be manned at all times by a certified safety officer. The contractor must provide any necessary instructions. The contractor's employees will be directed by the safety officer.

6. Policies and Procedures

All project staff and contractors must be informed of the project management policies and processes. Contracts must be drafted in conformity with ESS2 principles and Sindh Labor Laws, and all recruitment processes must be transparent. The labor policies and procedures will include terms and conditions of employment, age of employment, OHS procedures, SEA/SH prevention procedures, and grievance redress procedures. All contracts will include clauses requiring contractors to abide by labor and OHS laws as well as provisions of this LMP. Similarly, when sourcing for primary suppliers, the project will require such suppliers to identify the risk of child labor/forced labor and serious safety risks where applicable. The PIU and the consultants will review and approve the purchase of primary supplies from the suppliers following such risk identification/assessment.

As part of the conformance to labor laws and procedures, the project team will draft the following procedures for implementation:

- Reporting and Investigation of Incidents /Illnesses
- Procedure for Waste Management
- Procedure for Housekeeping

- Procedure for Hazard Identification and Risk Assessment
- Training Procedure including Induction training
- Toolbox Talks
- Safe Systems of Work – work at heights, hot work, electrical High Tension/ Low Tension (HT/LT) works, Excavation, Confined Spaces (Permits to Work)
- Personal Protective Equipment
- Emergency Response Procedure
- Monthly reporting procedure
- Camp management procedure
- Management of Food and Drinking Water at Campsite(s) and at construction site
- Project Site Security Procedure
- COVID 19 measures procedure
- Internal Auditing Procedure
- Management of visits by WB /AIIB, Government agencies
- Storage of fuel, hazardous substances
- Operation and maintenance of heavy equipment and overhead cranes
- Child Labor Avoidance Procedures
- SEA/SV Prevention Procedures.

7. Age of Employment

The Sindh Prohibition of Employment of Children Act of 2017 states that any teenage worker (aged between 14 and 18) hired for training at the site(s) must be kept away from technical equipment and not given any heavy tasks.

According to the International Finance Corporation (IFC) Guidance Note 2 and the Sindh Prohibition of Employment of Children Act of 2017, no one under the age of 18 may be hired to work at the project site(s). The hiring process must specify how candidates' Computerized National Identity Cards (CNICs) will be checked, so that no one under the age of 18 can be hired on site. It is necessary to inspect and confirm the applicant's original CNIC.

8. Terms and Conditions of Employment

The employment terms and conditions applying to project employees as set out in the labor rules will apply to all project employees who are assigned to work on the Project (direct workers). Terms and conditions of part time direct workers are determined by their individual contracts. KW&SB is committed to providing equal opportunities for all its employees and potential employees where everyone is treated with respect and dignity and where there is equal opportunity for all including the vulnerable such as women, disables, transgenders and minorities. The normal hours of work of project workers shall not exceed more than 8 hours a day for 5 days a week, or a 40-hour work week, exclusive of time for meals.

Every project worker is entitled to a 2-day rest day period during weekends (Saturday and Sunday). Workers shall also be entitled to a rest day on regular holidays recognized by the province. Under the Maternity and Benefits Ordinance 1958, leave is granted to pregnant

women for a period of 12 weeks with full pay. It is unlawful for an employer to dismiss a woman worker on maternity leave.

Provincial governments constitute Minimum Wages Boards under Section (3) of the Minimum Wages Ordinance, 1961 to decide the wage rates which are revised annually. The workers welfare legislation includes Employees Old Age Benefits 1976 (with provisions for old age pension, old age grant, invalidity, and widow(er) pension). For contract termination, a notice of one month must be served before severing the employment relationship or payment of one month's wages in lieu of notice may be provided. The law also obliges the employer to provide the termination certificate in writing stating the reason behind it. Any injury, illness or accident sustained by the worker during the work period shall be conveyed to the nearest clinic or hospital by the hiring authority or its representative. Collective bargaining has also been called a fundamental right for the workers to be part of trade unions.

9. Workers' Grievance Redress Mechanism

PIU will establish a GRM (or make provisions in the overall GRM) for the project workers to address labor or workplace-related concerns consistent with the applicable national and provincial laws and ESS2. The workers' GRM will be based on the requirements of the WB's ESS2 – Labor and Working Conditions. The environment and social (E&S) specialists of PIU will monitor the recording and settlement of grievances by workers and report to the PIU in its monthly progress reports. The process will be followed by the GRM focal point, the E&S specialists who will be responsible for the GRM of the Project. All concerned responsible staff shall hold regular meetings with the project workers to discuss any work-related issues and concerns. Every grievance raised by a worker will be documented with the actions undertaken by the PIU and contractors to address such grievance.

10. Contract Management

PIU will make sure that the contractors are trustworthy and legal businesses with established labor management practices that adhere to this LMP. A clause requiring contractors to abide by current OHS, labor, and worker protection laws will be included in all contracts with them. PIU will stay updated on how contractors perform in regard to hired help, paying particular attention to how well they adhere to their written contracts.

11. Primary Supply Workers

The construction work under the Project will require the involvement of primary supplies to provide construction materials essential for carrying out the proposed works on rural roads. The PIU and the consultants will review and approve the purchase of primary supplies from the suppliers following such risk identification/assessment. PIU will oversee the procurements of goods and materials requirements under the construction works. Project Contractors will be responsible for procurement and supply of materials and equipment under the same conditions, and specifications on OHS aspects in their contracting agreements. When sourcing for primary suppliers, the project will require such suppliers to identify the risk of child labor/forced labor and serious safety risks. The PIU and the consultants will review and approve the purchase of primary supplies from the suppliers following such risk identification/assessment. Where appropriate, the Project will be required

to include specific requirements on child labor/forced labor and work safety issues in all purchase orders and contracts with primary suppliers.

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1 INTRODUCTION

The Government of Sindh (GoS) through the Karachi Water and Sewerage Board (KW&SB) is implementing the Karachi Water and Sewerage Services Project (KWSSIP) (the project) with financial assistance from the World Bank (WB) and Asian Infrastructure Investment Bank (AIIB). The KW&SB has prepared these Labor Management Procedures (LMP) to describe the requirements regarding labor and working conditions which will be applicable to the project in line with the international best practice and broadly following the World Bank Environmental and Social Standards (ESSs).³

The LMP serves to direct management and control of actions that can bring labor-related hazards while the project is being implemented. The LMP is a requirement that must be met by all employees of the KW&SB, as well as all of its consultants, contractors, subcontractors, labor supply contracting agencies, third parties and other staff involved in the project's execution.

1.1 Summary Description of the Project

Project Background. KW&SB was established in 1981 by promulgating the Sindh Local Government (amendment) Ordinance of February 1983 leading to creation of KW&SB within Karachi Metropolitan Corporation (KMC). It is a service-based and consumer-oriented organization responsible for production, transmission and distribution, cost recovery of potable water to the citizen of Karachi, managing sewerage system within the city to ensure hygienic environment, development of scheme to cover short falls in services and collection of revenues for sustained economic viability.

There are four prominent, officially declared, and legal water sources for the city of Karachi. Out of which three sources are surface water sources which include; Lake Haleji, Lake Keenjhar and Hub Dam. Fourth water resource is categorized as groundwater source; the Dumlottee wells. City of Karachi has an allocated quota of 650 Million Gallons per Day (MGD) water from Keenjhar Lake and Hub Dam against a demand of 1,200 MGD. Water is collected and treated by the conventional water treatment plants and distributed by a system which is at least 40-45 years old with some new distribution facilities in the city. Approximately 210 MGD of water is supplied without treatment⁴. River Indus feeds water to the Lake Keenjhar. From Keenjhar, water through conduits goes to Haleji, Gharo, Port Qasim, Steel Mills and to Dhabeji Pumping Station. From Dhabeji Pumping Station, water is pumped to different pumping stations to supply water among all districts of the city by using electrical pumping motors.

There is a huge unmet demand for water (550 MGD current capacity versus an estimated demand of 1200 MGD); a high non-revenue water percentage (50-60 percent); very large financial losses (estimated at Pak Rupees (PKR) 569 million/ United States Dollar (US\$) 5.4

³ KWSSIP has been prepared under the World Bank Operational Policies (OPs) and the WB Environmental and Social Framework and the allied Environmental and Social standards (ESSs) are not a requirement for this project.

⁴ *Situational Analysis of Water Resources of Karachi, WWF 2019*

million per month); and significant outstanding arrears (estimated at PRK 32 billion/US\$305 million). Most of KW&SB's 1.1 million customers get water through the piped network on an irregular basis, and some just 2-4 hours every other day.

There is currently no sewage treatment, as the city's treatment facilities are dilapidated and not working, resulting in an estimated 475 MGD of sewage being discharged into the Arabian Sea via the storm water network.

Overview of KWSSIP. KWSSIP has been initiated to address the above-described issues related to the water and sewerage services in Karachi. The KWSSIP has the following three components:

- Component 1- Operational and enabling environment reforms in KW&SB
- Component 2- Infrastructure investments
- Component 3 - Project Management and Studies.

The Component-2 of the project consists of three (03) investments as listed in **Table 1.1**.

Table 1.1: Component-2 of KWSSIP

Sr. No.	Description	Activity
1	Assignment -A	Rehabilitation of water supply and sewerage in three low-income communities (the Proposed Project)
2	Assignment -B	Priority Water Network Rehabilitation including operation and maintenance (O&M) Equipment, Meters to Reduce NRW
3	Assignment -C	Priority Sewer Network Rehabilitation

Brief descriptions of the sub-projects under component-2 of KWSSIP are provided below.

Assignment – A includes the rehabilitation of water supply and sewerage in three low-income communities (Katchi Abadis) namely Tekri Village, Essa Nagri/ Welfare Colony, and Sobanagar/ Goharabad.

Assignment – B includes the Priority water network rehabilitation including operation and maintenance (O&M) Equipment, meters and district metered areas (DMAs) to reduce non-revenue water (NRW).

Assignment – C includes the rehabilitation of Priority Sewer Network of the following four sewerage schemes:

- (i) P1 - Teen Hatti (Liaquatabad)
- (ii) P2 - Karachi Complex (Liaquatabad)
- (iii) P3 - Gulistan-e-Johar & Gulshan e Iqbal
- (iv) P4 - Gulberg Town.

1.2 Emergency Works

Recent rain events have severely damaged the water and sewerage infrastructure of the city. It has been assessed that the present water supply network including both water trunk mains and the distribution mains have developed leakages while the sewerage system has also developed crown failure of its joints in the sewerage pipes at different locations in almost all districts of Karachi. As emergency work, several roads of different District have been taken up by CLICK for repair and rehabilitation of road patches. In the meantime, Project Implementation Unit (PIU) of KWSSIP has been entrusted the task to identify and carry out the repair of water supply and/or sewerage lines under the selected patches of these roads of different District after conducting a comprehensive survey to identify the locations of the damaged sections of water supply and sewerage networks and the extent of the damages to carry out their repairs/replacement. After completion the repair /replacement of water and sewerage network by KWSSIP-1, repair and rehabilitation of roads will be carried out on the damaged road sections under the project "CLICK". This activity of emergency works carried out under three different packages described below.

Package 1: The proposed subproject sites are located in all the seven districts of Karachi including East, Korangi, Malir, Central, West, Keamari and South.

Package 2: The proposed subproject sites are located in districts (Central, East, Malir & Korangi) of Karachi.

Package 3: The proposed subproject sites are located in districts (South, West & Keamari) of Karachi.

1.2.1 Malir Protection Works

Protection/ rehabilitation work for G.K Conduit, K-II, K-III, 84" diameter balance conveyance and 36" diameter Malir main at Malir River Bed Phase-I and Phase-III.

The Greater Karachi (G.K), K-II, and K-III conduits and 84-inches diameter balancing conveyance main and 36-inches diameter water main (nonoperational), crosses Malir river near Dumlottee. The system passing through the Malir bed comprises Plain Cement Concrete (PCC) G.K. conduit, having Horse shoe structures and was constructed in 1952 whereas K-II and K-III are Mild Steel (MS) Syphons constructed in year 1999 and 2006, respectively. 84-inch diameter balancing conveyance is Prestressed Reinforced Cement Concrete (PRCC) and 36-inch diameter Malir main is of MS material.

All the crossing works were designed as buried structures under the river bed with upstream and downstream protections to provide safety against erosion and piping.

With passage of time, due to illegal sand lifting from Malir basin and inadequate operation and maintenance, the protection works have been deteriorated significantly leading to the G.K. conduit becoming exposed and at high risk. During the recent flood, the condition has

become more chaotic and resulted in aggravating the overall situation. There is a potential threat to the structural stability and safety of the system within the bed.

Project Implementation Unit – Karachi Water and Sewerage Services Improvement Project (PIU-KWSSIP), has been directed to take-up the design and construction activities on urgent basis to avoid any unforeseen and damage to the existing system.

1.3 LMP Objectives

The objectives of this LMP are to:

- Develop and apply labor policies commonly recognized so that participants in the KWSSIP will have a point of reference;
- Ensure that all KWSSIP participants, whether direct workers or not, abide by employment legislation by creating the necessary working circumstances that are compliant with applicable legislative requirements;
- Assist and guide KW&SB employees who will work on the project in carrying out labor management procedures;
- Encourage just and equitable labor practices to ensure equal opportunity, non-discrimination, and fair treatment for both male and female employees;
- Create, nurture, and oversee a positive management-employee relationship;
- Protect project workers, especially those who are at risk, such as women and people with disabilities, children (of working age, in accordance with the WB Environmental and Social Standard 2 - ESS2⁵) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate;
- Give project participants and workers easy access to ways to voice their complaints about the workplace.

The LMP's description of the key labor requirements and risks associated with the KWSSIP would help KW&SB determine the resources needed to resolve labor difficulties. The LMP is a dynamic document that is initiated early in the planning stage of the project and is evaluated and updated as the project is developed and carried out. As a result, this document defines the types of personnel and their management that the Project is expected to use. Important LMP components will be included in the contractual obligations of contractors and subcontractors. All contractors and subcontractors shall prepare and implement labor management plans in line with the LMP.

KW&SB has prepared this document and its annexes based on the existing labor laws in Pakistan and its ratified international agreements, and in accordance with the guidelines of the ESS2 of the World Bank. Furthermore, the scope and procedures of the LMP, its annexes, constitute a special labor framework, against which compliance is mandatory for KW&SB and its consultants, contractors, subcontractors, and suppliers associated with this project. The LMP will be applicable to all types of workers that will be employed by KW&SB and all personnel employed by the Board in relation to the execution of the project; and therefore, its use and knowledge is mandatory, as necessary.

⁵ World Bank. 2017. "World Bank Environmental and Social Framework." World Bank, Washington, DC

1.4 Scope of the LMP Application

The LMP is essential to ensure health and safety at workplace and promote fair treatment, non-discrimination and equal opportunities to all workers at the workplace. LMP is consistent with Environmental and Social Standard-2 (ESS2) on 'Labor and Working Conditions.' Its scope encompasses:

- Labor and contracts;
- Management of workers;
- Occupational Health and Safety; and
- Access of information and grievance mechanisms.

The objectives of ESS2 are: to promote safety and health at work; to promote the fair treatment, non-discrimination and equal opportunity of project workers; to protect project workers, including vulnerable workers such as women, persons with disabilities, children and migrant workers, contracted workers, community workers and primary supply workers, as appropriate; 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 national law; and to provide project workers with accessible means to raise workplace concerns. . In line with these objectives, the goal of this LMP is to make project planning and execution easier by identifying the major personnel requirements and the environmental and social (E&S) actions needed to manage labor-related project challenges. Along with fundamental guidelines that apply to all forms of work, the LMP also addresses problems and issues unique to the Project. No matter how they were hired or whatever labor policy they fall under, as described below, the LMP is applicable to all workers employed by the Project as specified in ESS2.

- Direct Workers: People employed or engaged directly by the KW&SB to work specifically in relation to the Project;
- Contracted Workers: People employed or engaged through third parties to perform work related to core functions of the project, regardless of location;
- Primary Supply Workers: People employed or engaged by the KW&SB and its contractors' primary suppliers.

The Environmental and Social Assessments for all these projects have been completed and submitted to World Bank for approval and their finalization with the World Bank is in process., The specific impacts and mechanisms regarding labor commissioned for the project will be discussed in this LPM Report.

2 OVERVIEW OF LABOR USE ON THE PROJECT

These Labor Management Procedures apply to all Project workers whether direct, contracted, primary supply and community workers as per ESS-2.

The proposed KWSSIP will involve direct workers (implementing agency's employees transferred to the Project Implementation Unit (PIU) and specialists engaged from the market.); contracted workers engaged in construction work and consultancy services for the project (e.g., for preparation of E&S documents); and primary supply workers (e.g., for equipment required for the project).

The LMP has been developed to manage labor risks during the implementation of the KWSSIP. The LMP is in line with national requirements as well as the objectives of the World Bank's ESF, specifically objectives of Environmental and Social Standard 2: Labor and Working Conditions (ESS2).

2.1 Labor Requirement

ESS - 2 divides workers into four categories: direct workers, contracted workers, community workers, and primary supply workers that involve all Project workers. At this stage, community workers are not anticipated for KWSSIP. The workers are further categorized as follows:

1. Direct workers⁶: Direct employees of the KWSSIP are individuals who are hired by the KW&SB to perform work that is explicitly related to the Project. For the purpose of carrying out a variety of project operations, direct workers will include the project-based staff and the permanent staff of the Project Implementation Unit (PIU). The Project Director (PD) will serve as the PIU's leader. PIU will also consist of multiple senior and junior engineers qualified in civil and engineering. Additionally, the PIU will include experts in financial, procurement, environmental, and social management. As part of the PIU, KW&SB may additionally hire consultants and support personnel who will be paid on a contract basis. The national and provincial labor regulations will serve as the basis for these consultants' terms and conditions. The KWSSIP may employ consultants to carry out as many short-term tasks as are required. Any civil officials who are seconded to assist with project implementation must adhere to the occupational health and safety criteria outlined in this LMP.

The PIU will be tasked with:

- General project responsibilities for project management, financial management, procurement, monitoring and evaluation, and environmental and safety management;
- Technical responsibilities to help divisions working on the project; and
- Support services (office manager, assistants, driver, others).

⁶ A "direct worker" is a worker with whom the project has a directly contracted employment relationship and specific control over the work, working conditions, and treatment of the project worker. Where government civil servants are working in connection with the project, whether full-time or part-time, they will remain subject to the terms and conditions of their existing public sector employment agreement or arrangement, unless there has been an effective legal transfer of their employment or engagement to the project.

PIU staff may be transferred from within KW&SB, hired or seconded for the implementation of KWSSIP including technical and non-technical staff.

2. Contracted Workers: For the purpose of carrying out document preparation and carrying out various civil works under the Project, KW&SB will hire a number of contractors and consultants. Contractors, subcontractors, and their employees who are employed by KWSSIP may include consultants who are preparing the feasibility studies and detail design for the project as well as consultants for environmental and social assessment studies. Both expert and unskilled labor will be employed by civil work contractors. Below is a description of the various categories of project contracted employees:

Permanent / skilled staff of contractors (Construction Company): Project managers, site engineers, construction foremen, supervisors, environmental, social, health, and safety (ESHS) officers, as well as administrative and financial officers for the project/subprojects will all be involved in the KWSSIP.

Skilled workers engaged by sub-contractors: Contractors will mobilize their relevant workers and subcontractors to meet project needs based on the expertise needed for each type of project operations. Welders, fitters, steel workers, electricians, technicians, drivers, and operators of large machinery are just a few examples of the specialized workers. It would be expected of the staff to possess knowledge pertinent to the needed tasks.

Unskilled community members engaged by the contractor/subcontractors: To reduce the number of migrant workers at construction sites, local labor will be hired to the extent possible as unskilled and skilled workers, particularly for simple tasks like building ancillary structures, leveling, and excavating land, loading and unloading materials, supporting construction workers, cleaning up construction sites, watering work sites, and watchmen. The contractor will be legally obligated to engage with KW&SB /PIU to prioritize the impacted communities and vulnerable groups, including female workers and labors with disabilities at their request, in order to ensure equal chances in employment.

Project Management and Supervision Support: Design and Supervision Consultants (DSC) with the necessary experience will be hired by KW&SB to perform the following tasks: supporting the PIU in the selection of the contractor(s), developing designs, project management, construction supervision, and contract management. Additionally, DSC will help PIU monitor the contractor(s)' environmental and social performance as outlined in their environmental and social management plans, as well as their adherence to workplace health and safety regulations.

Independent Monitoring Consultants (or Monitoring and Evaluation (M&E) Consultants): PIU may hire independent monitoring consultants. Independent monitoring experts are in charge of ensuring adherence to approved project-related plans and programs, including the environmental and social concerns. The independent monitoring consultants may be hired at the start of the implementation phase, and they will finish their job between six and a year after all project activities have been successfully finished.

3. Community Workers: The project will not have community workers as defined under ESS2.

4. Primary Supply Workers: Skilled and unskilled workers who will be associated with the primary suppliers for the project. They include suppliers of equipment and other supplies, suppliers of pipes, ducts and conduits required for water supply and sewerage networks, and other construction materials such as cement, steel, bitumen required for the construction activities. During the operation and maintenance phase, a separate set of suppliers would be needed to supply various chemicals and additives, in addition to the spare parts needed for routine repair and maintenance.

2.2 Number of Project Workers

Direct Workers: Currently, KWSSIP has approximately 94 direct workers, where this number is expected to increase over time as more projects are introduced and implemented. The staff of the PIU as described in Section 2.1 comprises, among others, the Project Director, several senior and junior engineers, procurement, financial management personnel, and E&S specialists. Direct workers carry out key functions such as project management, coordination, fiduciary, environmental and social management, monitoring and evaluation, and reporting.

Contracted Workers: The precise number of project workers who will be contracted is not entirely known yet. The number of workers contracted for civil and other works under this project are given in **Table 2.1**.

