

NASIR NAWAZ AND COMPANY

EXCAVATION OF SAND USING DREDGER MACHINE OVER AN AREA OF 2248.494 ACRES, HEAD KHANKI, THATTI BALOCH ZONE, TEHSIL WAZIRABAD, DISTRICT GUJRANWALA.



ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

PREPARED BY



GLOSSARY

Words	Dictionary
mitigation	The action of lessening in severity or intensity
legislation	law enacted by a legislative body
compliance	Acting according to certain accepted standards
flora	All the plant life in a particular region or period
fauna	All the animal life in a particular region or period
demarcated	Separate clearly, as if by boundaries
Screening	The display of a motion picture
substitutions	An event in which one thing is substituted for another
regulations	An authoritative rule
stakeholders	A person or organization with an interest or concern in something
vulnerable	Susceptible to attack

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LIST OF ABBREVIATIONS

PEPA	Punjab Environmental Protection Act
PEQS	Punjab Environmental Quality Standards
WAPDA	Water And Power Development Authority
EMP	Environmental Management plan
WWTF	Waste Water Treatment Facility
Pak-EPA	Pakistan Environmental Protection Agency
W.H.O	World Health Organization
PET	Punjab Environmental Tribunal
SWM	Solid Waste Management
CSR	Corporate Social Responsibility
MSWs	Municipal Solid Wastes
TMA	Town Municipal Authority
KVA	Kilo Volt Ampere
PPEs	Personal protective equipment's
PM	Particulate matter

EXECUTIVE SUMMARY

Rivers are one of the most important life-supporting systems of nature. For centuries, humans have been benefiting from the natural resources provided by rivers. Apart from being a vital source of water, rivers also offer essential raw materials such as sand, clay, and other alluvial deposits that are extensively used in the development of infrastructure and the construction industry. During the rainy season and natural water flow, large quantities of sand are deposited in riverbeds. These deposits can lead to overburdening, reducing the water-carrying capacity and disturbing the natural flow of the river. The removal of this accumulated sand not only helps in maintaining the riverbed profile but also serves as a valuable commercial resource, especially for use in construction activities like roads, buildings, bridges, and dams. To facilitate both environmental sustainability and economic benefit, the Mines and Minerals Department Punjab grants leases and conducts open auctions for the surface excavation of sand from rivers. This initiative supports regulated commercial activity, contributing to government revenue and developmental needs of the region.

In this regard, Nasir Nawaz and Company has proposed the excavation of sand using dredger machines over an area of 2248.494 acres at the Head Khanki, Thatti Baloch Zone, Tehsil Wazirabad, District Gujranwala. The Thatti Baloch Zone, being a significant segment of the riverine area, has experienced substantial sand deposition due to seasonal flows. The use of dredger machines in such water-bearing and wet zones is considered more effective and sustainable compared to manual or excavator-based methods. Since the use of dredgers falls under mechanized extraction and may have potential environmental implications, the proponent is required to submit an Environmental Impact Assessment (EIA) in accordance with the Punjab Environmental Protection Act. This report addresses the anticipated environmental impacts, proposes mitigation measures, and presents a detailed Environmental Management Plan (EMP) to ensure sustainable operations in the Shahbazpur Zone.

I. PROJECT TITLE AND LOCATION

Title : Excavation of Sand Using Sand Dredger Machine Over An Area Of 2248.494 acres at the Head Khanki, Thatti Baloch Zone, Tehsil Wazirabad, District Gujranwala.

Location: Head Khanki, Thatti Baloch Zone, Tehsil Wazirabad, District Gujranwala.

II. PROJECT PROPONENT

Mr. Muhammad Bakhsh as Proponent of proposed project wants to get NOC for compliance of Section 12 to establish its business.

Name	Muhammad Bakhsh
CNIC	34104-2234091-7
Address	Mohallah Fazil Town, Ali pur Chattha, Tehsil Wazirabad, district Gujranwala.

II. THE EIA STUDY CONSULTANT



Climate Caretakers

Head Office: 218-Upper Mall, Lahore, Pakistan.

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IV. BRIEF DESCRIPTION OF THE PROJECT

The proposed project involves the excavation of sand using dredger machines over a total area of Head Khanki, Thatti Baloch Zone, Tehsil Wazirabad, District Gujranwala by Nasir Nawaz and Company. The project aims to extract naturally deposited sand from the riverbed, which has accumulated over time due to seasonal flows and sedimentation.

The sand will be excavated using mechanized dredging equipment, which is particularly suitable for wet and water-flowing zones. This method is intended to ensure efficient extraction with minimal environmental disturbance. The excavated sand will be used as a construction material for various infrastructure projects across the region.