Table 2. 1: Estimated number of staff and workforce required during construction phase⁷

Sr. #	Subproject	Number of Staff and Workers
1	Assignment – A: Rehabilitation of water supply and sewerage in three low-income communities (Katchi Abadis) namely Tekri Village, Essa Nagri/ Welfare Colony, and Sobanagar/ Goharabad.	300
2	Assignment – B: Priority water network rehabilitation including operation and maintenance (O&M) Equipment, meters and district metered areas (DMAs) to reduce non-revenue water (NRW).	50
3	Assignment – C: Rehabilitation of Priority Sewer Network of the following four sewerage schemes; (i) P1 - Teen Hatti (Liaquatabad) (ii) P2 - Karachi Complex (Liaquatabad) (iii) P3 - Gulistan-e-Johar & Gulshan e Iqbal (iv) P4 - Gulberg Town	300
4	Emergency Works: Repair /replacement of water and sewerage network	760

⁷ Numbers taken from PC-I prepared for the subprojects.

	(i)	Package-1	
	(ii)	Package-2	
	(iii)	Package-3	

2.3 Workforce Characteristics

The number of project workers required for the projects will be identified by the Project design team in line with PIU. However, given the nature of the project workforce (mostly semi-skilled construction labor) and characteristics of the labor force market in Karachi and nearby project area, it is likely the workforce, especially the lower-skilled workers, may be mostly male. The PIU and its consultants are likely to have a number of female workers as well. In this regard, the PIU and consultant will ensure that the hiring process is gender inclusive.

There will, however, be females also present in the project areas to join in and contribute to the project. The expectation is that the majority of labor will be locally hired with the exception of a few skilled workers. Provisions will be made to train and hire as many as possible from local communities where the activities will take place. Furthermore, professional business/capacity building companies might be contracted in order to carry out surveys, trainings, and other assessments within the project. The nature of labor force will be skilled workers/experts.

2.4 Timing of Labor Requirements

Direct Workers: The direct personnel will typically be needed full-time and all year long when the project is being implemented. Most of these workers are already employed by PIU.

Contracted Worker: The PIU will hire consultants and contractors who will hire people based on their degree of ability and sub-project requirements based on the scope of work included in KWSSIP. When the construction contracts are granted and the contractors produce their work plans, the specifics of the timing of the number of labor requirements, frequency, types of jobs, and length of the requirement will be decided. This LMP may need to be changed at that moment. The maximum number of hours worked per day should be 8, with at least one hour allotted for rest. The yearly construction season can be a little longer or a little shorter depending on the weather. The contractor shall be responsible for organizing the labor force to fit the season and the type of job. Throughout the course of the project, additional experts and consultants will be retained as needed. However, it is apparent that they will be employed in accordance with the implementation of various sub-components for specified time slots. The timing for the engagement of contracted workers will be known at a later point.

Primary Supply Workers: The project will need a wide range of equipment, materials and other supplies for which a number of suppliers will be engaged. These suppliers will engage primary supply workers. The primary supply worker provisions of ESS2 apply to those suppliers with whom the project will have a sufficiently significant and ongoing relationship.

3 ASSESSMENT OF KEY POTENTIAL LABOR RISKS

The primary risks that project operations pose to workers and other project staff are covered in this chapter.

3.1 Key Potential Labor Risks

The main labor risks associated with the project are assessed to be related to:

- Occupational Health and Safety (OHS) risks,
- Child and forced labor,
- Labor influx,
- Labor Disputes over Terms and Conditions of Employment,
- Sexual Exploitation and Abuse (SEA)/Sexual Harassment (SH)
- Risks from communicable diseases
- Risks from non-potable water
- Unsafe work environments
- Lack of proper grievance redress channel for all workers.

These risks are discussed in the following sections.

3.2 Occupational Health and Safety Risks

The project's construction and operation activities are primarily responsible for the health and safety risks that could affect the project's workforce, including PIU, consultants, construction workers and operation and maintenance (O&M) personnel.

The typical risks include being exposed to the physical dangers of using construction equipment, working near moving traffic, operating cranes, and hoisting equipment, working on or near scaffolding, working at heights, working in confined spaces, tripping, and falling, handling bitumen, burns, being exposed to noise and dust, falling objects, traffic risks from operating project-related vehicles, exposure to hazardous materials, and exposure to electrical risks from using tools and machinery. Furthermore, exposure to untreated sewage, risk of disease from vectors drawn to standing water (treated and untreated), risk of flooding, working in confined spaces, and risk of acute poisoning from harmful gases / reagents / chemicals.

To reduce the risks to the health and safety of employees, it is crucial to identify hazards and manage associated risks. Additionally, it is projected that taking a proactive approach to risk management will lead to significant cost savings, a decrease in compensation claims, and a reduction in non-compliance with health and safety laws, with overall safer and better working conditions for all involved.

Labor related risks will be minimized by adhering to the mitigation hierarchy, which dictates:

- Hazard Elimination
- Substitution of process, substance, or tools

- Prevention of contact with risky object, i.e., create barriers, install guards, etc.
- Implementation of safe system of work such as permit to work systems, fixing of time limits on hazardous activities performance and
- Use of appropriate personal protective equipment (PPE).

To ensure a safe and healthy workplace, the PIU along with its consultants and contractors will take reasonable care to identify all foreseeable health and safety hazards, which hold the potential to harm employees. Hazards may arise from the work process, the equipment and materials in use, the work environment, or other people involved.

The project and all associated workers will follow occupational health and safety regulations. All contractors must include a comprehensive description of their occupational health and safety management strategy with their bids. One of the factors the PIU will consider when choosing the contractors is the applicability of these safety provisions and their previous track record in doing so. All contractors must make sure that workers wear personal protective equipment (PPE), get safety training, and take other preventative measures as specified in the WB OHS Guidelines and in a setting that complies with ESS-2 criteria. Both the company and the employee are accountable for safety, where they must work together to create and implement an OHS program as well as safe work practices and procedures.

The following **Table 3.1** provides a summary of the major OHS risks related to the project's activities.

Table 3.1: Key Potential Occupational Hazards/Risks and Control Measures

Activity	Hazards / Risks Involved	Prevention / Control Measures
Untrained employees at jobs or illegal individuals entering the work area	<ul style="list-style-type: none"> • All the risks listed in this table apply to unskilled people and are therefore relevant to all activities. • Possibility of allowing incompetent staff to engage in a high-risk activity that could harm them or others. 	<ul style="list-style-type: none"> • Only physically fit, qualified, and competent people should be hired. • Make sure that everyone on staff has gone through the induction procedure, which includes orientation and training on the dangers specific to the working site and the tasks to be performed. • All Standard Operating Procedures (SOPs) must specify the necessary training and skills. • Every day before work starts, a Toolbox Talk must be completed. • The work area will only be accessible to those who have completed the risk assessment. • Any access to places where work is to be done must be regulated and only authorized by a responsible employee or contractor.
Shifting of material at work sites	<ul style="list-style-type: none"> • Ergonomic injuries • Slip, trip and fall 	<ul style="list-style-type: none"> • Create a secure entrance to the worksite. • Avoid inclement weather and only labor during the day, when it is not too hot or raining. • Keep a mobile phone on hand as a backup communication tool and a radio. • Choose the least dangerous route. • Use hard hats with chin straps and non-slip shoes.

Activity	Hazards / Risks Involved	Prevention / Control Measures
Mobile Equipment Operation	<ul style="list-style-type: none"> Accidents can occur when workers come into contact with vehicles or equipment during the mobilization and use of materials and equipment. 	<ul style="list-style-type: none"> To operate the mobile equipment to be used and to work near mobile equipment to be used, you must have the necessary training and competence. A regular preventative maintenance inspection program is required for all plant, including mobile equipment and supporting infrastructure. The design and installation of guards should follow the relevant machine safety regulations. All unauthorized individuals and non-essential workers must stay outside of the operating area and swing radius of the equipment. Installation of reverse alarms and warning lights in all vehicles and large machinery. Drivers and operators must keep a maintenance log.
Other activities	<ul style="list-style-type: none"> Working under Adverse Weather Conditions 	<ul style="list-style-type: none"> Other than during emergency restoration operations where the greatest efforts must be taken to prevent any mishaps, the erection or maintenance work shall not be performed during high wind, thunderstorms, or unfavorable weather conditions that would make the work hazardous.
	<ul style="list-style-type: none"> Risks associated with operation of vehicles (eg, accidents) 	<ul style="list-style-type: none"> For the project, only licensed drivers will be hired. The project drivers will receive training on safe driving techniques. The cars will be kept in good working condition and equipped with all necessary safety features, such as safety belts.
	<ul style="list-style-type: none"> Improper use of PPE (Personal Protective Equipment) 	<ul style="list-style-type: none"> All times will be spent wearing the proper PPE. Each employee must dress appropriately for the job in order to comply with PPE regulations, reducing or at the very least preventing safety risks and protecting themselves from them. PPE needs to be in good shape. PPE should only be bought from reliable vendors.
	<ul style="list-style-type: none"> Poor Housekeeping/ Maintenance 	<ul style="list-style-type: none"> Facilities for employees must be sufficient, spotless, and well-maintained. Where dangerous products are handled, it should be illegal to smoke, eat, or drink in the workplace. It is crucial to immediately clean up any oil or other liquid spills on the floor because they are a major contributing factor to mishaps. Aisles should be broad enough to safely and comfortably fit both people and vehicles. All tools should be routinely inspected, cleaned, and repaired, and any worn or damaged tools should be removed from service. Each trash can should have a distinct label (e.g., recyclable glass, plastic, scrap metal, etc.) Every storage space needs to be identified.

Activity	Hazards / Risks Involved	Prevention / Control Measures
	<ul style="list-style-type: none"> • Covid-19 Considerations 	<ul style="list-style-type: none"> • Work tasks will be rearranged, or the number of workers on the job site reduced, to allow for social/physical distancing, or workers will be rotated through a 24-hour schedule. • All workers will receive prevention training to help them avoid the spread of COVID-19. • Communication strategy/plan to support regular communication, accessible updates, and clear messaging to employees about the most up-to-date facts and statistics, as well as applicable procedures.
Chemical / Fuel	<ul style="list-style-type: none"> • Chemical burns / dermatitis / Skin irritation. • Inhalation / Ingestion & Absorption • Spillage. • Fire 	<ul style="list-style-type: none"> • Development of safe working procedures. • Reduction of number of workers exposed to hazards & duration and frequency of exposure. • Use of personal protective equipment. • Regular environmental and medical monitoring. • Availability of firefighting equipment. • Earth bonding while transferring fuel. • Use of drip trays. • Lined secondary containment, availability of spill containment kit. • MSDS • Chemical & Fuel handling training for workers.
Fire	<ul style="list-style-type: none"> • Accidental fires due to electrical short circuit. • Burns / Fatality. • Equipment Damage 	<ul style="list-style-type: none"> • Automatic fire detection system and control system should be provided. • Emergency back-up power like D.G. Sets should be provided for the automatic systems. • Matches, cigarettes, etc. should be prohibited. • Soldering, welding or cutting torches should be used after taking hot work permit from the consent authority. •
Electrical	<ul style="list-style-type: none"> • Poor electrical installations and faulty electrical appliances. • Contact with live parts causing shock and burns • Short circuits. 	<ul style="list-style-type: none"> • Ensure safety of electrical installation and its maintenance. • Provision of safe and suitable equipment. • Provision of safety device. • Carry out preventive maintenance. • LOTO Procedure. • PTW for maintenances. • PPE
Slips, Trips, and Falls	<ul style="list-style-type: none"> • Personal Injury / Fatality • Poor Housekeeping. • Obstructed access. • Trailing Cables. • Poorly constructed work platform. 	<ul style="list-style-type: none"> • The risk associated with slip and trip hazards can be reduced by avoid spillages in workplace, especially on uneven floors, and trailing cables, and by maintaining good housekeeping. However, for further reduction in the slips and trips, following measures should be followed. • Safety railing / grills, and safety stairs should be

Activity	Hazards / Risks Involved	Prevention / Control Measures
		<p>provided.</p> <ul style="list-style-type: none"> • Safety operating procedure should be followed for tank cleaning, pipeline maintenance work at depth or height, chemical handling, and doing regular maintenance work.
Biological	<p>The workers working in the Wastewater Treatment Plant are prone to following biological hazards:</p> <ul style="list-style-type: none"> • Diseases caused by infectious agents present in raw effluent. • Diseases caused by insects or rodents proliferating in the sludge drying beds. 	<ul style="list-style-type: none"> • Employees shall understand the risks through proper instruction, training and supervision, there will be no any direct contact with chemicals. • Provisions and use of suitable personal protective measures. • Provision of adequate welfare and sanitation facilities as well as first-aid measures considering the heavy contamination. • Provision of separate eating facilities to avoid food poisoning. • Effective arrangement for monitoring health of staff.
Manual Handling	Physical / Back Injuries	<ul style="list-style-type: none"> • Use proper lifting tool and tackle having adequate capacity. • Only authorized person should operate material handling equipment • Assess weight of the material, distance to be carried and hazardous etc., before lifting the load. • Wear PPE's while handling of materials. • Whenever possible, mechanized materials handling shall be adopted. • While lifting a load physically, keep the load as near as possible to the body with feet properly placed for body balance. • Bend knees, keep back straight, keep the load closed to the body and lift the load.
Moving Machinery	<ul style="list-style-type: none"> • Personal Injury / Fatality / Equipment & Utility Damage • Struck by vehicle • Blind spot • Toppling of the equipment • Contact with power transmission 	<ul style="list-style-type: none"> • Sloping or benching for excavations deeper shall be designed. • Availability of banks man / flag man. • Means of access/egress (ladder) required if it is 4 feet deep or more. • Spoil dirt must remain at least 1 meter from of the trench/excavation. • Trench/ Excavations are to be identified and barricaded. • Personnel are not permitted to work in trench excavations where water is accumulating. • Fall Protection is required for walkways over deeper than 2 feet. • Identification, isolation, protection of underground utilities and structures nearby to be taken care.
Fire Breakout	• Burn /Personal Injury	<ul style="list-style-type: none"> • Clearing the area of combustible materials;

Activity	Hazards / Risks Involved	Prevention / Control Measures
	<ul style="list-style-type: none"> • Equipment & Utility Damage • Fire & Explosion 	<ul style="list-style-type: none"> • Suitable fire extinguishers; • Maintaining a careful watch throughout the work. • A permit to work (PTW) system can help manage the risk on larger projects. • Plant and equipment: select electrical and engine driven plant of suitable capacity to prevent overheating. • Smoking; bring the rules on smoking to the attention of all workers and visitors to the site and enforce them. • Electrical installations: should be of sufficient capacity for the intended use and designed, installed, inspected and maintained by competent people.
Lifting Operations	<ul style="list-style-type: none"> • Personal Injury / Fatality • Equipment & Utility Damage • Equipment Failure. • Falling objects 	<ul style="list-style-type: none"> • Use of Inspected and certified crane and Lifting gear • Cordon Off Lifting radius. • Competent Crane operator & rigger/ Signaler. Ensure availability of lift Plan & load chart. Ensure ground is stable • Ensure pre-operational check listing of crane. Prohibition on standing / working under suspended load. • Use of Tag line to control load's movement /swing. • Prohibition of lifting operation in windy conditions.
Confined Spaces	<ul style="list-style-type: none"> • Personal Injury / Fatality • Entrapment, oxygen deficiency, toxic & explosive atmospheres, and asphyxiation. • Heat & humidity. 	<ul style="list-style-type: none"> • Ensure working in confined spaces under PTW system. • Effective ERP. • Standby Man • Atmospheric / Gas Testing • Ventilation • illumination

3.3 Child and Forced Labor

People under the age of 18 will not be employed on construction projects that involve hazardous work, except possibly in offices or jobs other than construction, where the minimum age of workers will be 14 years only for some works not hazardous in nature as specified in the provincial laws and WB guidelines. Workers, as part of a contractual requirement, will be required to provide legally recognized documents such as a Computerized National Identity Card (CNIC) to verify their age in order to ensure that no children are hired to work on the project. However, if other labor-related risks emerge during project implementation, the PIU will devise procedures to mitigate the effects. This will include regular community awareness raising sessions to educate residents on the prohibition and negative consequences of child and forced labor.

The above social impact is estimated to be low because: (i) local labor will be prioritized for use in construction activities, while measures to control the age of hired workers will be implemented; (ii) the contractor/subcontractors shall not hire child labor for project-related jobs, where a commitment not to use child labor is one of the required conditions in the bidding documents; and (iii) workers will be trained on labor safety, traffic safety, and sanitation before beginning work. (iv) Contractor supervision PIU staff will monitor and report the absence of forced labor.

3.4 Labor Influx

The Project's focus will be on localizing economic benefits with limited opportunities for outside workers to service work that requires specialized/skilled labor which is not available in project localities. Due to the availability of local labor supply in the province and the scale of work anticipated under the Project, a large-scale labor influx is not anticipated. Except for a few managers, supervisors, and skilled workers, the majority of workers can be found locally or in nearby areas. The preference for local labor (based on skill and experience capacity) is expected to reduce the risk of labor influx. Specific requirements to manage risks associated with labor influx, such as interactions between project workers and local communities, will be addressed in this document through agreed standards, a Code of Conduct (**Annex I**), and training.

3.5 Labor Disputes over Terms and Conditions of Employment

Labor disputes are unavoidable in a new construction environment. Demand for limited employment opportunities; labor wage rates and payment delays; disagreement over working conditions; and health and safety concerns in the workplace are all likely causes of labor disputes. Furthermore, employers such as contractors/subcontractors may retaliate against workers who demand legitimate working conditions, raise concerns about unsafe or unhealthy working conditions, or raise any grievances, and such situations may lead to labor unrest. However, in order to implement the project policy on fair labor treatment in accordance with ESS2, project contractors/subcontractors will be required to provide their labor with employment information while negotiating with the laborers to reach an agreement on terms and conditions of employment before signing labor contracts. The most efficient mitigating actions to deal with labor disputes during project implementation will be to monitor the implementation of the terms of work conditions that have been agreed upon by both sides and to establish the grievance redress mechanism (GRM) for laborers.

3.6 Sexual Exploitation and Abuse (SEA) / Sexual Harassment (SH)

The new employees and construction workers may develop strong social ties with the local populations outside of their own social circles. This may result in undesirable and/or unlawful behavior, such as unwelcome sexual advances against women and children and SEA/SH. Using the SEA/SH Risk Assessment Tool of the World Bank, this risk has been rated as Moderate for KWSSIP. All contractors will be expected to follow the procedures outlined in the World Bank's Procurement Regulations in order to establish a written contract with their employees that are materially consistent with ESS2's goal. A Code of Conduct prepared by

the Contractors and authorized by PIU will be required to be explained (in local language) and signed by all employees and workers.

3.7 Summary of Labor Risks and Impacts

The **Table 3.2** below presents a summary of the potential risks and impacts related to labor and working conditions, together with mitigation measures to avoid, eliminate or reduce associated impacts.