Table 0-1: Brief Description of the project

Project Name	Sand Excavation by Using Sand Dredger by Nasir Nawaz and Company.					
Project Location	Head Khanki, Thatti Baloch Zone, Tehsil Wazirabad, District Gujranwala.					
UTM Coordinate	POINT S	EASTING G	NORTHING G	POINT S	EASTING	NORTHING
	A	3298880	916870	D	3302914	918507

	B	329842 5	91842 4	E	3302123 0	917604
	C	3302249	92078 9			
Total Area	2248.494 Acres					

V. MAJOR IMPACTS & PROPOSED MITIGATION

Impact assessment is crucial for project initiation as it enables the identification and comprehension of a project's potential positive and negative effects. Understanding these impacts aids in tailoring the project to maximize benefits and minimize risks. Impact assessment assists in recognizing environmental, social and economic challenges and risks and gives the directions to develop strategies that mitigate these risks and adjust the plan accordingly

Table 0-1: Summary of Major Impacts During Pre-Operational Phase

S/No.	Potential Issue	Likelihood (Certain, Likely, Unlikely, Rare)	Consequence (Catastrophic, Major, Moderate, Minor)	Risk Level (Significant Medium, Low)	Residual Impact (Short term, Long term)
1	Land Disturbance during Mobilization of dredgers and support boats	Likely	Major	Medium	Short Term
2	Sediment disturbance during anchoring/setup	Likely	Major	Medium	Long Term
3	Increase in noise and vibrations	Rare	Major	Medium	Long Term
4	Temporary increase in air emissions from machinery.	Unlikely	Major	Medium	Short Term
5	Temporary traffic congestion from equipment delivery	Unlikely	Major	Medium	Short Term
6	Risk of fuel/oil leaks during mobilization	Unlikely	Major	Medium	Short Term
7	Waste from packaging and mobilization material	Unlikely	Moderate	Medium	Short Term
9	Possible increase in turbidity during pre-start testing of dredger near shore.	Unlikely	Moderate	Low	No residual Impact
10	Risk of slips, trips, or accidents during unloading and assembly of dredger.	Likely	Moderate	Low	Long Term
11	Increased human activity and noise levels in the project area before operations.	Unlikely	Moderate	Low	No residual Impact

-  Critical Risk Level
-  Significant Risk Level
-  Medium Risk Level
-  Low Risk Level

Table 0-2: Summary of Major Impacts during Operational Phase

S/No.	Potential Issue	Likelihood (Certain, Likely, Unlikely, Rare)	Consequence (Catastrophic, Major, Moderate, Minor)	Risk Level (Significant Medium, Low)	Residual Impact (Short term, Long term)
	Air Quality: Emissions From dredger machines and generators may affect local air quality due to the release of dust and exhaust gases.	Likely	Major	Medium	Short Term
	Noise- Noise due to Excavation activity,	Likely	Major	Medium	Long Term
	Water Quality Degradation due to Increase in turbidity, sediment dispersion, contamination of downstream water	Likely	Major	Medium	Long Term
	Health & Safety Issues- different activities at the project site may cause health and safety issues for workers.	Likely	Major	Medium	Short Term
	Land Resource: Soil Erosion and Bank Instability	Likely	Major	Medium	Short Term
	Solid waste	Likely	Major	Medium	Short Term
	Traffic and Transport Impacts	Unlikely	Major	Medium	Short

					Term
	Climate Change	Likely	Moderate	Medium	Short Term
	Flora & Fauna	Unlikely	Moderate	Low	No residual Impact
	Community Amenity	Likely	Moderate	Low	Short Term
	Local Economy, Community Development and Employment	Likely	Moderate	Low	No residual Impact
	Resettlement	Likely	Major	-	-

- Critical Risk Level
- Significant Risk Level
- Medium Risk Level
- Low Risk Level

VI. PROPOSED ENVIRONMENTAL MONITORING

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS an Environmental Monitoring Program should be formulated which ensures effective surveillance of the environmental parameters at various stages of the project development and compliances with PEQS and legal obligations. Monitoring for following Environmental Parameters is recommended:

Table 0-3 Environmental Monitoring

Sr. No.	Parameters	Monitoring Schedules	Monitoring Duration
1	Ambient Air Monitoring (NOx, COx, SOx, PM ₁₀)	Quarterly	Instant
2	Noise Level	Quarterly	Instant