Table 3.2: Risks and Impact Mitigation

Category	Worker Impacts/ Risks	Project Impacts/ Risks	Mitigation Measures	Responsibility
Recruitment and selection of workers	Perception of unfair recruitment and selection processes Perception for female staff that they will not perform.	Community tensions – stop work practices that will affect implementation	Human Resources Policy, including at least: <ul style="list-style-type: none"> • Selection criteria for each position • Equal opportunities for men, women, and transgenders • Method and place of recruitment • Maximize work opportunities for local citizens • Enhance local employee's skills base through training 	PIU KWSSIP, contractors, and consultants
Conditions of employment (earnings/ benefits)	Perceptions that wages/ salaries and benefits are less for locals relative to outsiders	Work stoppages, protests, absenteeism, sit-ins, sabotage and conflict at the work place	The PIUs policy needs to follow: <ul style="list-style-type: none"> • Contract arrangements and content • Equal pay for equal work • Process for pay increases • Pay scales and increments as well as other benefits 	PIU KWSSIP, contractors, and consultants
Labor relations (conflict)	Workers feel aggrieved and do not know how to communicate their	Work stoppages, protests, absenteeism, sit-ins, sabotage, and	The PIUs policy needs to include the following: <ul style="list-style-type: none"> • Effective grievance redress process which should 	PIU KWSSIP, contractors, and

Category	Worker Impacts/ Risks	Project Impacts/ Risks	Mitigation Measures	Responsibility
handling)	issues	conflict at the workplace	<p>be gender sensitive</p> <ul style="list-style-type: none"> • Disciplinary procedures • Workplace rules and regulations • Demobilization procedures • Effective information dissemination to workers 	consultants
Labor communication mechanisms	<ul style="list-style-type: none"> • Workers are not informed about activities or events that affect them • Workers are unable to communicate collective issues plaguing them • Rumors/ misinformation spreading 	<ul style="list-style-type: none"> • Inadvertent actions due to rumors or incorrect perceptions • Poor morale and unproductive work force 	<ul style="list-style-type: none"> • Effective communication mechanisms including: <ul style="list-style-type: none"> • Regular written communication for all workers about the project activities and operations • Worker committees/ organizations/ unions • Use of notice boards/ toolbox 	PIU KWSSIP, contractors, and consultants
Child Labor	Recruitment of individuals, who by virtue of age, would be exposed to hazardous situations and be subject to impaired	Increased health & safety risk to workforce, potential non-compliance with national labor laws, and reputational risk to the project	Human resources and contracting policies covering recruitment and selection processes that specifically address issues associated with child labor	PIU KWSSIP, contractors, and consultants

Category	Worker Impacts/ Risks	Project Impacts/ Risks	Mitigation Measures	Responsibility
	social development			
Employment conditions, wages, and benefits	Perceptions that wages, salaries, and benefits are not fair	Work stoppages, protests, absenteeism, sit-ins, sabotage, and conflict at the workplace	<ul style="list-style-type: none"> Human resources policy with respect to equal pay for equal work according to the local conditions and industry averages An effective employee complaints/ grievance process 	PIU KWSSIP, contractors, and consultants
Worker's relations/ interaction with community	<ul style="list-style-type: none"> Disturbing nearby communities due to the worker's routine activities Communities are negatively impacted by some camp activities 	All negative actions on community may cause hindrance in the project construction/ operation as well as other project related activities such as road blockage, community sit ins resulting in prevention of workers, and contractors from entering the project site	<ul style="list-style-type: none"> Implement the control measures to avoid/ and or minimize the impacts of camp and living conditions of workers on communities. Control measures include: <ul style="list-style-type: none"> Encourage to recruit local labor/ staff Limited interaction of outsiders/ foreign workers with the local/ nearby community of the camp Provision of cultural sensitivity awareness training to facilitate appropriate actions interaction with communities Limited movement of workers during the peak working hours of community 	PIU KWSSIP, contractors, and consultants

Category	Worker Impacts/ Risks	Project Impacts/ Risks	Mitigation Measures	Responsibility
SEA/SH aspects	SEA/ SH risks for the communities as well as for workers	Incidents of SEA/SH would bring work to halt and conflict with the community. It will also have an impact on the cost and budget.	<ul style="list-style-type: none"> • Routes/ places used by women will be avoided as far as possible. If unavoidable, alternate routes will be identified for communities, If required, especially along routes frequented by women such as routes to local water wells • Camp sites for construction will be 500 m away from the nearest community • Construction crew will avoid entering villages and settlements • Communities will be informed and consulted before commencing works inside or near the communities • Awareness raising among communities will be carried out for SEA/SH risks • Strict code of conduct will be maintained by the construction crew. Local norms will be respected • Project staff will receive training on the prevention of SEA/SH • Provision related to SEA/SH will be incorporated in the bidding documents • Workers will be required to sign the Code of Conducts prepared by the Contractors which will be reviewed, and approved by PIU • Training and awareness raising will be carried out 	PIU KWSSIP, contractors, and consultants

Category	Worker Impacts/ Risks	Project Impacts/ Risks	Mitigation Measures	Responsibility
			<p>for the workers on SEA/SH aspects</p> <ul style="list-style-type: none"> • Identification and mapping of service providers 	
Worker Accommodation/ camp specifications	Accommodation is considered sub-standard which leads to discontent amongst the residents and concerns about perceived health risks	<ul style="list-style-type: none"> • Workers have low morale • Perception amongst workers that the project does not care for their welfare, affecting the project 	<p>Build camps to minimum specifications. The following plans will be applied as necessary:</p> <ul style="list-style-type: none"> • Minimum health requirements • Minimum camp specifications • Operations accommodation • Emergency Response Plan • Security Management Plan 	Contractors
Camp Management Practices	<p>Residents do not live in harmony and the potential for conflict arises.</p> <p>Residents do not know how to make a complaint</p>	-	<ul style="list-style-type: none"> • Implement an induction program to be attended by all residents that covers at least the following: <ul style="list-style-type: none"> • Camp rules and regulations • Code of conduct • Workers' grievance mechanism • Camp disciplinary procedure • Cultural awareness • Health, safety, and security • First aid kits are adequately stocked • Provision of safe drinking water • Provision of hygienic work and living 	Contractors

Category	Worker Impacts/ Risks	Project Impacts/ Risks	Mitigation Measures	Responsibility
			conditions.	
Housekeeping	The general appearance of the camp deteriorates making camp life unpleasant	The overall camp experience is compromised which in turn leaves workers demoralized and unproductive.	<ul style="list-style-type: none"> • Ensure that campgrounds and common areas are routinely cleaned and organized with appropriate signage in place • Establish easily accessible, designated smoking areas which are clearly highlighted and regularly cleaned • Ensure that equipment and facilities are kept clean and well maintained 	Contractors
Workers' GRM	Workers may not receive fair treatment from the employers	Demoralized workers Violation of rules and regulations	<ul style="list-style-type: none"> • The project/contractors will establish a GRM for its workers, which shall be accessible to workers. 	PIU and contractors

4 OVERVIEW OF LABOR LEGISLATION

This chapter presents an overview of the labor legislation in the country relevant to the KWSSIP project, along with relevant ESS2 requirements related to workers and working conditions.

4.1 Overview

There are a number of labor laws in Pakistan, where most of the labor legislations are based on the inherited legal framework of Britain. Many of the legislations were derived from colonial acts and amendments, which were enacted from 1850 to 1947 and still exist as a part of the country's labor legislation which has been enacted either at the Federal or Provincial level. These labor laws are broad and contain several ordinances, acts, rules and regulations and other statutes relating to industrial, commercial, and labor establishments. These laws compliment the smooth running of the business with regard to matters relating to employers and employees in order to achieve the target of higher productivity, reasonable profits, better wages and reduction in unjust practices or discrimination. Many of these laws pertain to the implementation of the international labor conventions that Pakistan has ratified.

4.2 Labor Rights in the Constitution of Pakistan (1973)

The Constitution of Pakistan 1973 provides a framework of rights for labor force and contains provisions for the economic and social well-being of the people and for the promotion of social justice. The Constitution of Pakistan contains a range of provisions with regards to labor rights found in Part II: Fundamental Rights and Principles of Policy. Fundamental rights, such as security of livelihood, prohibition of bonded labor, eradication of slavery, and the right of association have been incorporated in the constitution in Part II. Thus, the constitution affirms the progress of labor legislation, which is conducive to change and to benefit the working class in the following articles:

- Article 11 of the constitution prohibits all forms of slavery, forced labor, and child labor
- Article 17 provides for a fundamental right to exercise the freedom of association and the right to form unions
- Article 18 proscribes the right of its citizens to enter upon any lawful profession or occupation and to conduct any lawful trade or business
- Article 25 lays down the right to equality before the law and prohibition of discrimination on the grounds of sex alone
- Article 37(e) makes provision for securing just and humane conditions of work, ensuring that children and women are not employed in vocations unsuitable for their age or sex, and for maternity benefits for women in employment

4.3 International Labor Standards Applicable in Pakistan

Pakistan has various obligations under international law pertaining to labor rights. It is a signatory to the Universal Declaration of Human Rights 1948 which provides the right to work; to free choice of employment in just and favorable conditions of work, and to protect against unemployment. It also includes the right to equal pay for equal work; the right to just and favorable remuneration ensuring an existence worthy of human dignity; and the right to form and join trade unions.

The International Covenant on Economic, Social and Cultural Rights 1966 under Articles 6-8 further articulates these rights by placing obligations on the State to protect the right to work as well as working towards fully realizing the right through provision of fair wages with equal pay for equal work which is sufficient to provide a decent living for themselves and their family; the requirement for safe and healthy working conditions; equal opportunity for promotions; rest, leisure, holidays, limited working hours, etc. It also recognizes the right to join and form trade unions and all acts ancillary to it. The International Covenant on Civil and Political Rights 1966 protects civil rights and the right to join trade unions. All of the above, along with Convention for the Elimination of all Forms of Discrimination Against Women 1979, protect against discrimination, including specific mention of discrimination on the basis of sex. Pakistan is also a signatory to the 1998 Declaration of Fundamental Rights at Work which reaffirms the constitutional principle of the elimination of discrimination in respect of employment and the Protection Against Harassment of Women at the Workplace Act, 2010.

4.4 International Labor Organization (ILO) Labor Conventions – Ratifications from Pakistan

The Government of Pakistan has ratified 36 ILO Conventions, including eight fundamental conventions as of now. In the South Asia region, Pakistan is the second country that has ratified all eight fundamental conventions as enshrined in the ILO Declaration on Fundamental Principles and Rights at Work. The ILO works in close collaboration with its tripartite constituents towards achieving Pakistan's decent work objectives.

The ILO Governing Body has identified eight "fundamental" Conventions, covering subjects that are considered to be fundamental principles and rights at work, which are listed below:

- Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87)
- Right to Organize and Collective Bargaining Convention, 1949 (No. 98)
- Forced Labor Convention, 1930 (No. 29) (and its 2014 protocol)
- Abolition of Forced Labor Convention, 1957 (No. 105)
- Minimum Age Convention, 1973 (No. 138)
- Worst Forms of Child Labor Convention, 1999 (No. 182)
- Equal Remuneration Convention, 1951 (No. 100)
- Discrimination (Employment and Occupation) Convention, 1958 (No. 111)

4.5 Federal Labor Laws

Labor legislation in Pakistan traces its origin to colonialism, which has over time evolved through a continuous process of adjusting to the socio-economic conditions, state of industrial development, level of literacy and social welfare. Laws related to labor rights and welfare are listed below:

- Factories Act, 1934
- Industrial Relation Act, 2012
- Workman Compensation Act, 1923
- Minimum Wages Ordinance, 1961
- Payment of Wages Act, 1936
- Industrial & Commercial Employment Standing Orders Ordinance, 1968
- Shops & Establishment Act, 1969
- Maternity Benefit Ordinance, 1958
- Mines Maternity Benefit Act, 1941
- Apprenticeship Ordinance, 1962
- Employees Old Age Benefit Act, 1976
- Prohibition of Employment of Children Act, 1938
- Employments of Children Act, 1991
- Bonded Labor Abolition Act, 1992
- Employees Cost of Living (Relief) Act, 1973
- Companies' Profits (workers participation) Act, 1968
- Workers Welfare Fund Act, 1971
- Minimum Wages (Unskilled Workers) (Amendment) 2015
- Disabled Persons (Employment and Rehabilitation) Act, 2015
- Protection Against Harassment of Women at the Workplace Act, 2010
- Transgender Persons (Protection of Rights) Act, 2018

The most pertinent of these are discussed below.

4.5.1 Factories Act, 1934

The Factories Act, 1934 concerns regulation of labor in factories and addresses issues regarding working condition, child labor and working hours for men and women labor, wages, working hours, rest interval, overtime, holiday and health and safety. The Factories Act also briefly refers to environmental issues. Section 14 deals with the disposal of industrial wastewater and states that "effective arrangements shall be made in every factory for the disposal of wastes and effluents due to the manufacturing process carried on therein." The Factories Act states that "the Provincial Government may make rules prescribing the arrangements to be made under sub-section (1) subject to the approval of such authority as may be prescribed. This allowed the provincial governments to establish Minimum Wages Act, 2015.

4.5.2 Industrial Relations Act, 2012

The Industrial Relations Act 2012, aimed at regulating the labor-management relations in the country, and allows to bring workers grievance to the attention of his or her employer, in writing, either him or herself, through the shop steward or through his or her trade union within three months of the occurrence of the cause of action. Forms of termination have been described as removed, retrenched, discharged or dismissed from service. To safeguard against abuse of power, victimization or unfair labor practices, the Labor Courts have been given powers to examine and intervene to find out whether there has been a violation of the principles of natural justice and whether any action by the employer was real or unjust.

4.5.3 West Pakistan Maternity Benefits Ordinance, 1958 (The West Pakistan Maternity Benefit Rules, 1961)

This law is applicable to female workers across the board within all establishments. Female workers are entitled to 12 weeks maternity leave. Every employer is liable for payment of maternity benefits at the rate of her wages last paid during the period of six weeks immediately preceding and including the day on which the female worker delivers a child, and for each day of six weeks succeeding the day.

4.5.4 Industrial and Commercial Employment Act, 2013

This law governs the industrial relationship between the employer and the workers to maintain industrial peace and settle disputes between them by negotiations, reconciliations, arbitration, and adjudication. This Act establishes and provides procedures for settling grievances and resolving disputes between workers and employers. It also specifies the procedure for lock-outs and strikers and confers upon the right to establish or join trade unions of their own choices.

4.5.5 The Employees Old-Age Benefits Act, 1976

The Employees Old Age Benefits (EOAB) Act 1976 provides for certain old age benefits for the persons who are employed in industrial, commercial, and other organizations.

4.5.6 Minimum Wages (Unskilled Workers) Act, 2013

The Government has announced that “the minimum wages would be increased from PKR 12,000 to 13,000 per month (with effect from 1st July 2015). Since then, the minimum wages have been reviewed annually. The current minimum wage, as announced in July 2022, was to be PKR 25,000 per month in Sindh.

4.5.7 The Disabled Persons (Employment and Rehabilitation) Act 2015

The Disabled Persons (Employment and Rehabilitation) Act 2015 provides for the employment, rehabilitation, and welfare and wellbeing of disabled persons.

4.5.8 Employment of Child Act (ECA), 1991

Article 11(3) of the Constitution of Pakistan prohibits employment of children below the age of 14 years in any factory, mines, or any other hazardous employment. In accordance with this Article, the Employment of Child Act (ECA) 1991 disallows the child labor in the country. The ECA defines a child to mean a person who has not completed his/ her fourteenth year of age. The ECA states that no child shall be employed or permitted to work in any of the occupation set forth in the ECA (such as transport sector, railways, construction, and ports) or in any workshop wherein any of the processes defined in the Act are carried out.

4.5.9 Protection Against Harassment of Women at the Workplace Act, 2010

In 2010, the Pakistan Government passed a Law called “Protection Against Harassment of Women at Workplace, Act 2010”. The protection against harassment of women at the Workplace Act 2010 provides legal protection to women against harassment at the workplace, and reforms the existing legislation regarding women’s right to work in Pakistan. It focuses on sexual harassment experienced at the workplace by employees and facilitates the transformation of the work environment, so that it is free of sexual harassment, intimidation, and abuse. The law makes it a special crime to use force against a woman, or even threaten to use force, if the intention is to “disturb her modesty”. It is an offence only when the accused intended or knew it to be likely that the acts in question would lead to an outrage of the victim’s modesty.

4.6 Provincial Labor Laws

In 2010, subjects of labor and employment were devolved to provinces under the 18th Amendment to the Constitution of Pakistan, as a result of which the federal labor laws became applicable on provinces under Article 270 AA (6) of the Constitution of Pakistan. The 18th Constitutional Amendment in Pakistan has altered the landscape of the labor administration system in the country. Provinces now have a greater responsibility and resources in terms of legislation and implementation. Each province has developed its own labor policy to protect worker’s rights. The policy relevant to the KWSSIP project is the Sindh Labor Policy, 2018.

This Policy sets out the framework on industrial relations, social and economic wellbeing of the people of the province of Sindh.

After the Eighteenth Amendment, Sindh adopted various laws which comprised of labor laws, welfare and industrial relations laws, where the applicable labor laws are discussed below.

1. Sindh Workers Compensation Act 2015

This act outlines the details regarding compensation to be paid to workers in case of fatality, loss of hearing, eye sight, limbs during the conduct of work activities. It also outlines the Occupational diseases according to the nature of work and compensation to be paid to the workers in case it proved that the worker suffered from the disease due to workplace exposure.

2. Sindh Minimum Wages Act 2015

The Sindh Minimum Wages Act 2015 outlines the details with respect to payment of minimum wages to workers of different categories as per gazette notification by the Government of Sindh. The minimum wages to be paid shall be reviewed periodically and minimum wages notified. Employers are bound to abide by the Minimum Wages Act and pay the wages as notified.

3. Sindh Terms of Employment (Standing Orders) Act ,2015

The Act outlines the classification of workers into:

- i) permanent;
- ii) probationer;
- iii) temporary;
- iv) apprentice;
- v) contract worker.

The terms and conditions of employment shall be provided to the worker in writing, holidays and leave with pay shall be provided. Rules for termination of services are defined in the Act. The Act outlines special provision for construction workers employment and termination at the end of the project.

4. Sindh Payment of Wages Act 2015

The Payment of Wages Act 2015 outlines the responsible person for payment of wages and method of payment of wages to workers. Procedure for fines and deductions is defined. Penalties have been fixed on the employer for non-payment of wages or illegal deductions.

5. Sindh Bonded Labor (Abolition) Act 2015

The Act is gender sensitive, an anti-discrimination clause is added to each new proposed Law in accordance with ILO requirement viz: “No discrimination shall be made on the basis of sex, religion, political affiliation, sect, color, caste, creed, ethnic background in considering and disposing of issues relating to the enforcement of this Act”. In all proposed Laws the cognizance has been changed from that of the Judicial Magistrate to the Presiding Officer Labor Courts who is a Session Judge.

This act is applicable as the proposed project may involve the numbers of staff/worker having different religion, political affiliation, sect, color, caste, creed, ethnic background.

6. Sindh Prohibition of Employment of Children Act 2017

The Sindh Prohibition of Employment Act 2017 provides definitions for child and adolescent. A child is a person who is below fourteen years of age and an

adolescent is a person who is over fourteen years of age and below eighteen years of age.

The Act outlines that no child labor shall be employed and no adolescent shall be employed to conduct hazardous work as defined in the Schedule.

The Act has fixed penalties in case of employment of child labor. All other labor laws are applicable in case of employment of children.

7. Protection against Harassment of Women at the Workplace (Amendment) Act 2022

The Protection against Harassment of Women at the Workplace Act, 2022 introduced amendments in the previous Act of 2010, and has further broadened its scope. The Act defines harassment as (a) “any unwelcome sexual advance, request for sexual favors, stalking or cyber stalking, or other verbal, visual or written communication or physical conduct of a sexual nature, or sexually demeaning attitudes, including any gestures or expression conveying derogatory connotation causing interference with work performance or creating an intimidating, hostile or offensive work environment, or the attempt to punish the complainant for refusal to comply to such a request or is made a condition for employment”; and (b) “discrimination on the basis of gender which may or may not be sexual in nature, but which may embody discriminatory and pre-judicial mind-set or notion, resulting in discriminatory behaviour on basis of gender against the complainant”.

8. Sindh Differently Abled Persons (Employment, Rehabilitation, and Welfare) Act, 2017

The Act provides for the employment, rehabilitation, and welfare of differently able persons. The definition of "differently able" is any persons who on account of injury, disease, or congenital deformity, is challenged for undertaking any gainful profession or employment in order to earn his livelihood and includes a person who is blind, deaf, physically challenged or mentally challenged.

This act is applicable as the proposed project will involve serious occupation health and safety issues during construction phase and may cause serious injury to worker/staff causing permanent disability and differently able

KWSSIP and its contractors are bound to abide by the terms and conditions of the above Acts. No child labor shall be employed at the project site(s). The worker shall be paid compensation as per the Sindh Workers Compensation Act 2015 in case he /she suffers from accident-causing injury during work at the project site(s) involving all Direct, contracted, primary and community workers.

Minimum wages shall be fixed as per the Sindh Minimum Wages Act 2015 (Sindh Act No. VIII of 2016, adopted on 2016-01-25) and any further notifications that may have been issued under the Act. All deductions, benefits shall be in accordance with those defined in the Payment of Wages Act 2015 and terms of Employment (Standing Orders) Act 2015.

4.7 ESS 2 on Labor and working Conditions

The ESS2 outlines how the workers safety and health and working conditions are provided at the work site, The PIU will promote sound worker-management relationships and provide safe and healthy working conditions. Key objectives of this LMP are described below.

- Promote the fair treatment, non-discrimination and equal opportunity of project workers;
- Secure protection of project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS2) and migrant workers, contracted workers, community workers, and primary supply workers, as appropriate;
- Prevent the use of all forms of forced labor and child labor;
- Support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law;
- Provide project workers with accessible means to raise workplace concerns; and
- Promote safety and health at work.

This LMP applies to all workers and where government civil servants are working in connection with the project, whether full time or part time, they will remain subject to the terms and conditions of their existing public sector employment agreement/ arrangement, unless there has been an effective legal transfer of their employment or engagement to the project. ESS2 will not apply to government civil servants. However, the forced labor conditions and OHS requirements as also defined in the local legislations will be applicable to the government officials also.

Project workers will be provided with information and documentation that is clear and understandable regarding their terms and conditions of employment. The information and documentation will set out their rights under national labor law and ESS requirements (which will include collective agreements), including their rights related to hours of work, wages, overtime, compensation, and benefits. This information will be provided at the beginning of the working relationship and when any material changes occur.

The **Table 4.1** below provides the conformance of the National Labor Act with the key elements of the World Bank ESS 2.

Table 4.1: Conformance of the Pakistan National Labor Act with Key Elements of ESS2

Key Elements of ESS2	Provisions in Pakistan Labor Laws
Equal opportunity and non-discrimination	The law contains important provisions prohibiting discrimination based on sex and disability, including equal wages for equal work.
Timely payment	<ul style="list-style-type: none"> • Wages must be paid before the expiry of the 7th working day after the last day of the wage period • Where the employment of any person is terminated by or on behalf of the employer, the wages earned by him shall be paid

Key Elements of ESS2	Provisions in Pakistan Labor Laws
	before the expiry of the second working day from the day on which his employment is terminated.
Minimum wage	The minimum wage as fixed by provinces in each year
Work hours	<ul style="list-style-type: none"> Under the Factories Act 1934, no adult employee can be required or permitted to work in any establishment in excess of nine hours a day and 48 hours a week Section 8 of the West Pakistan Shops and Establishments Ordinance, 1969 likewise, restricts weekly work hours at 48 hours that includes rest and prayer times
Worker rights	Regular leaves and benefits. The employer must provide reasons for termination. The workers have right of access to information, safety, and security.
Prevents use of all forms of forced and child labor	The national and provincial labor laws prohibit use of all forms of forced labor and child labor.
Protection of workers	The labor laws encompass a large array of rights to protect workers including the right to decent work and freedom of association to equal opportunity and protection against discrimination. Specific rights related to the workplace include health and safety in the workplace and the right to privacy at work, amongst many others.
Occupational Health and Safety	This law provides for comprehensive OHS and empowers the Department of Labor to conduct inspections of establishments and to impose penalties for violations of non-compliance.
Working Age of Workers	Under the Factories act 1934, no child who has not completed his fourteenth year shall be allowed to work in any factory.
Women	Under the Ordinance of 1958, women with at least four months employment in an establishment immediately preceding the day of delivery are eligible to get a total of twelve weeks of maternity leave, six weeks before and six weeks after the childbirth.
Persons with Disabilities (PWD)	Persons with Disabilities Rights and Protection Act 2013 provides for rights to discrimination free employment opportunities
Migrant Workers	No special provisions for migrant workers
Contract Workers	In the case where the wages of a worker employed by a contractor are not paid by the contractor, the wages must be paid by the employer of the establishment.
Community Workers	The labor law does not recognize community workers as defined in the ESS2 and hence does not provide any special consideration for such contracting arrangements. The law requires that all labor supply contracting agency will have to be formally registered, and workers should first be the responsibility of the contracting agency.
Primary Supply Workers	The law does not assign any responsibility to the project on the supplier's laborers and their working conditions. Workers of suppliers will have to be the responsibility of the suppliers.
Freedom of Association and collective bargaining	Article 17 of the Constitution not only guarantees freedom of association but also collective bargaining as a fundamental right. Keeping in view this provision, labor law in Pakistan allows formation and joining of trade unions/ associations to both the

Key Elements of ESS2	Provisions in Pakistan Labor Laws
	employers and the employees.
Access to a grievance redress mechanism	Workers can seek direct civil law redress from the Labor courts for complaints regarding terms and conditions employment and wages, health and safety, maternity welfare, and child labor offences are subject to criminal prosecution.