3	Water quality	Quarterly	Some parameters on site, Others in lab

1 INTRODUCTION

Sand is an essential raw material for construction and infrastructure development. With increasing urbanization and growth in the construction sector, the demand for high-quality sand has significantly risen across the country. To meet this demand in an environmentally responsible and sustainable manner, the Mines and Minerals Department, Government of Punjab, has identified suitable zones for sand excavation through regulated leasing and auction processes. One such area is the Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala which spans approximately 2248.494 acres. The area consists of extensive riverine and alluvial deposits where sand accumulates naturally due to seasonal flows. These deposits, if left unexcavated, can lead to overburdening of the riverbed and disrupt the river's natural hydrology. To address this, M/s Nasir Nawaz and Company proposes to undertake mechanized sand excavation using dredger machines in the Thatti Baloch Zone. The project aims to extract sand efficiently while maintaining the ecological and structural integrity of the riverbed. Dredging will be carried out in a controlled and scientifically managed manner, ensuring compliance with all relevant environmental and mining regulations. This report presents the details of the proposed project, its potential environmental impacts, and the mitigation measures to be adopted in accordance with the Punjab Environmental Protection Act, 1997 and related guidelines issued by the Environmental Protection Agency (EPA), Punjab.

In fulfilment of the legal obligations outlined under Section 12 of the Punjab Environmental Protection Act (Amended 2012), this Environmental Impact Assessment (EIA) report is being submitted. The report aims to assess the potential environmental and social impacts of the proposed development and outlines appropriate mitigation measures to ensure responsible and sustainable project execution.

1.1 Purpose of the Report

The development of any project inevitably leads to changes in the environmental and social fabric of the surrounding area. The nature, scale, and intensity of these changes are determined by both the characteristics of the project and the baseline environmental conditions of the site. Over the past four decades, growing awareness at both governmental and public levels has led to the establishment of regulatory frameworks aimed at safeguarding the environment. As a result, comprehensive laws and guidelines have been enacted to ensure the protection and sustainable management of physical, biological, and socio-economic resources.

In accordance with these regulations, it is mandatory for project proponents to conduct an Initial Environmental Examination (IEE) or a more detailed Environmental Impact Assessment (EIA)—depending on the anticipated magnitude and severity of environmental impacts. Section 12 of the Punjab Environmental Protection Act, 1997 (Amended 2012) states:

“No proponent of a project shall commence construction or operation unless he has filed with the Federal Agency an Initial Environmental Examination (IEE) or, where the project is likely to cause an adverse environmental effect, an Environmental Impact Assessment (EIA), and has obtained from the Federal Agency approval in respect thereof.”

In compliance with this legal requirement, the present Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab. The objective is to obtain the requisite No Objection Certificate (NOC) prior to initiating any construction or operational activities at the proposed project site.

1.2 Identification of Project and Proponent

According to nature of project, cost of project and by also reviewing the IEE / EIA Regulation 2022, the project falls under Schedule II of PEPA Regulations. Mr. Muhammad Bakhsh as Proponent of proposed project wants to get NOC for compliance of Section 12 to establish its business.

Name	Muhammad Bakhsh
CNIC	34104-2234091-7



Address	Mohallah Fazil Town, Ali pur Chattha, Tehsil Wazirabad, district Gujranwala.
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1.3 Details of Consultants

Climate caretakers

Head Office: 218-Upper Mall, Lahore, Pakistan.

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1.4 Brief Description of Nature Size and Location of Project:

The proposed project by M/s Nasir Nawaz and Company, involves the mechanized excavation of sand using dredger machines over a total area of 2248.494 acres in the Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala. The project site lies within an approved riverine zone rich in natural sand deposits and is well-suited for controlled extraction due to its strategic location, ease of access to transportation networks, and distance from environmentally sensitive or densely populated areas. The proposed activity aims to extract deposited sand resulting from seasonal river flows to prevent overburdening of the riverbed and ensure sustainable resource utilization. Excavation operations will be carried out using diesel-powered dredgers, supported by ancillary equipment and temporary site infrastructure. The project is currently in the planning phase and will be executed in accordance with relevant mining and environmental regulations, with an estimated operational footprint aligned with best practices for riverbed sand mining.