The **Table 4.2** below, on the other hand, describes the main gaps of the government system with respect to the WB ESF Standards:

Table 4.2: Main Gaps of Government System with respect to WB ESF Standards

WB ES Standard	Legislation	Gaps	Mitigation
ESS2: Labor and Working Conditions	Factories Act 1934 Pakistan Occupational Health & Safety Act 2018	Working Conditions: <ul style="list-style-type: none"> The Act does not specifically require that development be assessed and reviewed in terms of labor and working conditions including OHS requirements before approval. The Labor Act does not require development projects to prepare Labor Management Procedures/ Plans or OHS plans. The Labor Act prohibits the use of child labor, however, it does not stipulate what age constitutes a child. The Child Labor (Prohibition and Regulation) Act 2000 prohibits the employment of any child below the age of 14 while children between the ages of 14 and 16 are allowed to work. 	This LMP assesses the labor issues including OHS risks and describes mechanisms to address them. In addition, the Environmental and Social Assessments (ESIAs) and Environmental and Social Management Plans (ESMPs) carried out/prepared for various subprojects under KWSSIP also provide mitigation and control measures to address labor risks.
ESS4: Community Health & Safety		Covered under ESIA but the systems do not provide clear requirements for the development project and implementation.	The ESIAs include detailed measures to address the community health and safety risks.

5 BRIEF OVERVIEW OF LABOR LEGISLATION: OCCUPATIONAL HEALTH AND SAFETY

This chapter discusses the legislation for OHS aspects in the country. Also discussed in the chapter are the WB guidelines on these aspects.

5.1 Occupational Health and Safety (OHS)

The project will observe and ensure the protection against OHS risks to the workers embodied in various international laws, national, and provincial laws and administrative issuances governing the public sector. Observing and enforcing OHS protection should aim at: the promotion and maintenance of the highest degree of physical, mental, and social wellbeing of workers in all occupations; the prevention amongst workers of departures from health and safety caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; and placing and maintenance of the workers in an occupational environment adapted to his/her physiological and psychological capabilities.

5.2 International Conventions

5.2.1 ILO Conventions

ILO has formulated more than forty regulations, particularly concerning with the OHS issues. It has several major regulations as follows:

1. ILO Technical Convention: C187 – Promotional Framework for Occupational Safety and Health Convention.

This Convention stresses:

- i. A safe and healthy working environment by formulating a national policy
- ii. Each member shall promote and advance, at all relevant levels, the right of workers to a safe and healthy working environment
- iii. In formulating its national policy, each Member, in light of national conditions and practice in consultation with the most representative organizations of employers and workers, shall promote basic principles such as assessing occupational risks or hazards; combatting occupational risks or hazards at source; and developing a national preventative safety and health culture that includes information, consultation and training.

2. Prevention of Major Industrial Accidents Convention, 1993 (No. 174)

The purpose of this convention is the prevention of major accidents involving hazardous substances and the limitation of the consequences of such accidents. The convention protects workers, the public, and the environment by preventing major accidents either on or off site and provides guidance on appropriate emergency planning.

3. Safety and Health in Construction (1992)

The objective of this code is to provide practical guidance on a legal, administrative, technical and educational framework for safety and health in construction with a view to: preventing accidents and diseases and harmful effects on the health of workers arising from employment in construction: ensuring appropriate design and implementation of construction projects: 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.

4. Safety and Health in Building and Civil Engineering Works (1972)

Code of practice relating to occupational safety and occupational health in civil engineering and the construction industry, includes provisions concerning the work environment and equipment, fire protection, noise, machinery (including building machinery and electrical machinery, ionizing radiations, explosives, handling, occupational health, welfare, and healthcare services).

This code of practice covers 42 topics related to safety and health in building and civil engineering. The Main topics include workplaces and equipment, scaffolds, ladders and stairs, lifting appliances; railways, road and similar transport; construction equipment; electricity, blasting, concrete work, other building operations, excavations, underground construction, work in compressed atmosphere, work clothes, and personal protective equipment; hygiene and welfare; medical supervision.

5.2.2 United Nations and Group 20 Countries

The United Nations has adopted 17 Sustainable Development Goals with specific target on OSH. Similarly, the G20 summit placed OSH on the agenda.

5.3 Provincial Legislation on OHS

The **Occupational Health and Safety Act 2017** is the applicable local legislation as this Act applies to all Workplaces. Details of each chapter are described below:

Chapter I identifies the duties of the employer as follows:

1. Undertake practical measures for Safety & Health and Welfare;
2. Identify, assess and address existing & new hazards;
3. Report and investigate incidents;
4. Provide and apply Safe Systems of Work, Safe tools & equipment & appliances
5. Safe use, handling, storage, disposal and transport of materials and substances;
6. Control physical, chemical, biological, ergonomic, psychosocial or other hazards, affecting workers and others;
7. Provide Information, Instruction and Training to ensure Safety &Health at Work;

8. Maintain workplace in safe, clean, orderly and risk-free condition with safe means of access;
9. Inform workers regarding work hazards, risks involved and preventive and protective measures;
10. Provide adequate PPE to prevent risk from injury and ill health;
11. Maintain records of all accidents at workplace;
12. Provide first aid arrangements and emergency provisions;
13. Take measures to prevent fires & measures in the event of fire; and
14. Collaborate in the case of simultaneous operations or joint premises

The duties of workers and volunteers are identified as follows:

1. Ensure safety & health of others who may be affected by his acts & omissions & not willfully do anything to endanger himself or others;
2. Use & take care of PPE provided by the employer;
3. Do not willfully interfere or misuse any appliance or equipment or convenience provided for safety & health of persons at workplace;
4. Resolve any situation being unsafe posing immediate threat with the employer or cease work until the dispute is resolved
5. Until the dispute is resolved, employer may assign the affected workers some temporary alternative work; and
6. Worker shall report any occupational accident, occupational Disease, dangerous occurrences, or commuting accident as per company OSH Policy.

The general duties of suppliers have been identified below:

1. Design & construction to be safe & without risk to safety & health;
2. Testing & examination;
3. Adequate information;
4. Substance to be safe & without risk; and
5. Includes supply, handling, assembling, installing, erecting & testing of tools, machinery & equipment

Chapter II states rules that that Government has made for the safety and health of workers in any establishment by notification in official gazette.

The rules include the following matters:

1. Cleanliness and maintenance of building;
2. Illumination, ventilation, temperature, noise, dust, fumes and artificial ventilation;
3. Disposal of wastes and effluents;
4. Floors, stairs, mean of access, proper working space, overcrowding, pits, sumps, opening in floors, and allied things;
5. Drinking water and conservancy;
6. Guarding and fencing of machinery at work and work at, on or near moving machinery;
7. Self-acting machines and device for cutting off power; revolving machinery and pressure plants;

8. Instruction, training and supervision in relation to employment on dangerous machines and fencing or casing of machinery, wet floors, open wiring, safety fitting etc.;
9. Explosives or inflammable dust, gas and precautions against dangerous fumes etc.;
10. Precaution in case of fire;
11. Personal protective equipment;
12. Excessive weights;
13. Loading and earth moving machinery;
14. Cranes, hoists, lifts and other lifting operations;
15. Scaffolding and work at heights; and
16. Safety of building, machinery and manufacturing process

Whereas, The Sindh Occupational Health & Safety Act calls for:

1. Written Statement of Policy;
2. Consultation – formation of OHS Committee with worker representation; appointment of OHS officer;
3. Training of Health & Safety Representative;
4. Precautions against Contagious & Infectious Disease at Workplace; and
5. Compulsory Vaccination and Inoculation.

Chapter III details enforcement measures and requires:

- Registration of workplaces and approval of site, buildings and other constructions to be used as workplaces; and
- Notification and investigation of accidents, dangerous occurrences and occupational illnesses.

Chapter IV details the formation of Occupational Health and Safety Council headed by the Secretary Labor having members from industry, representatives from employers, representatives of workers, professionals, members from civil society and member from the Labor Directorate.

The Act has also fixed penalties and offences in case of non-compliance with the provisions of the Act. The maximum penalty for non-compliance is Rs.250,000/-

The Sindh Occupational Health & Safety Rules 2019 outline the measures to be undertaken to implement the requirements of the Sindh OSH Act 2017.

The organization needs to formulate OHS Policy which is the requirement of the Act. The contractors and suppliers shall comply with the provisions of the Act.

5.4 The Labor Policy 2010 – Government of Pakistan

The Labor Policy 2010 addresses the importance of OHS legislation in Pakistan as provided below:

- Labor laws relating to occupational health and safety will be consolidated and rationalized to avoid overlapping and inconsistencies;
- Government shall enact suitable legislation to ensure health and safety of construction workers; and

- A Tripartite council on Health & Safety has been set up to identify health and safety hazards for workers of all economic sectors and to make recommendations for safety measures on a continuous basis.

5.5 WBG EHS Guidelines

The World Bank Group (WBG) has guidelines for Environment, Health, & Safety (EHS) that serve as useful references for general issues as well as sector specific activities. Projects financed by the WBG are expected to comply with this guideline as required by the policies and the standards. The EHS Guidelines are mainly on occupational health and safety, community health and safety as well as on construction and decommissioning. It contains guidelines cross cutting on environmental (waste management, ambient air quality, noise, and water pollution), occupational health and safety issues amongst others, applicable to all the industry sectors⁸.

⁸ https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

6 RESPONSIBLE STAFF

6.1 KWSSIP / PIU Responsibility

The overall management of the Project is the responsibility of the PIU of KWSSIP. PIU will oversee the LMP's implementation. The LMP will be followed in all aspects of the procurement process. Contractor(s) and subcontractor(s) shall be hired in a transparent manner based on their experience and competency. The contractor(s) must ensure that all LMP requirements for labor (direct and contracted), protection, and facilities are met, and this must be included in the written agreement.

As follows, the E&S team at PIU will implement and monitor the provision of this LMP:

- Ensure that the workers are recruited, retained and treated in accordance with the E&S regulations, including the LMP and OHS provisions;
- Confirm that the duties owed to the direct workforce are carried out as outlined in this LMP and contractual documents;
- Track the project workers' training;
- When conducting activities, keep an eye out for any potential dangers of significant safety issues;
- Create and put into action a grievance procedure for direct employees that include tracking the progress of complaints and their outcomes as well as ensuring that complaints received from employees are quickly addressed.
- Ascertain that the project's workers are aware of the grievance procedure;
- Keep records of the hiring process, including age and gender verification, as well as the hiring of the hired staff. Orient new hires to environmental, social, and occupational health and safety issues and provide ongoing training for these personnel.
- Report any incidents or accidents involving project personnel and information about labor and occupational health and safety performance to the World Bank.

6.2 Contractors' Responsibilities

Occupational Health and Safety: To guarantee adherence to every LMP requirement, the contractor(s) must appoint OHS representative(s). Every month, the contractor must give the PIU a report on all incidences. The contractor is responsible for making ensuring that employees are taught in using personal protective equipment and safety precautions.

Immediately notifying the PIU of serious situations is required. Regular meetings between the PIU of KWSSIP and the contractor(s) will be held to assess progress and make sure that the OHS requirements of the LMP have been met. Follow-up on the action plans developed for the accidents that happened on specific sites. When executing the safety measures in the LMP, any challenges must be addressed by the contractor.

Labor and Working Conditions: Contractors shall maintain records in compliance with the procedures set forth in this LMP. PIU may at any point request records in order to verify that labor rules are being observed. The PIU will compare records to actuals at least once every

month and, if required, may mandate rapid corrective action. A summary of issues and solutions will be delivered in quarterly reports to the World Bank.

Worker Grievances: KWSSIP's current grievance procedures will still be available to the Project staff; however, contractors will be required to establish a separate grievance redress system for employees that satisfy the minimum requirements of this LMP. The contractor's GRM will be in line with the PIU GRM and the contractor will submit the monthly reports to the ESS responsible person in the PIU. The PIU's social development specialist will review all records on a monthly basis. In instances where workers' complaints are not resolved by the national/provincial system, the PIU will nonetheless remain informed of decisions and reflect in quarterly reports to the World Bank.

Additional Training: Each contractor is required to, at all times, have a qualified safety officer on board. If training is required, this will be the contractor's responsibility. The safety officer will provide instructions to contractor staff. PIU will also arrange training to address risks associated with labor influx and will also provide a schedule for training required. The contractor will be obligated to make staff available for this training, as well as any additional mandatory trainings required by PIU, as specified by the contract.

The staff will receive training on the prevention of SEA/SH, codes of conduct, as well as on gender and GBV in general. The PIU will be responsible for (i) training, (ii) implementation, and (iii) supervision of OHS aspects.

It will be a condition in the construction contracts that the contractors give preference to local labor. This entails that wherever possible, unskilled work opportunities should be made available to community members.

7 POLICIES AND PROCEDURES

All project staff and contractors must be informed of the project management policies and processes (s). Contracts must be drafted in conformity with ESS 2 principles and Sindh Labor Laws, and all recruitment processes must be open. Copies must be in Sindhi or Urdu to the greatest extent practicable. Urdu and Sindhi must be used for training sessions and procedure writing. The project team will prepare the subsequent actions as given in this Section. PIU will include the suggested measure in the bidding documents as provided in the **Annex II**.

7.1 Labor Policies and Procedures

These policies and procedures will be updated and modified, if necessary, after the allocation of the contracts of the different positions of the PIU. As specified in the national labor laws, the employment of project workers will be based on the principles of non-discrimination and equal opportunities. There will be no discrimination with respect to any aspects of the employment relationship, including recruitment, compensation, working conditions and terms of employment, access to training, promotion, or termination of employment. The following measures will be followed by contractors and monitored by the PIU with support from Human Resource Department to ensure fair treatment of all employees:

- Recruitment procedures will be transparent, public, non-discriminatory, and open with respect to ethnicity, religion, sexual orientation, disability or gender
- Applications for employment will only be considered if submitted via the official application procedures established by contractors
- Clear job descriptions will be provided in advance of recruitment and will explain the skills required for each post
- All workers will have written contracts describing terms and conditions of work and will have the contents explained to them, after which the workers will sign the contract.
- Unskilled labor will be preferentially recruited from the surrounding communities, and settlements.
- Employees will be informed at least two months before their expected release date of the coming termination.
- The contracted workers will not be required to pay any hiring fees. If any hiring fees are to be incurred, these will be paid by the Employer.
- Depending on the origin of the employer and the employee, employment terms and conditions will be communicated in two languages, in the national language and the language that is understandable to both parties
- In addition to the written documentation, an oral explanation of conditions and terms of employment will be provided to workers who may have difficulty understanding the documentation.
- It is noted that language related problems are not expected, but if they are, interpretation will be provided for workers as necessary.

- All workers will be 18 years old or above for civil works. This will be a requirement in contracts with construction works contractors.
- Normal working time should not exceed 40 hours per week. With a five-day working week, the duration of daily work is limited by the internal work regulations approved by the employer after prior consultation with the representatives of the workers, in compliance with the established working week duration.

The PIU will inform the World Bank of any significant event (social issues) as soon as possible, but no later than five working days, after the occurrence of the event. Such events include strikes or other workers' demonstrations. The PIU will prepare a report on the event and the corrective measures and subsequently submit it to the World Bank within 30 days of the event.

7.2 Occupational Health and Safety

The KWSSIP PIU is committed to comply with the legislation that relates to the occupational health and safety requirements as stipulated in the main law governing OHS and Sindh Factories Act 2015 Chapter 3 in Sindh as well as other provincial and federal OHS Acts. The Sindh Hazardous Substance Rules of 2014 regulate certain occupations as hazardous and contain special provisions to regulate the working conditions in those occupations. In addition, there are other laws to be complied with dealing with OHS including The Mines Act 1923; Social Security Ordinance 1965; Workmen's Compensation Act 1923; Shop and Establishment Ordinance 1969 and Dock Laborer Act 1934 as well as WB ESS2 and ESS 4. These laws and standards will enable OHS hazards identification and risk elimination through promotion of appropriate skills, knowledge and attitudes towards hazards.

The PIU will have a designated Occupational and Community Health and Safety Specialist and an Environmental Representative for an agreed period. This specialist must have a minimum bachelor's degree in civil/environmental engineering/environmental sciences and certificate course in OHS (e.g., The National Examination Board in Occupational Safety and Health – NEBOSH) with a minimum of 5 years of experience as OHS professional in construction of infrastructure projects. Extensive knowledge of all OHS legislation, OHS guidelines and standards are required.

It is important that all staff must be given induction training so that they are aware of the hazards specific to the project and its activities. This is in addition to toolbox talks and other training needs identified during project implementation.

The PIU will ensure that all workers irrespective of any category should be provided with appropriate type of protective masks, helmet, overall and safety shoes, and safety goggles, protective clothing as well as other appropriate PPE as per work job hazard analysis and method statements (such as working on live wires). The PIU and contractors must also ensure appropriate demarcation of workplace and notices for hazardous area where applicable; accident reporting, notification and investigation practices at each workplace required; safety sign and symbols displayed at workplace and ensure availability of first aid box; also identify and service agreement done with specialized hospitals for complicated

accidental and health problems as well as specific details will be included in the emergency management plan (see **Annexes III, IV and V**).

Occupational Health and Safety Management Plans (OHSMP)

Contractors will be required to prepare OHSMP in accordance with OHS standards mentioned in the bidding documents, OHS provisions of ESMP, compliance with the local regulatory requirements, and World Bank EHS Guidelines. All OHSMPs shall have a minimum requirement to include information and details on:

- Reporting and Investigation of Incidents /Illnesses
- Procedure for Waste Management
- Procedure for Housekeeping
- Procedure for Hazard Identification and Risk Assessment
- Training Procedure including Induction training
- Toolbox Talks
- Safe Systems of Work – work at heights, hot work, electrical HT/LT works, Excavation, Confined Spaces (Permits to Work)
- Personal Protective Equipment
- Emergency Response Procedure
- Monthly reporting procedure
- Camp management procedure
- Management of Food and Drinking Water at Campsite(s) and at construction site
- Project Site Security Procedure
- COVID 19 measures procedure
- Internal Auditing Procedure
- Management of visits by WB /AIIB, Government agencies
- Storage of fuel, hazardous substances
- Operation and maintenance of heavy equipment and overhead cranes.
- Recruitment procedures will be transparent, public, and non-discriminatory, and open with respect to ethnicity, religion, sexuality, disability, or gender.

The Guideline for Policies and Procedures are appended in **Annex VI**.

7.3 Child Labor and Forced Labor

To prevent engagement of underage workers, the age employment scheme should be strictly adhered to by parties involved in hiring. The process of hiring Direct Workers should include a proper screening, with age verification to ensure no children are employed in the implementation of the project. Likewise, all contracts must have a provision as to the minimum age requirement and the hiring authority shall keep a registry of all hired workers.

7.4 Labor Influx/ SEA/SH

All project workers will undergo relevant seminars and training to prevent risks of labor influx including SEA/SH issues. Project workers particularly those coming from other communities

will be briefed on the culture and history of the area, allowing them to adapt to the community values and to avoid any conflicts due to the dissimilarities of their cultural backgrounds.

Discrimination and exclusion of vulnerable groups

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, terms of employment (including wages and benefits), termination and access to training. This project shall comply with the national labor laws on gender equality in the workplace, which will include provision of maternity leave and nursing breaks and sufficient and suitable toilet and washing facilities, separate for men and women workers.

Development of a SEA/SH Action Plan and Mitigation Measures for Risks Related to Gender

According to the Note on Good practices to combat SEA/SH in the Framework of Financing Investment Projects involving major civil engineering works, all projects, whatever their risk level, should guarantee the minimum actions recommendations for addressing the risks of SEA/SH related issues.

The initial SEA/SH mitigation measures have been included in the ESIA's and ESMP's of the project. A separate GBV/SEA/SH Action plan will be prepared, where additional measures may need to be included.

7.5 Labor Disputes over Terms & Conditions of Employment

Fair, reasonable, and lawful terms and conditions shall be applied in the contractual provisions of all project workers to prevent labor disputes. Moreover, there will be an efficient grievance mechanism to address any issues that may arise during existence of the contract. The guidelines provided later in the document shall be strictly observed to avoid disputes over terms and conditions of employment.

All the contractors who will be engaged for the project will be required to produce their grievance procedure as a requirement for tender, which at a minimum comply with these requirements. In addition, good international practice recommends that the procedure be transparent, confidential, adheres to non-retribution practices and includes right to representation. After they are engaged, they will be required to produce proof that each worker has been inducted and signed that they have been inducted on the procedure.

7.6 Monitoring and Reporting

General Monitoring Activities: Processes for monitoring, assessment and audit will be developed to:

- Document the implementation and effectiveness of management and mitigation measures;
- Assess actual impacts against predicted impacts; and
- Demonstrate compliance with applicable legal and other requirements.

Monitoring will be undertaken for both direct hires (including casual labor) and contract workers.

Assessments: The Resident Engineer or Site Supervisor will take a lead in undertaking periodic assessments to determine the degree to which, the commitments outlined in this LMP are being met. This will include camp inspections and monitoring of grievances.

Audits: It is envisaged that, the site supervisor or resident engineer may, at its discretion, audit the contractors or suppliers to determine their compliance with this LMP. In addition, they may also, at its discretion, undertake audits of other third-party facilities and providers, as relevant to the Environmental and Social Management Plan. The Independent Environmental and Social Consultant, on behalf of KWSSIP may also be engaged to conduct periodic monitoring reviews of the Project, largely based on the social and environmental controls set out in the Environmental and Social Management Plan.

Performance indicators: Performance indicators are used to measure and track performance against the effectiveness of mitigation and control measures described in this LMP. Indicators can be divided into two groups: leading indicators and lagging indicators. Leading indicators predict actions to be taken to prevent a risk from escalating - such as complaints from workers about, for example, the quality of camp food. An example of a lagging indicator would be a work stoppage over camp conditions. General performance indicators may also be relevant, such as training and awareness numbers. Performance indicators must be measurable against a specified target.

Labor and Working Conditions Performance Indicators: Performance indicators should be carefully recorded and graphed where relevant for remedial action to reduce potential risks. They will form a key component of monthly reporting by the Resident Engineer or Site Supervisor.

Non-conformance and corrective action: The project ESMPs alongside provisions in this LMP will be all used for tracking and stewardship of non-conformances identified as part of assessment and audit activities described in this LMP.

Training and Awareness: Before the development of a training and awareness program, a needs analysis will be conducted. The needs analysis will be based on requirements of this LMP. It involves a basic assessment of the knowledge and skills of the people involved in training implementation.

Internal Reporting: A periodic report will be compiled to address the labor and working conditions aspects contained in this document, including the following for both Consulting Engineer and contractor activities:

Workplace:

- Grievances lodged by type and number, illustrated with graphs. Open grievances by type and number;
- Disciplinary action by type and number;
- Induction training numbers, queries and comments;
- Issues raised by workers' committees and action taken;
- Workforce numbers by local and foreign workers - actual against planned;

- Actual demobilization numbers against planned targets. Incidents around demobilization;
- Industrial relations incidents - stoppages go slows, threats, damage to property, violence;
- Incidents, accidents, and near misses;
- Lost hours by category; and
- Absenteeism, sick leave and late arrivals.

Camp:

- Grievances lodged by type and number. Open grievances by type and number;
- Disciplinary action by type and number;
- Induction training numbers, queries and comments;
- Issues raised by camp committees and action taken;
- Camp numbers by local and foreign workers - actual against planned;
- Camp incidents;
- Food or lodging complaints; and
- Recreation activities.

External Reporting: Consulting Engineer and its contractors will meet all statutory notification and reporting requirements.

Disclosure: Disclosure will be done to enable workers understand information regarding safeguards in the workplace. This will be done during the induction period of the workers. Various tools will be used including: Information, education and communication (IEC) materials and Meetings, Induction toolkit (sexual and gender-based violence, EHS company policies, safety, code of conduct, and child protection).

7.7 Fatality and Serious Incidents

In the event of an occupational fatality or serious injury, the PIU shall report to the Bank as soon as becoming aware of such incidents and inform the government authorities (where available) in accordance with national as well as Bank reporting requirements. Corrective actions shall be implemented in response to project-related incidents or accidents. The PIU or, where relevant the consultant, may conduct a root cause analysis for designing and implementing further corrective actions.

8 AGE OF EMPLOYMENT

This Chapter explains the standards and methodology for determining the minimum age of labor for KWSSIP.

8.1 Minimum Age for Employment in the Project

Article 11(3) of the Constitution of Pakistan prohibits the employment of children below the age of 14 years in any factory, mines, or any other hazardous employment. In accordance with this Article, the Employment of Child Act (ECA) 1991 does not permit child labor in the country. The ECA defines a child as a person who has not completed their fourteenth years of age, where it further states that no child shall be employed or permitted to work in any of the occupation set forth in the ECA or any workshop wherein any processes defined in the Act is carried out. The KWSSIP PIU and its contractors will be bound by the ECA to disallow any child labor at the project sites or campsites.

Under the Sindh Factories Act, 2015, no adult employee, defined as a worker who has completed his or her 18th year of age, can be required or permitted to work in any establishment in excess of nine hours a day and 48 hours a week. Similarly, no young person under the age of 18, can be required or permitted to work in excess of seven hours a day and 42 hours a week. The Factories Act, which governs the conditions of work of industrial labor, applies to factories, employing ten or more workers.

According to the ESS 2 and the Sindh Prohibition of Employment of Children Act of 2017, no one under the age of 18 may be hired to work at the project site (s). The hiring process must specify how candidates' CNICs will be checked, so that no one under the age of 18 can be hired on site. It is necessary to inspect and confirm the applicant's original CNIC. The contractor(s) and the recruiting agents will be held accountable if any underage workers are discovered to be working on the project site(s). They will be fined and have their contracts terminated.

Under the ILO C138 (Minimum Age Convention, 1973), each Member of the Convention undertakes to pursue a national policy designed to ensure the effective abolition of child labor and to raise progressively the minimum age for admission to employment or work to a level consistent with the fullest physical and mental development of young persons. Article III thereof provides: (a) the minimum age for admission to any type of employment or work which by its nature or the circumstances in which it is carried out is likely to jeopardize the health, safety or morals of young persons shall not be less than 18 years; (b) the types of employment or work to which paragraph 1 of this Article applies shall be determined by national laws or regulations or by the competent authority, after consultation with the organizations of employers and workers concerned, where such exist; (c) notwithstanding, the provisions of paragraph 1 of this Article, national laws or regulations or the competent authority may, after consultation with the organizations of employers and workers concerned, where such exist, authorize employment or work as from the age of 16 years on condition that the health, safety, and morals of the young persons concerned are fully protected and that the young persons have received adequate specific instruction or vocational training in the relevant branch of activity.

The Sindh Prohibition of Employment of Children Act of 2017 states that any teenage worker (aged between 14 and 18) hired for training at the site(s) must be kept away from moving machinery and not given any dangerous tasks. Before allocating the task or job to an adolescent worker, a thorough risk evaluation of the assignment must be made.

Contractors will be required to verify and identify the age of all workers. This will require workers to provide official documents, which would include a birth certificate, CNIC, passport, or medical or school record. If a minor under the minimum labor eligible age is discovered working on the project, measures will be taken to immediately terminate the employment or engagement of the minor in a responsible manner, considering the best interests of the minor.

8.2 Age Verification

Prior to the engagement of labor, age verification must be done and documented. Where available, verify the birthday on official records like a birth certificate, national identification card, or other reliable sources.

9 EMPLOYMENT TERMS AND CONDITIONS

This Chapter defines the employment terms and conditions applicable to the project employees.

9.1 General Requirements

The employment terms and conditions applicable to project employees as set out in the labor rules will apply to project employees who are assigned to work on the Project (Direct Workers). Terms and conditions of part-time workers are determined by their individual contracts.

The contractors' labor management procedure will set out terms and conditions for the contracted and subcontracted workers. These terms and conditions will be in line, at a minimum, with this LMP, the Sindh Factories Act 2015, and specified in the standard contracts to be used by the PIU KWSSIP under the project.

A contract of employment, written in a language known to all parties, shall be executed between the PIU and the direct worker that specifies the following:

- The parties involved, including the name of the worker, age, citizenship, civil status, gender, and address;
- Location of work with regard to the needed services, acceptance of the parties, qualifications of the worker, and attestation that the worker is not related within the third degree of consanguinity or affinity to the hiring authority and/or its representative, and the worker has not been previously dismissed from government service by reason of administrative offense;
- Terms and Conditions of the contract, including the hours and place of work, remuneration payable to the worker, job description, summary of deliverables, duration of contract, procedure for suspension or termination of contract, statement that there is no employer and employee relationship between the contracting parties.

As provided in the Sindh Factories Act, 2015, each worker who has completed a period of 12 months continuous service in a factory shall be allowed, during the subsequent period of twelve months, holidays for a period of fourteen consecutive days. If a worker fails in any one such period of twelve months to take the whole of the holidays allowed to him or her, any holidays not taken by him or her shall be added to the holidays allotted to him or her in the succeeding period of twelve months.

A worker shall be deemed to have completed a period of 12 months continuous service in a factory without considering any interruption in service during those 12 months due to sickness, accident or authorized leave not exceeding 90 days in the aggregate for all three.

9.2 Non-Discrimination and Equal Work Opportunities

Article 19-A of the Constitution imparts the State's obligations aimed at achieving equality in the form of securing the well-being of the people, regardless of sex, caste, creed, or race, by raising their standard of living, by preventing the concentration of wealth and means of

production and distribution in the hands of a few to the detriment of general interest and by ensuring equitable adjustment of rights between employers and employees.

The KWSSIP PIU is committed to equal opportunities for all its employees and potential employees where everyone is treated with respect and dignity, where there is equal opportunity for all. All employees under KWSSIP, regardless of their affiliation, will be treated fairly and with respect. Selection for employment, promotion, training, or any other benefits will be on the basis of aptitude and ability. Decisions about pay and benefits, terms and conditions of employment, appraisals, dismissal, or redundancy will be made objectively and without unlawful discrimination. All employees will be helped and encouraged to develop their full potential, and the talents and resources of the workforce will be fully utilized to maximize the efficiency of the organization.

The KWSSIP PIU will ensure that:

- Equality and non-discriminatory policy are adhered to within its own area of responsibility;
- Spread awareness on the equality in employment policy to the attention of the team members;
- Ensure that information on the equality of opportunity is included in all indication processes; and
- Ensure that the team members are available to attend relevant quality training programs (if any)

The PIU is responsible for assuring that equality in employment is effectively communicated to all employees and all those involved with the organization at whatever level of position and for providing guidance where appropriate. It will also, in particular, provide full text and induction on equal opportunities to all new employees; translate this policy into Urdu and any other traditionally spoken languages and send to all relevant involved parties. In addition, upon any significant update, this policy will be presented to all members of staff or at department/ office meetings and re-translated to all relevant involved parties.

Each member of staff has a responsibility to:

- Follow any measures introduced to ensure equality of opportunity and prevent discrimination, harassment, or bullying
- Report any discriminatory acts
- Treat others fairly without prejudice
- Promote a work environment where an individual can feel valued and realize their potential whilst encouraging others to do so also

Failure to comply with the policy, procedures and practices outlined below will be considered within the framework of the PIUs disciplinary procedure. The PIUs equal opportunity policy also covers bullying and harassment issues at the workplace and in any work-related setting outside the workplace.

9.3 Working Hours

As per the Sindh Factories Act 2015 (Section 34), the Shops and Establishment Ordinance, 1969 (Section 8) and the Road Transport Ordinance, 1961 (Section 4) are used to determine working hours and any rest time in different industries.

Section 34 of the Factories act states “no adult worker shall be allowed (or required) to work in a factory for more than 48 hours in a week: if the factory is seasonal, 50 hours a week and if the work is of continuous nature, he may work for 56 hours in a week. As for the daily hours, these may not be more than 9 hours a day (in case of seasonal: 10 hours). The working hours of an adolescent (15-18) are 5 hours in a day. The Factories Act is applicable to all areas employing 10 or more workers. The law makes provisions for one weekly holiday and if that is not given, a compensatory holiday must be given as soon as possible.

The Shops and Establishments Ordinance 1969 also limits weekly working hours to 48 hours. The ordinance also covers shops and commercial establishments not regulated by the Factories Act, where it states that any adult worker is required to work overtime, If asked, where the rate of overtime payment is double the usual pay (Section 47). Overtime is not payable to the contract workers who are employed on a piece rate basis. The normal hours of work for project workers shall not exceed 8 hours a day for 5 days for a total of a 40-hour work week, exclusive of time for meals. Where exigencies of the service require such personnel to work for 6 days or 48 hours, the project workers shall be entitled to a compensatory time off to offset the overtime rendered. No worker shall be allowed to render services beyond the 48-hour overtime.

9.4 Leaves and Weekly Rest

Each project worker is entitled to a 2-day rest period during weekends (Saturday and Sunday). Workers shall be entitled to a rest day on regular holidays recognized by the province. Each worker is entitled to 10 days casual leave with full pay during a year. Workers are also entitled to 16 days sick leave with half pay (8 days with full pay) in a year. Festival holidays as notified by the provincial government with full pay (usually 10-13) are also allowed. If a worker is required to work on a festival holiday, he will be given one day additional compensatory holiday with full pay and a substitute holiday (300% of usual wages).

9.5 Maternity Leave

If a worker has completed 12 months of continuous service in a factory, he/she shall be allowed a paid annual leave of 14 consecutive days. Under the Maternity Benefits Ordinance 1958, leave is also allowed to pregnant women for a period of 12 weeks with full pay. It is unlawful for an employer to dismiss a women worker who is on maternity leave. The qualifying period for getting this leave is 4 months of preceding employment with the employer.

9.6 Remuneration

The laws relating to fixation and payment of remuneration include the Sindh Payment of Wages Act 2015, the Sindh Minimum Wages Act 2015 and the Sindh Terms of Employment (Standing Orders) Act 2015.

9.7 Workers' Welfare

The workers' welfare legislation includes Employees Old Age Benefits (EOAB) Act 1976 (with provisions for old age pension, old age grant, invalidity, and widow(er) pension). This Act is applicable to establishments employing five or more workers. Contribution has to be made both by the employer (5% of minimum wages) and employee (1% minimum wages). Employees Social Security Ordinance 1965 (applicable like the EOAB Act) provides benefits to employees in case of sickness, maternity, employment injury or death. The amount in this scheme is contributed only by the employer to workers or their legal heirs in case of death, permanent total disablement, permanent partial disablement, and temporary disablement during working in an establishment. The Standing Orders 1968 also provides for compulsory group insurance against natural death and injury for all the permanency employees in a workplace.

9.8 Termination of Contract

The contract of employment shall cease at the end of the period stated in the contract. However, the contract may be pre-terminated by the hiring authority due to breach of any provision thereof, breach of trust, loss of confidence, and for reasons detrimental to the interest of the agency, provided that the project worker is informed in writing at least 30 days prior to the effectivity of such termination. Likewise, the project worker may pre-terminate the contract provided that a written notice is submitted to the hiring authority, stating therein the reasons for the pre-termination, at least 30 days prior to the proposed date of effectivity thereof, and the same has been received, accepted, and approved in writing by the hiring authority.

Industrial and Commercial Employment (Standing Industrial and Commercial Employment (Standing Orders) Ordinance 1968 was enacted to address to the contractual relationship between employer and employee. The ordinance is applicable to establishments employing 20 or more workers. The ordinance classifies workmen in six classes: permanent, probationers, badlis, temporary, apprentices and contract workers (the last category was added in 2006). The legislation requires that workmen should be provided the contract in writing, showing the terms and conditions of his service, at the time of hiring, promotion and transfer. It also requires that the wage rates paid to different categories of workers/work should be posted on the notice boards.

Termination of an employment contract may be either termination simpliciter, which is termination on grounds other than misconduct after a notice (section 12) or termination on account of misconduct (section 15). Notice of termination, for termination simpliciter, is mandatory for permanent employees. A notice of one month must be served before severing the employment relationship or payment of one month's wages in lieu of notice may be

provided (Section 12.1). The law also obliges the employer to provide the termination certificate in writing stating the reason behind it. Although there is no specific provision for just cause dismissal, the requirement of written termination letter and section 41 of IRA 2008 which allow the labor court to inquire into the legitimacy of termination provide that there should be bona fide and valid reason for dismissal.

Termination on account of trade union membership and activity is an invalid reason for termination (ILO, 2000). While termination is being done on account of misconduct, worker has still the right of fair hearing. Of the many types of misconduct is “go slow”, for which a worker can be fired. Termination on economic reasons/retrenchment has not been focused in law; however, law does provide the procedure of retrenchment (last come, first go) and preference for rehiring of retrenched workmen. In case of laying off the workers, they must also be given due notice or payment in lieu of notice. If the employer wants to close down the whole business or is terminating the employment of 50 or more workers, It must get the prior approval of labor court. An individual whose employment is terminated has first to use internal mechanisms for dispute resolution, however if he is not satisfied with the decision, he may appeal to the labor court. In that case, labor court is authorized to go into all the facts of the case and determine whether the termination was valid and bona fide or not. The above-mentioned ordinance also provides for severance pay/gratuity to be paid (when an employee resigns or his services are terminated other than misconduct) equivalent to 30 days wages for every completed year of service or any part thereof in excess of 6 months (for 20 years of service, this means 90 weeks of severance pay).

9.9 Deductions

No deductions other than those agreed upon in the contract or those prescribed by law or regulations shall be made from a worker’s remuneration. The hiring authority is prohibited to demand or accept from the worker any cash payment or gifts in return for admitting such worker to employment or for any other reasons connected with the terms and conditions of employment.

9.10 Medical Treatment of Sick and Injured Workers

Any worker subjected to any illness, injury, or accident which was sustained during the work period shall be transported to the nearest clinic or hospital by the hiring authority or its representative.

9.11 Collective Agreements

The duty to collectively bargain arises only between the “employer” and the “employee”. Where neither party is an “employer” nor “employee” of the other, no such duty would exist. Considering that the terms and conditions provide that no employer-employee relationship shall exist between the contracting parties, there is no duty to bargain collectively.

Collective bargaining has also been called a fundamental right which emanates from article 17(1) of the Constitution. A trade union can move application for determination of Collective Bargaining Agent (CBA) if it has its members not less than one-third of those employed as workmen. However, if more than one union exists in the premises, the registrar of trade

unions will conduct a secret ballot election/referendum and will issue the CBA certificate to union securing votes not less than one third of total votes. If none of the union is able to get one third of total votes, a run-off election between the top two unions will be held and the union getting majority votes will be certified as collective bargaining agent. Not every workman employed in the premises is eligible for voting (Section 24.5). When a union is certified as a CBA, no application for (re) determination of CBA can be made for a period of two years except where the registration of trade union/CBA is cancelled. The CBA is entitled to undertake collective bargaining with the employer or employers on matters connected with employment, non-employment, the term of employment or the conditions of work other than matters which relate to the enforcement of any right guaranteed or secured to it or any workman by or under any law, other than this Act , or any award or settlement; represent all or any of the workmen in any proceedings; give notice of, and declare, a strike and nominate representatives of workmen on the Board of Trustees of any welfare institutions or Provident Funds (IRA 2008: Section 24.13).

10 GRIEVANCE REDRESSAL MECHANISM

This Chapter describes the requirements for establishing a grievance redressal mechanism (GRM) to be established for the project workers.

10.1 Legislative Requirements

As per Article 46 of the industrial Relations Ordinance (IRO) 2002, any worker may bring his/her grievance in respect of any right guaranteed or secured by or under any law or any award or settlement to the notice of the employer in writing, either him or herself or through the shop steward or CBA, within one month of the day on which cause of such grievance arises. The IRO 2002 reduces the delay from three months to one month. Where a worker brings his or her grievance to the notice of the employer, the employer must, within 15 days for the grievance, communicate his or her decision in writing to the worker.

10.2 GRM for Project Workers

For the KWSSIP Project, the PIU and its contractors will establish a separate GRM (or make provisions in the overall GRM) for the project workers to address labor or workplace related concerns consistent with the applicable national and provincial laws and ESS2 before engaging the workers and highlight it in the Project Operations Manual.

Typical grievances that may arise in the workplace include demand for employment, labor wage rates, delays in payment, discontentment with working conditions, labor camp issues, SEA/SH issues, and overall health and safety conditions of the work environment. A GRM structure will be established for project workers (direct workers and contracted/ supply workers) as required under ESS2. Handling of grievances will require objectivity, promptness, and responsiveness' to the needs and concerns of aggrieved workers.

The worker's GRM will also allow for anonymous complaints to be raised and addressed. Individuals who submit their complaints or grievances may request that their names be kept confidential, and this should be respected. Under ESS2, a worker's GRM will be provided for all project workers, including direct workers, contracted/ supply workers, to raise workplace concerns, including SEA/SH issues at the workplace. Any type of worker who has any complaint or grievance has the right to present it and eventually receive a proper response against it.

According to ESS2, different types of workers may approach the workers' GRM for the following key reasons (amongst many others):

- Demand for employment opportunities
- Labor wage rates and delays in payment of wages
- Disagreements over working conditions
- SEA/SH in the workplace
- OHS concerns in the workplace

The workers' GRM which is different from the project GRM, will leverage existing procedures and systems, and will be established in the early stages of the project, whilst serving throughout project implementation. The workers' GRM will be based on the requirements of

the WB's ESS2. Specifically, the workers' GRM will operate according to following key principles:

- It will be made available for all direct and contracted workers (and their organizations, wherever relevant)
- It will be proportionate to the nature and scale and the potential risks and impacts foreseen from the project
- It will be designed to promptly address concerns using an understandable and transparent process that provides timely feedback to those concerned in a language they understand without any backlash
- It will be a free to use system, where complaining workers will not pay any fees to use the worker GRM
- It will utilize existing grievance systems and experiences. In this context, the worker GRM will leverage Human Resource (HR) counseling procedures for direct workers that are available at their respective health ministries and departments, and will ensure HR procedures at contractor's organizations are consistent with the official worker GRM system characterized in this document, which will be further references in their working agreements, and monitored accordingly
- Anonymous grievances are also allowed and facilitated, and will be treated equally as any other grievances, whose origin is known, however, a suitable contact information is a must to be able to communicate responses back
- There will be no discrimination against those who express grievances, and any and all grievances will be treated confidentially
- It does not replace or override requirements to provide workplace processes to report work situations that a project worker believes are not safe or unhealthy
- Workers will be able to raise concerns regarding unsafe or unhealthy working conditions throughout the project
- It will not impede access to other judicial or administrative remedies that might be available under the law or through existing arbitration procedures, or substitute for grievance mechanisms provided through collective agreements.

The worker's GRM will contain the following design and procedures:

Information about the existence of the grievance mechanism will be readily available to all project workers through notice boards, the presence of "suggestion/ complaint boxes", including the different methods of communication, redressal timelines, and rights of workers.