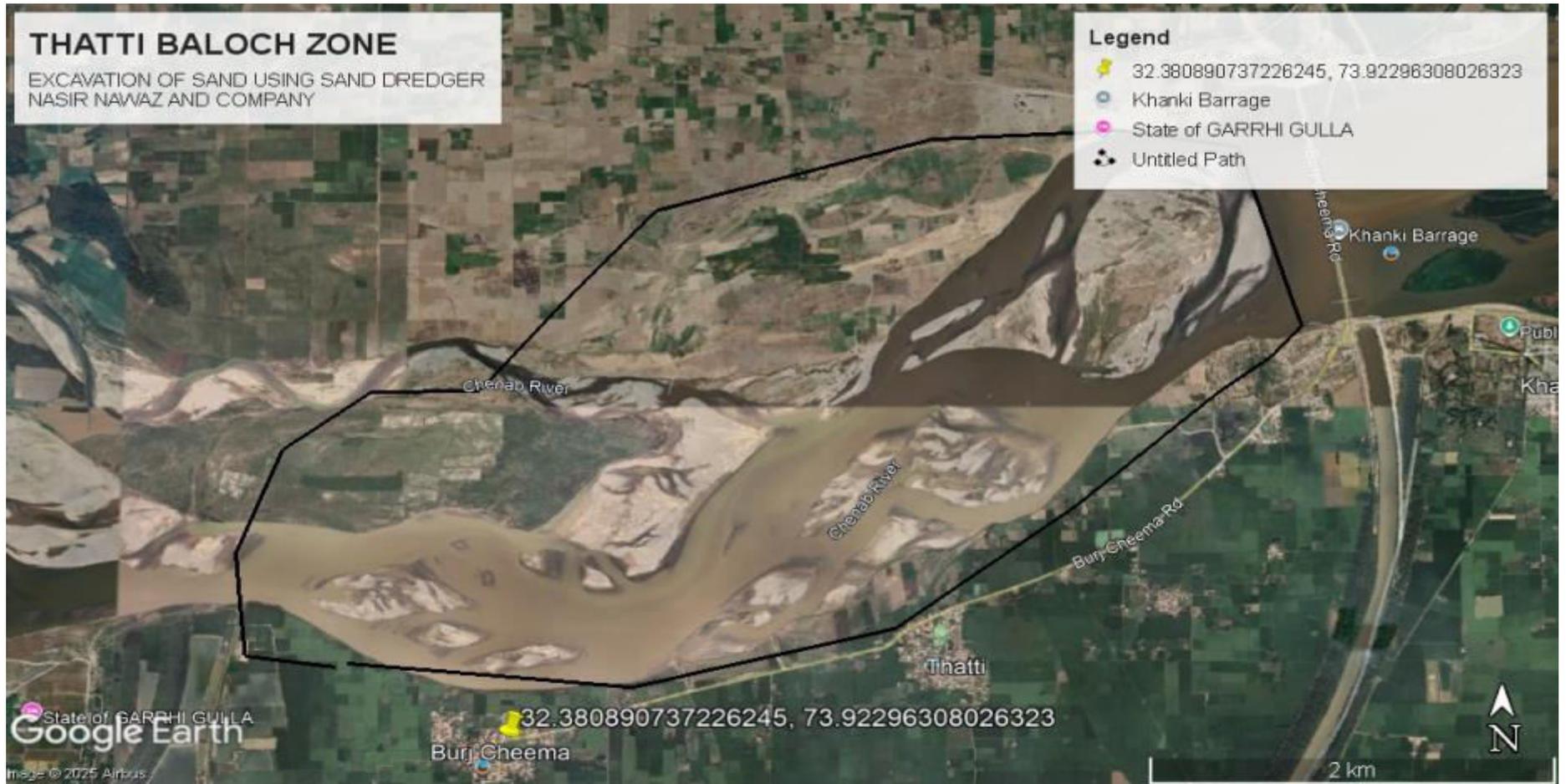


Figure 1-1: Location Map of the project area

1.5 Objectives of the Study

The overall objective of the EIA study is to identify and evaluate the environmental impacts from the Operational activities associated with the excavation of sand using dredger machines over a total area of 2248.494 acres in the Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala to develop an appropriate Environmental Management Plan (EMP) for the mitigation of the potential adverse impacts and ensure compliance with applicable EPA Punjab regulations to obtain the NOC for the project.

The objectives of this EIA study are outlined as under,

- Collection of detailed baseline data comprising of physical, biological and socio-economic environmental aspects through extensive field surveys, geographical and topographical maps and other relevant literature;
- Environmental analysis of alternatives for the processes, technologies and approaches associated with the project development;
- Identification of potential impacts on existing physical, biological and socio-economic environments due to the construction activities at the site;
- Devising mitigation measures for the significant adverse impacts during both the construction and operation phases of the proposed Project;
- Develop a detailed Environmental Management and Monitoring Plan (EMMP) along with allocation of responsibilities to the concerned persons and authorities.