The complainant should be able to use mobile phone-based applications, and in person centers/ mechanisms for complaint registration and resolution, and a free hotline linked with a call center. The grievance will be addressed through each area of feedback value chain:

- i. Uptake
- ii. Sorting and processing
- iii. Acknowledgement and follow up
- iv. Verification, investigation, and action
- v. Monitoring & Evaluation
- vi. Provision of feedback to the complainant to ensure effectiveness.

Grievance handling will be done in a transparent manner, where aggrieved workers will be informed within 10 days of their grievance application, either with a respective solution or with a request of extension.

The aggrieved worker will have the option to refer to a grievance log with key information that will be established by the PIU and quarterly reported upon.

If not satisfied with the outcome of the grievance at the contractor level, the aggrieved party will be able to access the Grievance Redressal Committee (GRC) established at the PIU level, where the GRC will be responsible for the redress mechanism in the areas of labor, environment, and social aspects along with project management.

The mechanism for resolving workers' grievances will be described in the context of staff induction training, which will be provided to all workers.

Collective Grievances and Disputes Resulting from the Negotiations of Collective Agreements

When a trade union is recognized, it is entitled to negotiate on a regular basis with the employer over terms and conditions existing at the workplace and the employer is obliged to negotiate with them also. The procedures followed in such circumstances are usually contained in the agreement, which states how the issues are raised, the procedure for negotiations, the composition of the parties involved in the negotiations, and the procedure to deal with issues that are not resolved through consensus. If the dispute is not resolved at the workplace, the parties to the dispute can utilize the dispute resolution mechanisms provided in the labor legislation.

Sexual Exploitation and Workplace Sexual Harassment

A separate GRM (or specific arrangements within existing GRM) will be established specifically for the purpose of confidentially receiving grievances related to SEA/SH. All SEA/SH related complaints, with the survivor's consent, will be referenced to the project identified service provider who will further manage the case in a survivor-centric approach and will report back to the project GBV GRM once the case is solved. In addition, the ESIA/ESMP will identify additional mitigation measures, including the contractors' ESMP or contractors specific LMP, where required. This will include engagement with communities on gender related risks, grievance, and response measures available as identified in the manual.

The PIU will, with support from consultants, identify institutions and service providers who are actively engaging in the prevention of gender-based violence, sexual exploitation, and workplace sexual harassment in order to establish a manual for referencing potential survivors. The PIU and the contractor are usually not equipped to handle complaints or provide relevant services to survivors, but will reference any person to relevant service providers, including health facilities, law enforcement agency's gender unit or others, as relevant using the information on available services.

All concerned responsible staff shall hold regular meetings with project workers to discuss any work-related issues and concerns. Every grievance raised by a worker will be documented with the actions undertaken by the PIU and contractors to address such

grievance. The aggrieved worker may raise any issue anonymously through a letter which shall be submitted to their immediate supervisor's office. Any grievances which are left unattended by the contractor can be submitted by the worker to the PIU, in which case, actions shall be taken to resolve the issue. Any labor dispute shall be first resolved through mediation, conciliation, and arbitration, in order to provide an efficient procedure in the settlement of disputes and to promote autonomy and freedom of the parties to make their own arrangements to resolve their grievance.

11 CONTRACTOR MANAGEMENT

The Project Team shall select contractors through a transparent process. It will review the following during the contractor selection process:

- Knowledge gathered through publicly available sources, such as company registers and papers pertaining to alleged infractions of applicable labor laws, such as inspection reports and other documentation from enforcement agencies;
- Business licenses, registrations, permits, and approvals;
- Labor management system documents, such as labor management procedures, that address OHS concerns;
- Identification, credentials, and certifications of labor management, safety, and health employees;
- Workers' certifications/permits/training to perform required work;
- Records of safety and health violations, reactions, recordable occurrences, and accompanying Root Cause Analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and necessary corrective and preventive actions (for example, revised job safety analysis, new or different equipment, skills training, and so forth);
- Accident and fatality records and notifications to authorities/ lending agencies;
- Records of the benefits that employees are legally required to receive and evidence that they have enrolled in the relevant programs;
- Worker payroll records, including hours worked and pay received;
- Identification of safety committee members and records of meetings; and
- Copies of prior agreements with suppliers and contractors that have clauses and terms that are materially consistent with ESS2.

The contract document shall include the contractor's commitment to:

- providing a construction management plan that includes reporting all pertinent project information, including workplace accidents;
- Employing suitably qualified personnel for high-risk jobs;
- Taking into account all occupational, safety and health considerations for its workers and at the site(s);
- Provision of first aid facilities;
- Provision of hygienic canteen and rest facilities at the site(s) and in camps (if applicable);
- Provision of PPE commensurate with the nature of job;
- Provision of traffic management plan;
- Conformance of all labor laws and regulations;
- Written code of conduct;
- Emergency response plans;
- Provision of site security plan;
- Labor influx management plan;
- Prohibition of child labor
- Employment of female workers for certain jobs and sexual harassment prevention.

12 PRIMARY SUPPLY WORKERS

The number and type of primary suppliers will be defined once the contractors define and prepare their work plans and make the corresponding adjustments to the designs to optimize them. The construction work under the Project will require the involvement of primary supplies including construction materials essential for the functions of the proposed infrastructure, such as cement, aggregates, sand, and bitumen.

Some contractors may also be able to produce such construction materials by their workforce. However, where the contractor will source essential materials directly from Primary Suppliers on an ongoing basis, the workers engaged by such primary suppliers that meet all three criteria are deemed “primary supply workers”, as defined in ESS2.

As discussed in Chapter 3 (Key Labor Risks), the OHS risks are also deemed to be generally significant in the construction sector including quarry sites. To address these potential risks, the following measures will be taken:

Selection of primary suppliers: When sourcing for primary suppliers, the project will require such suppliers to identify the risk of child labor/ forced labor and serious safety risks associated with the primary supply chain. The PIU and the consultants will review and approve the purchase of primary supplies from the suppliers following such risk identification/ assessment. Where appropriate, the Project will be required to include specific requirements on child labor/ forced labor and work safety issues in all purchase orders and contracts with primary suppliers.

Remedial Process: If child labor/ forced labor and/or serious safety risks are identified, the PIU and the consultants will require the primary supplier to take the appropriate steps to rectify them. Such mitigation measures will be monitored periodically to assess their effectiveness. Where the mitigation measures are found to be ineffective, the PIU and the consultants will, within reasonable period, shift the project’s primary suppliers to suppliers that can demonstrate that they are meeting the relevant requirements.

The PIU will oversee the procurements of goods and materials requirements under the construction works. Project contractors will not be responsible for procurement and supply of materials and equipment under the same conditions and specifications on ESHS aspects in its contracting agreements.

Potential risks of child labor forced labor, and serious safety issues which may arise in relation to primary suppliers shall be identified in the ESMP/ESIAs to be conducted in relation to each of the sub-projects.

Where there is a significant risk of child labor or forced labor related to primary supply workers, the Project Team will require the primary supplier to identify those risks in relation use of child labor, forced labor. The labor management procedures will set out roles and responsibilities for monitoring primary suppliers.

Where there is a significant risk of serious safety issues related to primary supply workers, the Project Team shall require the relevant primary supplier to introduce procedures and mitigation measures to address such safety issues. These procedures and mitigation measures will be reviewed periodically to check their effectiveness. In case the Project Team is unable to control the primary suppliers with respect to their failure to address the safety issues with respect to child labor or forced labor, it may hire those suppliers who comply with requirements of ESS2 and address the risks regarding use of labor or forced labor as identified in the ESMP.

Annex I – Template for Worker’s Code of Conduct

Code of Conduct

I, _____, acknowledge that preventing any misconduct as stipulated in this code of conduct, including sexual exploitation and abuse (SEA), sexual harassment (SH), and child abuse/exploitation 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 of those who commit any such misconduct will be pursued as appropriate. I agree that while working on this project, I will:

1. Consent to security background check;
2. Treat women, children (persons under the age of 18) and persons with disability with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, birth or other status;
3. Not use language or behavior towards men, women or children/learners that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate;
4. Carry out his/her duties competently and diligently;
5. Comply with this Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other Contractor’s Personnel and any other person;
6. Maintain a safe working environment including by:
 - a. ensuring that workplaces, machinery, equipment and processes under each person’s control are safe and without risk to health;
 - b. wearing required personal protective equipment;
 - c. using appropriate measures relating to chemical, physical and biological substances and agents; and
 - d. following applicable emergency operating procedures.
7. Report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and danger to his/her life or health;
8. Treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers or children;
9. Not engage in any form of sexual harassment including unwelcome sexual advances, requests for sexual favors, and other unwanted verbal or physical conduct of a sexual nature with other Contractor’s or Employer’s Personnel;
10. 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;
11. Not exchange money, employment, goods, or services for sex, with community members including sexual favors or other forms of humiliating, degrading or exploitative behavior;

12. Attend trainings related to HIV and AIDS, SAE/SH, occupational health and any other relevant courses on safety as requested by my employer
13. 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 breaches of this code of conduct provided it is done in good faith;
14. Regarding children (under the age of 18):
 - a) Refrain from hiring children for domestic or other labor, 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.
 - b) Comply with all relevant local legislation, including labor laws in relation to child labor.
15. Refrain from any form of theft for assets and facilities including from surrounding communities.
16. Remain in designated working area during working hours;
17. Refrain from 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 working hours;
18. Follow prescribed environmental occupation health and safety standards;
19. Channel grievances through the established grievance redress mechanism.

I understand that the onus is on me to use common sense and avoid actions or behaviors 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/Contractor

Signed by: _____

Signature: _____

1. Date: _____

Annex II: Suggested Measure to be included in the Contracts

Stage of Contractual Process	Suggested Due Diligence
Before bidding	<ul style="list-style-type: none"> • Ensure that the terms of reference clearly define the supervision engineer’s responsibilities regarding oversight of, and reporting on, labor influx and workers’ camps. • 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. • Ensure that the project GRM is established and its use is widely publicized.
Preparation of bidding documents	<ul style="list-style-type: none"> • 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 • 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. • Ensure that bidding documents clearly indicate OHS standards that are going to be applicable to different aspects of the works • 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. • 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. • Propose Key Performance Indicators (KPIs) for Contract

	<p>Management, reflecting issues and risks specific to the contract and the monitoring plan.</p>
<p>Bidding evaluation</p>	<ul style="list-style-type: none"> • 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. • 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. • Verify that the contract management framework identifies clearly lines of communication and that these are formalized and a consistent record is provided. • Ensure that the contractor meets the project’s OHS requirements for capability and experience.
<p>After contract signing</p>	<ul style="list-style-type: none"> • 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. • 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. • Supervision Engineers must approve occupational health and safety management plan is approved before contractor is mobilized at site

Annex III: 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 that needs to be taken.
- (c) When any heading is inapplicable enter NIL.

.....
.....

Employer's signature

Witness

.....
.....

Employee's signature

Witness

.....
.....

Date

Date....

Annex IV: Contractors EHS File Monitoring Form

Contractor Name;

Instructions; Tick (√) if available, put a cross (X) if unavailable. Tick (√) if there was activity, put a cross (X) if there was no activity. Tick (√) if there's evidence, put a cross (X) if there's no evidence. Make a Comment according to the changes that have taken place as reflected by availability, activity and evidence on each EHS item.

#	Monthly Checklist: SHE items	Available	Activity	Evidence	Comment
1	Exposure to Labor Policies,				
2	Valid Working Contract,				
3	Current Employee List				
4	Confirmation Letter Inc. copy of ID (per employee),				
5	Understanding of Resources, roles, responsibilities & authority,				
6	Inductions - all contractor staff				
7	HIRA & Reporting; Incidents, accidents & near misses				
8	Appointment letters;				
9	EHS Certificates; Safety Rep				
10	EHS Certificates; 1st Aider				
11	Mandatory Qualifications – as per the evaluation form				
12	Vehicles; Bluebook, Daily inspection sheet, Driver Permit				
13	Current Evaluation form,				
14	PPE: Branded & Properly worn at all				

	times,				
15	Internal Communication; minutes showing meetings,				
16	Environment Management Aspects				
17	First Aid Kit: availability and usage of the form,				
8	Fire extinguisher; valid				
29	Any other				

PIU Rep

Signature

Date compiled

Contractor Rep

Signature

Date compiled

Annex V: Maintaining Safe and Healthy Conditions for Workers at the Labor Camps

The minimum requirements for maintaining safe and healthy conditions for workers are provided below. The contractors can follow their own OHS policies and requirements.

First AID

Site assessment should be carried out for determining needs of first aid (no. of workers, nature of the works undertaken, hazards present, site geology and access to emergency assistance, etc). Based on needs assessment, an adequate first aid facility shall be maintained by health & safety representative and made available in every labor camp for the emergency treatment of injured persons. Such facilities shall be in charge of a person trained to administer first aid and will be readily accessible for use at all times. The person should also be trained in Cardiopulmonary resuscitation (CPR).

The employer should ensure that qualified first-aid can be provided at all times. Appropriately equipped first-aid stations should be easily accessible throughout the place of work. Eye-wash stations and/or emergency showers should be provided close to all workstations where immediate flushing with water is the recommended first-aid response. Where the scale of work or the type of activity being carried out so requires, dedicated and appropriately equipped first aid room(s) should be provided. First aid stations and rooms should be equipped with gloves, gowns, and masks for protection against direct contact with blood and other body fluids. Records for treatment should be maintained. Remote sites should have written emergency procedures in place for dealing with cases of trauma or serious illness up to the point at which patient care can be transferred to an appropriate medical facility.

First Aid Box Contents Checklist

ITEM	Quantity Specified	Quantity Present in Box	Comment
Adhesive elastic plasters assorted 20's	1 Box		
Roller bandages-conforming 100mm	4 Rolls		
Roller bandages-conforming 75mm	4 Rolls		
CPR Mouthpieces	2		
Cotton wool 50 gram	2 Rolls		
Fabric roll plaster 25mm x3M	1 Roll		
First Aid dressing No 3 75x 100mm	4		
First Aid dressing No 4 150x 200mm	4		
Forceps- 10cm	1		

Gauze swabs 75mm x 75mm 100's	1 Packet		
Gauze swabs 75mmx75mm Sterile 5's	2 Packets		
Gloves-Latex Large	2 Pairs		
Gloves-Latex Medium	2 Pairs		
Hypoallergenic Adhesive Tape 25mm x 3M	1 Roll		
Safety Pins Bunch of 12	1 Bunch		
Scissors- 10cm	1		
Splints-Straight	2		
Triangular Bandages	4		
Wound Cleaner- CENTRIMIDE 1% 100ml	1 Bottle		

1. Items in the first aid box are minimum contents as per the Occupational Health and Safety requirements.
2. Checklist must be completed every month to ensure compliance with the LMP.
3. Contents should be regularly replenished by respective department
4. Any deficiencies should be reported to the H&S Specialist or PIU Representative.

Shelter Construction & Facilities: Beds, cots, or bunks, and suitable storage facilities such as wall lockers for clothing and personal articles shall be provided in every room used for sleeping purposes. All sites shall be adequate in size to prevent overcrowding of necessary structures. Each room used for sleeping purposes shall contain at least 50 square feet of floor space for each occupant. At least a 7-foot ceiling shall be provided. Floors shall be of smooth and tight construction. The floors shall be kept in good repair.

All living quarters shall be provided with windows, the total of which shall be not less than one-tenth of the floor area. At least one-half of each window shall be so constructed that it can be opened for purposes of ventilation. Where electric service is available, each habitable room in a camp shall be provided with at least one ceiling-type light fixture and at least one separate floor- or wall-type convenience outlet. Laundry and toilet rooms and rooms where people congregate shall contain at least one ceiling or wall-type fixture.

An adequate supply of running water shall be provided for bathing and laundry purposes. Laundry, hand washing, and bathing facilities shall be provided. Floors shall be of smooth finish but not slippery materials; they shall be impervious to moisture. Floor drains shall be provided in all shower baths, shower rooms, or laundry rooms to remove waste water and facilitate cleaning. All junctions of the curbing and the floor shall be coved. The walls and partitions of shower rooms shall be smooth and impervious to the height of splash.

Toilet facilities: Toilet facilities adequate for the capacity of the camp shall be provided.

Toilet rooms shall have a window not less than 6 square feet in area opening directly to the outside area or otherwise be satisfactorily ventilated. No fixture, water closet, chemical toilet, or urinal shall be located in a room used for other than toilet purposes. Where the toilet rooms are shared, such as in multifamily shelters and in barracks type facilities, separate toilet rooms shall be provided for each gender. These rooms shall be distinctly marked "for men" and "for women" by signs printed in Urdu and Sindhi languages of the persons occupying the camp, or marked with easily understood pictures or symbols. If the facilities for 31 each gender are in the same building, they shall be separated by solid walls or partitions extending from the floor to the roof or ceiling. Every water closet installed shall be located in a toilet room. Each toilet room shall be lighted naturally, or artificially by a safe type of lighting at all hours of the day and night. Toilet rooms shall be kept in a sanitary condition. They shall be cleaned at least daily.

Water supply: An adequate and convenient water supply, approved by the health & safety representative, shall be provided in each camp for drinking, cooking, bathing, and laundry purposes. The distribution lines shall be capable of supplying water at normal operating pressures to all fixtures for simultaneous operation. Where water under pressure is available, one or more drinking fountains shall be provided for each 100 occupants or fraction thereof.

Kitchen and Dining Area: A properly constructed kitchen and dining hall adequate in size, separate from the sleeping quarters of any of the workers, shall be provided in connection with all food handling facilities. There shall be no direct opening from living or sleeping quarters into a kitchen or dining hall. No person with any communicable disease shall be employed or permitted to work in the preparation, cooking, serving, or other handling of food, foodstuffs, or materials used therein, in any kitchen or dining room operated in connection with a camp or regularly used by persons living in a camp.

Sewage/Drainage Facilities: The toilets constructed at the labor camps should have associated septic tanks for primary treatment of the sewage. All sites used for camps shall be adequately drained. The camp shall be located in such manner that the drainage from and through the camp will not endanger any domestic or public water supply. All sites shall be graded, ditched, and rendered free from depressions in which water may become a nuisance. Construction and operation of kitchens, dining hall, and feeding facilities.

Fire Fighting: Firefighting facilities will be established in the camp to deal with the event of fire. Different types of fire extinguishers (powder, foam and carbon dioxide) will be placed at different suitable locations in the camp. These locations should be selected after a risk assessment and should be easily accessible in the event of fire. Fire alarm system providing adequate and audible warning to all the staff in the camp will be installed. The camp Plan shall include adequate escape and evacuation processes in case of fire or another emergency. This should include contingencies. Escape and rescue ways are to be kept free of any type of hurdles/barriers. All fire exits shall be distinctively marked in a language understood by the majority of the workers and in red letters of adequate size or by some other effective and clearly understood sign.

Waste Management: In the labor camp proper collection and disposal of solid waste will be ensured. Separate waste bins will be provided at different locations in the camp to collect organic and inorganic waste. These waste bins will be marked. The segregation of waste at source will be ensured. Inorganic waste will be stored at a safe location within the camp and organic waste will be handed over to waste collector on daily basis.

COVID-19 SOPs: The following SOPs related to COVID-19 will be followed in the labor camp:

- Maintain a physical distance of 6ft (2 m) minimum
- Wear a surgical mask or face covering whenever in close contact of someone. Mask shall be provided by the company free of cost
- Wash your hands-on arrival at work and regularly through the day:
- Wash hands before and after each meeting;
- No hand shaking
- Meetings are to be held in locations that allow for 4 meters distance between attendees in a closed confined space (meeting room/office block)
- Self-monitoring of health by all and reporting any illness at the earliest to the supervisor.
- Proper cleaning and frequent sanitization (at-least once a day) of the rooms, particularly of the frequently touched surfaces must be ensured.
- Proper disposal of face covers / masks / gloves left over by visitors and/or employees in covered bins, shall be ensured
- The doctor and HSE Manager in the camp shall be responsible to provide training to workers on spread of COVID-19 and control measures.

Annex VI – Guideline for Policies and Procedures

A. Emergency Response Procedure

1.0 PURPOSE

The purpose of this plan is to:

- 1.1 Provide guidelines for using internal and external resources to effectively and quickly respond to emergencies covered within the Scope of the Emergency Response Plan at the Project Site in order to:
 - Eliminate or minimize injuries to personnel.
 - Protect the Environment.
 - Prevent or minimize damage to Project site and equipment.
- 1.2 Ensure communication of all essential information to the appropriate personnel as quickly as possible.
- 1.3 Identify the responsibilities of site personnel when an emergency occurs.
- 1.4 Identify training required in order to ensure a high level of preparedness at all times.

2.0 SCOPE:

The Emergency Response Plan for KWSSIP has been developed to respond to the following emergencies at the facility:

- Serious fire or explosion
- Bomb threat
- Medical Emergencies.
- Civil unrest
- Earthquake
- Heavy Rains and Floods

3.0 RESPONSIBILITY:

The Project Manager is responsible to establish, implement and maintain the procedure.

- 3.1 All persons designated in this document shall ensure the effective implementation of Emergency Response Plan

4.0 DEFINITIONS:

- 4.1 **Emergency Response Plan** Emergency Response Plan outlines the steps, which should be followed to enable the Company to respond effectively to an emergency. It addresses:
 - Emergency Team
 - Emergency Notification and Communication Plans.

- Contingency Plans.
- Training Requirements.

4.2 **Contingency Plan**

A response plan specially developed for individual emergency scenario (e.g., fire, medical etc.) which is envisioned to occur. Contingency Plans complement an Emergency Response Plan and enable detailed provision to be made for each emergency envisioned.

4.3 **Incident**

An unplanned event that results in an injury, fire or explosion, a spill or leak, damage to property, personnel, general public or visitors.

4.4 **Emergency**

Emergency may be defined as a sudden event causing or has the potential to cause serious human injury and/or damage to the company assets and/or environmental degradation of large magnitude.

4.5 **Level 1 Emergency**

An emergency that can be controlled or handled by Internal Resources and concerned personnel and **DOES NOT** require the assistance of the local emergency services.

4.6 **Level 2 Emergency**

This is an emergency that requires assistance from the local emergency services, e.g. KMC. Level 2 emergencies can result from a natural disaster, large fire or a spill.

4.7 **Incident Commander**

The Incident Commander is the person responsible for the overall management of the emergency.

4.8 **Visitor**

For the purposes of this plan, a Visitor is anyone within the site boundaries who is not an employee. This includes suppliers, vendors etc.

5.0 **ORGANIZATION:**

Organogram of Emergency Response for KWSSIP is shown in Annexure II.

5.1 **Incident Commander**

Purpose:

To handle and control the Emergency Situation using best available resources

Functions:

- He is overall in-charge of any incident/accident at the Project Site and will communicate any incident to the Project Director.

5.2 **Fire Fighting Team**

Purpose:

To control fires, smoke and explosion during an emergency

Functions:

- Extinguish the fire.

- Control Smoke and Explosion.
- Cordon off affected area and restrict entry of non-concerned people.
- Carry out Rescue and Evacuation of trapped personnel.

5.3 **First Aid Team**

Purpose:

To provide Medical Attention to Injured Personnel

Functions:

- To provide medical care to injured personnel
- To send the injured personnel to the clinic or hospital as appropriate.
- To accompany the injured personnel to the hospital, as directed by Incident Commander

6.0 **COMMUNICATION RESPONSIBILITIES:**

- 6.1 For a Level 1 emergency Incident Commander shall contact the emergency services in the area like the Fire Brigade.
- 6.2 For a Level 1 emergency, which involves a medical emergency, the Incident Commander shall call ambulance service and advise them of the nature of the emergency during the phone call.
- 6.3 For both Levels of Emergency, Incident Commander shall inform the Project Director immediately.

7.0 **EVACUATION:**

- 7.1 Upon hearing the fire alarm, visitors and staff who have not been assigned a responsibility in the Emergency Response Plan shall be asked to go to the designated Assembly Point
- 7.2 Once assembled, the Incident Commander shall perform a head count in order to confirm the presence or absence of the employees at the project site.
- 7.3 In case anyone is missing, Incident Commander shall call on their mobile to check where they are located.
- 7.4 Personnel may return to their work places after the emergency is over

8.0 **CONTINGENCY PLANS:**

8.1 **Purpose**

Contingency plans have been developed to provide guidelines for responding to incidents and emergencies that can occur within the facility. Since it is impossible to predict exact conditions during an actual emergency, they are to be used as guidelines for the response and modified as necessary.

8.2 The following Contingency Plans have been developed for KWSSIP:

- *Fire*
- *Bomb threat*
- *Earthquake*

- *Medical Emergencies*
- *Heavy Rains and Flooding*
- *Civil Unrest*

- 8.3 The Incident Commander is authorized to activate the Contingency Plan for incidents at the office.
- 8.4 The Emergency Response Team working with led by the Incident commander is responsible for implementing the response defined within the Contingency Plan. It is recognized that the actual response may vary from the Contingency Plan.
- 8.5 The following general procedures should be considered when implementing an emergency response:
- 8.5.1 Response should be developed in the following order of priority:
- Rescue of injured or trapped personnel.
 - Protection of the environment.
 - Protection of KWSSIP assets

9.0 DEACTIVATION AND RECOVERY PLAN:

9.1 Deactivation of Emergency Response Plan

- The Incident Commander is responsible for deactivating the emergency response plan at the end of the emergency.
- He shall make this decision after consulting with the Director and other members of the emergency response teams, as appropriate.
- He will then notify all that the emergency has ended.
- The emergency area will be barricaded to prevent entry by unauthorized personnel.

9.2 Following general actions should be taken by the respective Teams at the conclusion of the emergency:

- Emergencies Involving Fires
- Arrange for firefighting equipment used during the emergency to be refilled before returning them to their correct location.
- Clean the fire area, after receiving authorization from the Incident Investigation Team Leader.
- Submit Incident Report to Incident Commander with copy to Project Director.

10.0 INCIDENT INVESTIGATION:

- 10.1 As per the legal requirements, the incident investigation team will investigate all incidents and emergencies, and to develop recommendations to prevent recurrence.
- 10.2 The Incident Commander shall ensure that the following items of evidence are preserved for use by the investigation team:

- Notes taken about the emergency response by Emergency Response Teams.
- Statements taken immediately after the incident from witnesses to the emergency.
- Within 24 hours of the emergency, Emergency Response Team will investigate the root cause of the accident; identify opportunities to improve. Moreover, suggest any suitable changes in the contingency plan or procedure in light of the evaluation of the incident.

11.0 TRAINING:

- 11.1 All concerned shall receive initial as well as periodic refresher training in addition to mock drills order to allow them to fulfill their responsibilities during an emergency.
- 11.2 Training needs be identified and team members should be trained to handle any situation. The training log shall be maintained and regular training in house as well as outside shall be arranged.
- 11.3 Incident Commander is responsible for ensuring that personnel receive the required training before they are expected to perform their duties, and that they also receive the refresher training at the required interval.

12.0 CONTINGENCY PLAN FOR FIRE:

- 12.1 When the fire alarm sounds evacuate the affected area and gather at the assembly point
- 12.2 Incidents Commander will make sure that no employee is left behind at the affected place.
- 12.3 Fire officer will shut off sources of ignition & electricity.
- 12.4 Incident Commander will contact the Security Incharge to notify the Fire Brigade, if required.
- 12.5 The Emergency Response Team will use appropriate firefighting equipment to extinguish the fire; such as:
 - For all solids except metals, use Water Type Fire Extinguisher.
 - For those articles having Electricity/ Power, use Carbon Dioxide Fire Extinguisher.
- 12.6 Prepare and submit an Incident Report.

13.0 CONTINGENCY PLAN FOR EARTHQUAKE

- 13.1 Evacuate and assemble at the assembly point
- 13.2 Provide first aid in case anyone has been injured by falling materials
- 13.3 Alert emergency services and call for ambulance in case there are many injuries
- 13.4 Ensure that all personnel working at the site especially working on heights have left their places of work
- 13.5 Shut off the electricity and fuel and water connections.
- 13.6 Remain at the assembly point till the earthquake tremors cease.

- 13.7 The site shall be inspected for damage and list prepared of damaged structures and equipment

14.0 CONTINGENCY PLAN FOR BOMB THREATS:

- 14.1 Bomb threat may be received at the Project office via telephone call
- 14.2 The person receiving the call must remain calm and try to extract as much information as possible from the caller regarding the place where the bomb is placed, the size of the bomb etc.
- 14.3 Immediately inform the Incident Commander and arrange for evacuation of personnel from the area(s)
- 14.4 Contact Bomb Disposal Squad for taking necessary action to locate the bomb
- 14.5 All personnel to return to work when the Bomb Disposal Squad clears the area.

15.0 CONTINGENCY PLAN FOR MEDICAL EMERGENCIES:

- 15.1 Any employee injured during work or due to an emergency is to be treated by first aid team and provided first aid till the arrival of ambulance.
- 15.2 In case, the injury is severe, then the person shall be sent to the nearest hospital for further treatment.
- 15.3 Incident Commander shall be notified of medical emergency at once.

16.0 CONTINGENCY PLAN FOR HEAVY RAINS AND FLOODING

- 16.1 If rains have started during the night the security in charge must inform the Project Engineer and wait for further orders
- 16.2 Steps must be taken to cover all the equipment at the project site and remove them to a safe place.
- 16.3 In case rains continue then work is not to proceed till the rains stop
- 16.4 In case of flooding at the site, all equipment is to be removed from the flooded area and kept covered
- 16.5 After the rains have stopped, assessment of damages is to be carried out and report prepared by the Incident Commander and submitted to the Project Director.

17.0 CONTINGENCY PLAN FOR CIVIL UNREST

- 17.1 In case there is news of civil unrest, the Security In Charge shall ensure that all gates of the Project Site(s) are closed and secured. Rangers/Police shall be summoned.
- 17.2 No employee shall be allowed out from the site.

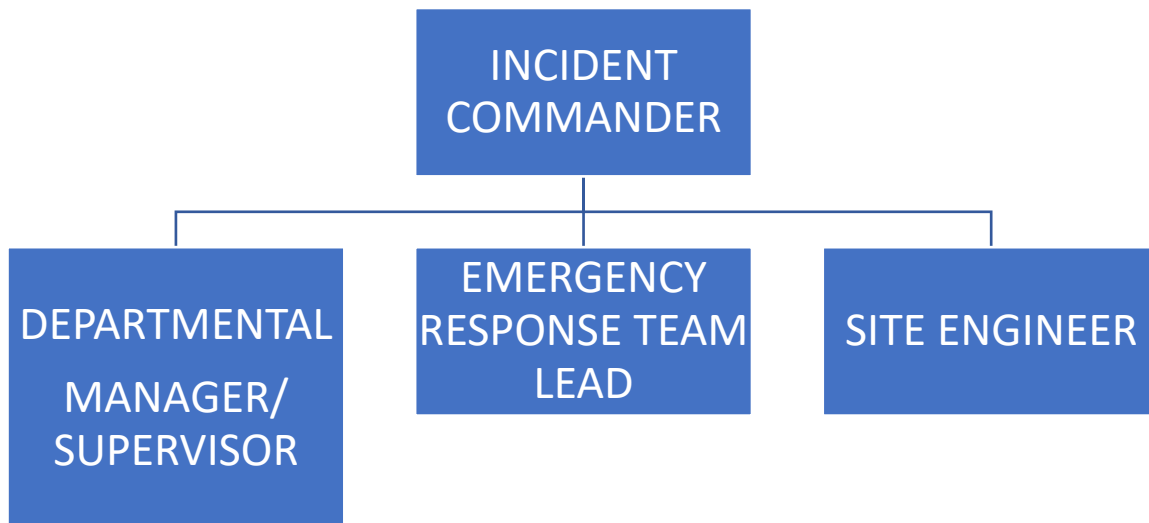
17.3 When it is ensured that there is no danger of any violent demonstrations in the vicinity of the project site, the gates may be opened and traffic in and out allowed.

Emergency Contact Numbers

Karachi

Name	Number
Karachi Police	15
Fire Brigade	16
Sui Gas	1199
Traffic Police	1915
CPLC	1102
Rangers	1101
Aman Ambulance	1021
Edhi Ambulance	115
Chipa Ambulance	1020
K Electric	118

ORGANOGRAM FOR EMERGENCY RESPONSE



B. Personal Protective Equipment

1. PURPOSE

The purpose of this procedure is to ensure that Personal Protective Equipment (PPE's) are made available to all project site employees.

The key requirements of this procedure include:

- Identification of areas / tasks requiring PPE's
- Selection and issuance
- Use and maintenance
- Eye protection policy
- Foot protection policy
- Training
- Program evaluation

2. SCOPE

This procedure applies to KWSSIP Project Sites, where risks to health and safety cannot be adequately controlled through engineering and administrative means

3. RESPONSIBILITIES

The Project Manager in co-ordination with Site safety Officer will:

- Co-ordinate the overall Personal Protective Equipment program at the Project Site; and
- Prepare and update the PPE procedure;

The concerned Department Manager / Supervisor will:

- Generate list of PPE's used in his area
- Ensure that PPE is worn correctly
- Ensure that PPE is stored as per procedure
- Ensure that the correct cleaning procedures are carried out
- Inspect PPE at regular intervals
- Initiate disciplinary action if appropriate
- Ensure appropriate warning signs are posted for hazardous activities at the project site
- Maintain inventory of PPE's of his area
- Organize PPE training.

4. PROCEDURE

4.1 Identification of Area / Task Requiring PPE

The concerned Department Manager in co-ordination with Manager EHS / his representative will:

- Identify areas / tasks / processes for which PPE is required
- Ensure that PPE is used as last resort after all other feasible controls have been applied or as an interim measure until more effective controls can be implemented

4.2 Selection and Issue

The Project Manager in co-ordination with Site Safety Officer will:

- Select appropriate PPE's as per requirement
- Ensure that only the correct PPE is issued
- Ensure that PPE is issued to personnel who know its use
- Ensure that areas where PPE's use is mandatory are demarcated as "PPE Zone" outside the area
- Ensure that signs are placed in appropriate locations to warn staff where PPE's are required.

4.3 Mandatory PPE for Project Site

Helmets and Safety Shoes are to be worn at all times at the Project Site. The helmets and Safety Shoes must be checked on regular basis by the Site Supervisor to ensure they are in good condition.

Other PPE for construction sites are:

Harness, Welding Shields/Goggles, Gloves , Gum Boots, Respiratory Protective Equipment etc. These are to be worn when performing work at heights, welding activities working in wet areas.

4.4 Use and Maintenance

The Project Supervisor in coordination with the Site Safety Officer will:

- Develop procedures on correct use, storage and maintenance of PPE's
- Ensure that staff require to wear PPE's must be trained on their use
- Ensure that the correct PPE has been issued to the site personnel performing tasks for which it is required and keep a record of the PPE issued to the employees.
- Ensure that the issued PPE is worn correctly
- Ensure that the PPE is properly cleaned and maintained
- Arrange regular inspections of PPE's at appropriate intervals
- Initiate disciplinary action against any person refusing to use issued PPE correctly

4.5 Training

The concerned Project Manager in co-ordination with Site safety Officer will ensure that concerned personnel receive appropriate training as per EHS training program on:

- How and why PPE was selected
- When PPE is necessary
- Which PPE is necessary
- How to put on, take off, adjust and wear the PPE properly
- The proper-care, maintenance, storage, inspection, use, replacement and disposal of the PPE

The Project Manager will retain the PPE training record with a copy to Manager EHS / his representative

C. Operation of Heavy Equipment and Cranes

1. PURPOSE

The purpose of this procedure is to ensure safety in operation of heavy equipment and overhead cranes.

2. SCOPE

This procedure defines the necessary precautions to be taken for operation of heavy equipment and overhead cranes

3. RESPONSIBILITIES

The Engineering Manager/Site Supervisor will ensure implementation of this procedure,

4. PROCEDURE

4.1 Operation of Heavy Equipment

- a) All heavy equipment at site is to be checked and certificate of safety is provided by an approved testing company
- b) Vehicular emissions from the equipment are to be tested by an approved testing laboratory to ensure that they comply with the Vehicular Emissions Standards
- c) The operators of the equipment are to be duly trained and have appropriate license to operate the equipment
- d) The area where the equipment is in operation is to be kept clear and no unauthorized personnel allowed to work around that area.

- e) All the safety alarms, lights etc. are to be in working condition at all times.
- f) Faulty equipment is to be removed from service and tagged that it is not to be used.
- g) All equipment is to be regularly checked and maintained.

4.2 Operation of Cranes

- a) The Project Engineer must ensure that crane operators are trained and hold a valid license to operate the crane
- b) All lifting equipment shall be checked daily to verify equipment is in safe operating condition before using. This check would include brakes, lights, horns, visibility from operator's station, and proper operation of power source for lifting. More detailed inspection of lifting equipment shall be conducted at regular intervals to maintain the equipment in a safe, operable condition. Records of conditions found and repairs made during inspections shall be maintained.
- c) Statutory requirements for annual inspections of lifting equipment shall be observed and records maintained.
- d) Safe working load chart shall be available at site and complied when lifting the loads
- e) No person shall be allowed to ride on the hook of any lifting equipment.
- f) Designated signalman shall be assigned and operation stopped in case operator is unsure of a signal or existence of a hazardous condition.
- g) Area around the crane operation shall be cordoned off and no un-authorized person allowed to work in the area.

D. Storage of Fuel and Other Hazardous Substances

1. PURPOSE

The purpose of this procedure is to provide a guideline for storage of fuel and other hazardous substances

2. SCOPE

This procedure defines the necessary precautions to be taken for fuel storage and storage of other hazardous substances

3. RESPONSIBILITIES

The Engineering Manager/Site Supervisor will ensure implementation of this procedure,
4. PROCEDURE

4.1 Storage of fuel

- a) All fuel for use in generators is to be stored in above ground tanks and provided with bunding. The NFPA 30 guidelines are to be followed.
- b) Appropriate firefighting measures are to be taken in the area where the fuel tank(s) are located.
- c) If more than 5000 Liters of fuel is stored at site then a license from the explosives department is to be obtained.
- d) "FLAMMABLE" "NO SMOKING" signs to be displayed in the fuel storage area

4.2 Storage of Hazardous Substances

- a) All hazardous/flammable materials are to be stored a segregated area and provided with secondary containment.
- b) Thinner should be stored on separate pallets with secondary containment.
- c) Appropriate fire extinguishers are to be placed in the area

4.3 Inspection of Storage Areas

The Site Safety Officer shall carry out regular inspections of the fuel storage areas and hazardous materials storage areas

E. Procedure for Waste Management

Purpose

The purpose of this procedure is to ensure proper disposal of waste from activities conducted by or overseen by project site. In addition, this procedure outlines how to prevent discharges from dumping sites at the facility and other locations on grounds, which could cause pollutants to enter sensitive areas.

Scope

These procedures are to ensure the proper handling and legal disposal of all waste from all **locations of the project site. This program is an aide to summarize the applicable** requirements of many different waste types and regulations but should not be considered all-inclusive of every waste regulation. As new regulations are promulgated and/or other facets of waste become part of this program, updates will be made.

Roles and Responsibility

- Contractors should include storm water pollution prevention strategies in waste management procedures.
- It should be ensured that contractors implement proper Best Management Practices (BMPs) to prevent storm water pollution.

Procedures

- All waste receptacles should be leak-tight with tight-fitting lids or covers. Plastic liners can be used to ensure leak tightness.
- Keep lids on dumpsters closed at all times unless adding or removing material.
- Place waste receptacles indoors or under a roof or overhang whenever possible.
- Locate dumpsters on a flat, paved surface and, if possible, install berms or curbs around the storage area to prevent run-on and run-off.
- KWSSIP up around outdoor waste containers regularly.
- Arrange for wastes to be picked up regularly and disposed of at approved disposal facilities.
- Record Sindh Environmental Protection Agency (SEPA) approved waste disposal contractor's contact details.
- Never place hazardous materials, liquids or liquid-containing wastes in a dumpster or trash receptacle. If liquid wastes must be disposed in the trash, absorb them with kitty litter or other absorbents before disposal.
- Non-hazardous liquid waste must be disposed in the sanitary sewer (if approved) or transported to a disposal site that will accept that type of wastewater.
- Do not wash out waste containers or dumpsters outdoors unless the wastewater drains to sanitary sewer or wash containers/dumpsters in a wash bay or floor drain that goes to the sanitary sewer.
- When working in the field, place all wastes in appropriate containers near the work site. If no public containers are available, containerize or bag the wastes and bring them back the shop for proper disposal.
- Minimize waste by purchasing recyclable products that have minimal packaging. Recycle cardboard, plastics and paper products as accepted by your local recycling agency.

Training

- Training on Infection Control and Waste Management shall be given to all waste handlers at project site to better manage the waste from "cradle" to "grave".
- Training should include how to recognize and report illegal connections or discharges –annually or bi-annually

Record Keeping and Documentation

- Record of forms for waste disposal should be documented.
- Keep a list of all employees trained in the project site or other location:
- Keep records on all wastes disposed of including: hazardous waste manifests, trash removal statements (bills), receipts or invoices from recyclers

F. Procedure for Housekeeping

Purpose

To provide a procedure for cleaning & sanitization all the areas within KWSSIP Project Site(s).

Scope

This procedure is applicable to all sites of the facility for general cleaning and sanitization in facility premises.

Roles and Responsibility

- For Operation, Housekeeper (Administration department) is responsible.

Procedures

Many workplace hazards can be removed or eliminated through an effective worksite housekeeping routine. This doesn't just include a cleaning routine, but rather is an ongoing process of efficient tidying and safety practices, as following:

Maintenance of a safe work area

Work area should be monitored at regular intervals throughout the day and clear up. If trip hazards and mess is starting to build up, it must be sorted out.

Access routes clearance

A safe work area includes access and egress. Any materials/tools/benches etc. should not be kept in the access route in order to clear the way and to minimize any injury.

Safety in Housekeeping

Safety is essential for every job, and housekeeping has its safety concerns. Some aspects of going over during safety training for housekeepers include:

- **Health Safety**
 - Housekeepers work with various germs throughout their day. They need to know how to properly wash their hands, use gloves, and other personal protective equipment when doing specific cleaning tasks, and dispose of trash properly.
 - Housekeepers have the potential to be exposed to blood and other various human body fluids, so they must be trained in blood-borne pathogens and know how to safely handle these types of bodily fluids in these various situations.
- **Fire Safety**
 - In every job, all employees need to know what to do in case a fire occurs in the workplace. Housekeepers must be trained and know what is expected of them to do in case of a fire.

Training

Employees should be trained to properly manage and handle the following:

- Equipment
- Proper Use of Chemicals
- Maintenance

- Laundry and Various Housekeeping Duties
- Safety

Record Keeping and Documentation

Records to be maintained at construction sites play important role in construction activities. It is a document required to prove any construction activity has taken place at site during billing or any other claims. These records have all the data of various construction activities carried out at site.

- First and foremost, important records to be maintained on site are the working drawings approved by the clients and design engineer, based on which all the construction activities take place on site.
- Time and Progress Charts help in tracking the construction activities from time to time and help in effective planning, scheduling and controlling the construction projects activities. These charts need to be approved from the concerned authorities.
- All the orders given by clients to the contractor's need be maintained with serial numbers, signatures and dates as a work orders book.
- Works diary of a construction project should indicate contract agreement number, name of work, amount of contract, date of commencement of work, date of completion and extension time granted. All the relevant details need be entered daily in the works diary. This diary serves as an authentic record. Following details need to be entered in this diary with due care:
 - Weather at site
 - Important materials brought to site with their approximate quantity
 - Types of transport working at site
 - Types of tools and plants being used at site
 - Important items of works completed and passed on the particular date
 - Visits of VIPs and their remarks if any.
- Following records must also be maintained:
 - Labor Attendance Record and Daily Wages Sheet
 - Tests Results Record
 - Records of Changes, Deviation Orders and Amendments
 - Periodic bills records

G. Monthly Reporting Procedure

Purpose

This procedure gives recording and reporting guidelines at workplace to report the injuries at facility, recovery progress, and compliance.

Scope

This guideline is applicable to all works working in the premises of project site. Following aspects are to be reported under scope of this guidance:

- work-related accidents
- specified injuries to workers
- work-related accidents which cause death;

- work-related accidents which cause certain serious injuries (reportable injuries);
- diagnosed cases of certain industrial diseases; and
- certain 'dangerous occurrences' (incidents with the potential to cause harm)

Responsibility

- It is the responsibility of each individual to report all work-related injuries and/or work-related illnesses immediately to his/her supervisor (no exceptions).
- Project Managers are required to maintain a record of information regarding every reported work-related injury and/or illness on the work-related injury/illness log
- Project Managers are responsible for knowing how to report a work-related Injury or Illness and completing a supervisor's incident/injury report.
- It is the responsibility of the injured/ill individual to submit all work-related documentation provided by a health care provider to their supervisor or facility manager.
- The Project Managers is required to submit a supervisor's incident/injury report for each work-related injury/illness to Project Director and to the regulatory body i.e., Labor Department. Report should be made on the prescribed forms within 24 hours.

Procedure

Online Reporting

The appropriate online report form can be appropriately filled and the form will then be submitted directly to the Health, Safety and Environment office or the manager of database. A copy for records must be maintained for documentation.

Telephonic Reporting

All incidents can be also be reported online but a telephone service is also an option for reporting fatal and specified injuries only.

Reporting out of hours

- Project Manager has an out-of-hours duty officer. Circumstances where Project Manager may need to respond out of hours include:
 - a work-related death or situation where there is a strong likelihood of death following an incident at, or connected with, work;
 - a serious accident at a workplace so that Project Manager can gather details of physical evidence that would be lost with time; and
 - following a major incident at a workplace where the severity of the incident, or the degree of public concern, requires an immediate public statement from either Project Manager or government ministers.

Recordkeeping and Maintenance

Project Manager must keep a record of:

- any accident, occupational disease or dangerous occurrence which requires reporting; and
- any other occupational accident-causing injuries that result in a worker being away from work.

H. Camp Management Procedure

Purpose

The purpose of the plan is to define the actions to manage the workers' onsite accommodation during the construction activities during the KWSSIP Project.

Scope

These guidelines are applicable for health and safety management at the campsite.

Roles and Responsibilities

Principal roles and responsibilities for the implementation of this plan are outlined below:

Construction Contractor & Subcontractors

- Construction Contractor has to ensure sufficient and qualified resources are allocated on an ongoing basis to achieve effective implementation of this Management Plan. Camp Manager(s) will be appointed in order to manage all workers' issues related to the accommodation.
- Construction Contractor have to ensure the effective implementation of this plan by issuing its own procedures addressing, detailing and customizing specific actions, measures and monitoring activities .
- Contractor's responsibility. The Contractor procedures have to include a description of allocated resources, responsibilities and communication procedures to relevant personnel.

Procedure

Management

Careful planning and a concern for health, safety and the environment are essential for good project management. Field camps or rented accommodations should provide adequate working, eating and sleeping arrangements for field personnel and should be appropriately equipped to encourage employees to work safely and efficiently. At the same time, camps should make as little impact as possible on the environment.

Project managers have to allow sufficient time to secure the required permits and permissions before sites are opened. The following factors are to be considered:

- Time of residence: Will the camp be in operation for a field season or year-round?
- Duration: Temporary or a permanent establishment
- Size of the camp (at each time of year)
- Accessibility: Transportation access (vehicle, helicopter and fixed wing) may impact the site selection
- Required permits

Audit and Review

The correct implementation of this Management Plan is verified through internal inspections and audits carried out according to the requirements of the company. The schedule, the frequency, the scope and objectives of the audit as well as the responsible internal auditors are indicated in the Audit Program that is developed and updated by Project Department.

Internal auditing will address:

- The correct implementation of this Management Plan;
- The correct development and implementation of Construction Contractor's Procedures;
- The correct and timely implementation of an auditing and review system by the EPC Contractor.

Reporting

Evidences of the implementation of the mitigation actions/measures and related results are collected through inspection and auditing activities. Reporting activities for this management plan is mainly related to:

- Main figures regarding the implementation of Worker's accommodation
- Main figures regarding undesired camp issues
- Collection, aggregation and recording of the data

Training

It should be ensured that employees are trained to do their jobs safely. Training must be related to operating the campsite.

First aid

Make sure that all first aid kits per the requirements of the OSH Act 2017 and OSH Rules 2019 and are replenished as needed. Make sure additional appropriate first aid is available at all times including stretcher(s).

Maintenance

A maintenance schedule should be established for the camp and equipment that includes regular inspections of all generators, pumps, hoses and fittings and other mechanized equipment, including all means of transportation. Maintenance schedules should be followed for water treatment and sewage treatment systems.

Documentation

Records should be maintained for inspections, training, first aid, safety meetings, and equipment maintenance records and communications logs.

Forms

Adequate supply of forms should be made for reporting incidents/accidents, such as required by the jurisdictional Workers' Compensation Board, spill reports, inspection and audit forms, maintenance check forms, etc.

Training

Training should be different on multiple stages, as following:

- Health and Safety During Staff Orientation
- Training During the Camp Season

During training, following aspects must be considered:

- Administration and Operations

- Health, Safety, and Risk Management
- Behavior Management

I. Management of Food and Drinking Water at Campsite(s) and at Construction Site

Purpose

This guidance provides procedures for balanced, healthy and nutritional meals for field employees. Food-borne illness can, however, KWSSIP through a camp and disable many people at one time. Therefore, hygienic food preparation and handling procedures and safe food storage are critical to maintaining employee health.

Scope

These guidelines are applicable for healthy food and safe drinking water at the campsite and at construction site.

Procedure for Food Safety

Food Preparation Safety

- Cross contamination is one of the most common causes of food-borne illness and occurs when bacteria from raw food (especially meat and poultry) is spread to other foods.
- Cooked food should be stored in freezer if required to be kept for more than four days.
- Use potable (drinking) water only to wash salad greens, fruits, vegetables and any food that will be consumed raw. It is advisable to wash pre-washed produce.
- If possible, use a designated cutting board for meat, poultry and seafood, and a separate board for vegetables and fruits. This way, raw fruits and vegetables will not be accidentally contaminated by raw meats etc. Wash cutting boards with hot soapy water and sanitizing solution after use. Keep raw meat, poultry and seafood separate from all other foods. Store them on the bottom shelf of a refrigerator. Then, leaking packages will not drip onto other foods.
- In case raw meat is to be stored for more than a week then it should must be stored in freezers.
- Wash foods in a bowl, not in a water-filled sink. After washing meat, chicken, or fish, always wash the sink as well as the container, as splashed water may contain contaminating bacteria.
- When cooking meats, poultry or seafood on a grill, place the cooked food in a clean container. Discard marinades after raw items are removed.

Food storage tips

- Food handlers should unpack and inspect all food shipments for quality immediately after it arrives. Inspect for quality, freshness, and potential contamination including by vermin.
- After inspection, store it promptly for maximum safety. Proper storage includes both preservation of food quality by refrigeration and prevention of invasion by nuisance animals and insects. Never store food in sleeping tents.

- Store perishable goods in appropriate places – cupboards, refrigerators or freezers.
- Store heavy and bulky items on lower shelves but not necessarily the lowest shelf. Store foods in containers that are insect proof, rodent proof and bear proof, as required. Label the contents.

Animal and Insect Controls

Vermin include rats, mice, cockroaches, bedbugs, flies and other noxious animals or insects. Construct camp buildings to exclude vermin as best possible. Adequate steps are to be taken to keep the premises free of vermin and insects by using appropriate fly screens, traps and baits insect sprays.

Housekeeping

- Set up the cooking area separate from the sleeping area. The space between these locations should be open with clear visibility if bears are a risk.
- Restrict food to the kitchen and dining areas; no food should be permitted in sleeping or work areas to control vermin (or bears).
- Set up hand washing facilities so workers can wash before meals. Workers should not wear dirty work clothes and boots in the kitchen and eating areas.
- Projects should have a policy stating that employees must not feed wildlife. Feeding wildlife encourages animals to become human habituated and food conditioned. Some carry life-threatening diseases such as rabies and plague.
- Camps should have an emergency lighting system in the kitchen area in the event of a power failure.

Health Surveillance of Kitchen Staff

- Kitchen staff must report to supervisor if they are suffering from fever, cold or diarrhea and they should not be allowed to work
- Annual health surveillance of kitchen staff is to be carried out and they are vaccinated against hepatitis, COVID 19, cholera etc.

Procedure for Drinking Water Safety

The primary risks associated with drinking water are disease-bearing organisms, turbidity and the presence of toxic chemicals or sewage that may contaminate drinking water. These are worldwide issues, and water in any locality and in any climate or terrain may be affected by one or more of these factors.

Determine the quantity of drinking water required for the camp. Consider the factors:

- whether the camp is temporary or permanent,
- number of employees,
- the season,
- type of activities at the Project Site
- existing and future requirements (showers, clothes washers, stoves, refrigerators, freezers) of the camp or project.

J. Project Site Security Procedure

Purpose

To detail the General Security Requirements and Procedures for persons entering the site and to manage the onsite security to prevent any harm to employees and overall management.

Scope

Site Security Team ensures a high level of awareness for security measures implemented for general site access and for the facility amongst all staff is of critical importance not only for the safety of project staff and equipment at site. Measures to prevent any terrorist activities are to be ensured at all times.

Roles and Responsibility

Site Security Team ensures the followings:

- Local government and site policy requirements for the handling of controlled substances;
- Prohibition of use of arms at site except for the authorized security staff
- Prohibition of use of alcohol and drugs at site
- Prohibition of smoking at site except in designated smoking areas
- Prohibition of any violent behavior at site by the employees
- Compliance with site security guidelines of KWSSIP
- Control of access to areas where contamination may result from unauthorized or untrained entry;
- Control of access to areas containing Hazardous Chemicals;
- Control and access to areas where project related documentation and other records are stored as well to equipment storage areas.

Procedures and Rules

- Site Entry Rules
 - The following business rules apply for access to the facility:
 - Entry into the facility premises is 'Restricted' to site employees and/or Approved contractors.
 - All visitors to site are to be provided with Induction Training including emergency procedures and fire assembly point,
 - Visitors and un-approved contractors are 'Not' permitted entry into the site building unless accompanied by a permanent staff member.
 - It is the responsibility of the hosting site staff member to remain with the visitors or contractors for the duration of their visit, whilst inside the project site.
- Security Guard
 - The Security Guard must verify identity of the visitor and receive approval form the site authorities before allowing access
 - Security Guard accompanies the person into and out of the site for the emergency or to retrieve any personal belongings
- Multiple Duty Shifts

- Site security policy is that any person remaining at the project site in all shifts must report his presence at the site to the Project Manager.
- Overtime
 - Work staff may work overtime only at defined shift timings.
- Terminated Employees
 - Managers must ensure that the ID badge and any facility keys held by the terminated employee are collected and returned to the Security Management team before the employee leaves the site.
- Contractors and Visitors
 - All visitors and contractors must produce photo identification and be signed into the site visitor's book at the security gatehouse.
 - Visitors and contractors will be issued a visitors' badge and must display the badge at all times, whilst on the site.
 - Security will ask visitors / contractors to wait at the Security or Reception area for collection by the nominated site contact person before continuing on inside the site.
- Building Alarms and Security Lighting
 - The Manufacturing Building is protected by alarm systems.
 - Defective external building lighting and essential walkway / corridor lighting should be reported immediately and not be isolated for any reason without prior consultation with the Facilities Manager.
- Fire and Security Surveillance Schedules
 - At all times and especially when the site is un-occupied or during the evenings
 - Security Officers on duty are required to visually inspect / check defined patrol areas.
 - The areas are defined by the patrol electronic button system to enable reporting of patrols to the security management team.
 - The inspection / patrol should check for:
 - Ensure that there are no signs of fire present in the building;
 - Ensure that all entry, exit and emergency exit doors are secure;
 - Check for signs of forced entry or fraudulent activity.
 - If a Fire is detected, the Security Guards are to initiate emergency procedures immediately.
- Parking of Vehicles
 - Vehicles should be parked only at the defined area of parking.
 - The guard should help the employees in proper parking in ready to move position.
- Monitoring the exit of employees
 - The guard should monitor the exit of employees at end of the day's work and keep a check that all employees are mentioning the correct exit time.
 - Ensure that the main gate is locked after everyone has left the premises.
 - The extension phone is put on the cradle for charging overnight.

Training

Listed below are suggested mandatory trainings for applicable staff functions:

- Data Security, Privacy and Confidentiality
- Interaction with regulatory authorities and lending authorities viz World Bank and AIIB personnel
- Emergency Response Plan

Record Keeping and Documentation

It is the responsibility of the Project Manager to ensure trainings are completed and logs archived. These trainings will be recorded and kept in the project file and employment history and will be made available for audit purposes at any time.

K. COVID 19 Measures Procedure

Purpose

This procedure is intended for planning purposes. Employers and workers should use this planning guidance to help identify risk levels in workplace settings and to determine any appropriate control measures to implement. Additional guidance may be needed as COVID-19 outbreak conditions change, including as new information about the virus, its transmission, and impacts, becomes available.

Scope

This planning guidance for COVID-19 based on traditional infection prevention and industrial hygiene practices. It focuses on the need for employers to implement engineering, administrative, and work practice controls and personal protective equipment (PPE), as well as considerations for doing so.

Procedure

Develop an Infectious Disease Preparedness and Response Plan

- Follow federal and state, local, tribal, and/or territorial recommendations regarding development of contingency plans for situations that may arise as a result of outbreaks
- Plans should consider and address the level(s) of risk associated with various worksites and job tasks workers perform at those sites. Such considerations may include:
 - Where, how, and to what sources of SARS-CoV-2 might workers be exposed
 - Non-occupational risk factors at home and in community Settings
 - Workers' individual risk factors (e.g., older age; presence of chronic medical conditions, including immune compromising conditions; pregnancy).
 - Controls necessary to address those risk

Prepare to Implement Basic Infection Prevention Measures

- For most employers, protecting workers will depend on emphasizing basic infection prevention measures. As appropriate, all employers should implement good hygiene and infection control practices, including:
 - Promote frequent and thorough hand washing, including by providing workers, customers, and worksite visitors with a place to wash their hands. If

soap and running water are not immediately available, provide alcohol-based hand rubs containing at least 60% alcohol.

- Encourage workers to stay home if they are sick.
- Encourage respiratory etiquette, including covering coughs and sneezes.

Develop Policies and Procedures for Prompt Identification and Isolation of Sick People

- Prompt identification and isolation of potentially infectious individuals is a critical step in protecting workers, customers, visitors, and others at a worksite.
- Employers should inform and encourage employees to self-monitor for signs and symptoms of COVID-19 if they suspect possible exposure.
- Employers should develop policies and procedures for employees to report when they are sick or experiencing symptoms of COVID-19

Develop, Implement, and Communicate about Workplace Flexibilities and Protections

- Actively encourage sick employees to stay home. Ensure that sick leave policies are flexible and consistent with public health guidance and that employees are aware
- of these policies.
- Talk with companies that provide your business with contract or temporary employees about the importance of sick employees staying home and encourage them to develop non-punitive leave policies.
- Maintain flexible policies that permit employees to stay home to care for a sick family member.

Implement Workplace Controls

Occupational safety and health professionals use a framework called the “hierarchy of controls” to select ways of controlling workplace hazards. In other words, the best way to control a hazard is to systematically remove it from the workplace, rather than relying on workers to reduce their exposure.

- Engineering Controls
- Administrative Controls
- Safe Work Practices
- Personal Protective Equipment (PPE)
- Follow existing National Command and Operation Center (NCOC) Guidelines

Food Preparation and Handling at Work Premises

- Food handlers should wear masks and gloves during food preparation and handling activities.
- Food handlers must wash their hands prior to glove use and after gloves are removed. The gloves must be replaced and hands washed, after any suspected contamination including sneezing, touching the face, or contact with frequently touched surfaces.
- Food handlers who are sick or develop symptoms of COVID-19 should be granted sick leave
- Food should be protected from contamination at all times e.g., using guards or coverings for food and utensils.
- Clean and sanitize all utensils and equipment regularly

Roles and Responsibility

Following initiative and responsibilities should be managed by team leader:

- Establishing a Safety and Health Program
- Compliance Assistance Specialists
- On-Site Safety and Health Consultation Services
- Cooperative Programs
- Strategic Partnerships and Alliances
- Voluntary Protection Programs (VPP)

Training

All employees must be imparted training on the following:

- Signs, symptoms and modes of transmission of COVID-19
- General hygiene
- Reporting procedure for illness
- Personal and workplace cleaning and disinfection procedures
- Use of face masks (including cloth face covers)
- Maintenance of social distancing (Including use of technology to promote social distancing e.g., telework and virtual meetings)
- Proper use of PPE
- Safe work practices
- Stress management

Recordkeeping and Maintenance

COVID-19 can be a recordable illness if a worker is infected as a result of performing their work-related duties. However, employers are only responsible for recording cases of COVID-19 if all of the following are true:

- The case is a confirmed case of COVID-19;
- The case is work-related; and
- The case involves one or more of the general recording criteria e.g., medical treatment beyond first aid, days away from work.

L. Procedure for External Visits

Purpose

The purpose of this procedure is to ensure that visits by regulatory authorities and lending agencies are conducted with due protocols.

SCOPE

This procedure is applicable for visits by external agencies to all KWSSIP Project Sites.

RESPONSIBILITIES

The Project Manager will be responsible for overall coordination of visit to the Project Site(s) by regulatory agencies – Labor Department, Environmental Protection Agency and lending agencies – World Bank and Asian Infrastructure Investment Bank.

PROCEDURE

SCHEDULED VISITS

Visit /Audits by World Bank

- a) World Bank auditors conduct visits of Project Site(s) to check that the project is being managed in compliance with the requirements of the World Bank Environmental and Social Framework and related Standards.
- b) The Project Manager must ensure that all necessary documentation is available and up to date at the Project Site.
- c) The observations by the World Bank auditors are to be noted and action plans prepared on receipt of the audit report.

Visit by Regulatory Agencies

- a) Such visits may be scheduled or impromptu or visit after receipt of accident report.
- b) The Project Manager must meet the regulatory agency personnel or delegate a supervisor to conduct the visit.
- c) All required documentation must be shared with the regulatory personnel.
- d) The observations made during the visit are to be noted and compliance ensured on receipt of the report.
- e) Compliance report shall be prepared and sent to the concerned regulatory agency.

M. Procedure for Internal Audits

Purpose

The purpose of this procedure is to have a defined procedure in place for conducting EHS Audits (inspections, Self-Audits) as per agreed schedule against the Labor Management Plan, Local Regulatory Requirements, and World Bank Standard ESS2 and Guidance Note

SCOPE

This procedure is applicable to all KWSSIP Project Sites.

RESPONSIBILITIES

The Project Manager will be responsible for overall coordination of KWSSIP audits at Project Sites. The Project Manager will be responsible of issuing internal audit report within two weeks of the audit followed by the audit action plan within one month of the audit to all concerned. The internal audit report compliance status will be discussed in the Site Monthly Project Committee Meetings.

Department Manager / Supervisor will be responsible for carrying out H&S Audit of their respective areas quarterly (attachment 03). The findings of inspections will be discussed in the Monthly Project Committee Meeting.

PROCEDURE

1.1 AUDIT SCHEDULE

- Internal H&S Audits of the Project Sites are to be conducted quarterly as per internal audit schedule.
- The audit schedule will be approved by the Director Projects & and a copy is to be distributed to all concerned.

1.2 AUDIT TEAM

Following will be the internal audit team members at respective Sites:

- Project Manager/ Supervisor
- Engineering Manager /Supervisor
- Site Safety Officer
- Occupational Health Physician / Technician (if required)

1.3 EHS INSPECTIONS

- Department/Area inspections will be carried out by the Project Supervisor using the checklist (attachment 03) every week. The purpose is to evaluate the physical H&S conditions / requirements at the workplace.

1.4 AUDIT INITIATION

The internal EHS audit schedule will be conveyed one week prior to the audit to the concerned personnel.

INTERNAL H&S AUDIT REPORT

Area:

S #	Observation	Recommendations

INTERNAL H & S AUDIT ACTION PLAN

S #	Recommendation	Action Required	Action By	Target Date	Status / Comments

Department / Area : _____ Date of Inspection: _____ Conducted by: _____

Note: Area inspections to be carried out every week

PROJECT SELF- INSPECTION REPORT

S #	Description	Observation / Action Required	Responsibility	Target Date	Comments
1.	General House-keeping Area / Dust				
2.	Flooring Surface Condition				
3.	Ventilation Air Conditioning				
4.	Lighting Mounting Bulbs & Shades				
5.	Electrical Switch Boards / Wiring				
6.	Work Station Table, Chair, Stools, Platforms				

S #	Description	Observation / Action Required	Responsibility	Target Date	Comments
7.	Machinery / Equipment Positioning / Guarding/Condition				
8.	Waste Management Disposal Procedure / Record				
9.	First - Aid First-aid Box Items, Eye-Wash Station Record				
10.	Personal Protective Equipment Required PPE's in Use/condition				
11.	Accident / Incident and Near Miss Reporting and Records				
12.	Lifting Devices Cranes, Pallet Trolleys, Fork Lifters etc.				

S #	Description	Observation / Action Required	Responsibility	Target Date	Comments
13.	Ladders & Platforms Condition				
14.	Material Storage Fuel Storage, Other materials storage areas				
15.	Emergency Exits/ Assembly Point Exit Passage				
16.	Safety Signboards Displayed in areas				
17.	Fire Extinguishers Checked				

General Remarks