2 SCREENING OF THE PROJECT

Based on the Punjab Environmental Protection Act 2012 and the Review of IEE & EIA Regulations, 2022 for filing, reviewing, and approving environmental assessments, the present project is classified under Schedule II Class C (Mining and Mineral Processing).

Following list shows the projects included in Class C

- C. Mining and Mineral Processing
 - 1. Mining and Processing of coal, gold, copper, sulphur and precious stones
 - 2. Mining and processing of major non-ferrous metals
 - 3. **Commercial Extraction of sand using dredger**

The proposed project involves the excavation of sand using dredger machines over a total area of 2248.494 acres in the Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala by M/s Nasir Nawaz and Company. The project aims to extract naturally deposited sand from the riverbed, which has accumulated over time due to seasonal flows and sedimentation. The sand will be excavated using mechanized dredging equipment, which is particularly suitable for wet and water-flowing zones. This method is intended to ensure efficient extraction with minimal environmental disturbance. The excavated sand will be used as a construction material for various infrastructure projects across the region.

3 SCOPING OF THE PROJECT

The scoping process outlines the essential concerns and impacts requiring detailed investigation. It establishes the spatial and temporal limits, crucial concerns raised during consultations, and significant factors impacting the project.

3.1 Spatial and Temporal Boundaries of Environmental Assessment

Considering spatial and temporal boundaries in environmental assessments is vital to comprehensively evaluate the impact of a project. Spatial boundaries define the area affected, aiding in recognizing the extent of impact on ecosystems and nearby communities. Temporal boundaries assess short and long-term effects, enabling an understanding of how impacts evolve over time and helping in planning mitigation measures and long-term sustainability strategies. This approach ensures accurate, detailed assessments and effective addressing of potential environmental consequences related to the project. The proposed project involves the excavation of sand using dredger machines over a total area of 2248.494 acres in the Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala.

3.2 Important issues and concerns raised during consultation

The EIA for the proposed project incorporated a two-stage consultation process, primarily focused on one-on-one meetings. In the initial stage, the consultation was specifically directed towards engaging local government authorities, affected individuals, and local communities. The primary goal of this stage was the evaluation of both the short-term and long-term impacts that might result from the new development proposed for the project in its early stages. The intent was to gather insights and perspectives from key stakeholders in the immediate vicinity to better understand potential environmental, social, and economic implications of the project.

The second stage of consultations, as indicated, will be conducted through a more extensive process of public participation if deemed necessary. This broader involvement will allow for a wider outreach to the public, enabling a more comprehensive engagement to gather additional feedback, concerns, and insights from a larger cross-section of the community. This will ensure a more inclusive approach, providing an opportunity for a wider range of stakeholders to contribute their perspectives, concerns, and suggestions, which can be valuable in shaping and refining the EIA for the proposed project.

3.3 Significant impacts and factors to be determined

During the excavation of sand using dredger machines, the determination of significant impacts involves assessing environmental risks, safety and health concerns for workers, community impact, infrastructure and property damage,

emergency response planning, regulatory compliance, and the adequacy of preventive measures. Understanding and addressing these factors are essential to ensure safe operations, mitigate risks, and protect the environment, workers, communities, and infrastructure from potential hazards.

3.4 Development of an Environmental Management Plan

The EMP in an EIA is crucial as it outlines strategies to mitigate environmental impacts, ensures regulatory compliance, guides project operations, promotes sustainability, reduces risks, assures stakeholders, and allows for ongoing improvement and adaptation to address environmental concerns throughout the project's lifecycle. These key parts of EMP include a clear description of the project, an outline of potential environmental impacts and risks, specific mitigation measures tailored to address these impacts, a comprehensive monitoring and reporting system to track environmental indicators, protocols for emergency response and contingency planning, details on stakeholder engagement and communication strategies, and a framework for ongoing review and updates to ensure the plan's adaptability and effectiveness over the course of the project. Together, these components form a comprehensive EMP designed to guide environmental practices, minimize adverse impacts, and maintain compliance with regulations and best practices in environmental management

4 ALTERNATIVES OF THE PROJECT

The alternatives for the proposed project and their relative potential impacts on the environment were considered to evaluate the best project option. The following alternatives were considered for the project.

Project Alternatives

- No project option/worst scenario option.
- Site Alternative
- Technology Alternative

4.1 No Project Option / Worst Scenario Option

Analysis

Strengths and Opportunities:

If the proposed sand excavation project is not undertaken, the proponent will avoid the initial capital investment, operational costs, and any risks or delays associated with environmental approvals or implementation logistics. There will be no disturbance to the existing riverine ecosystem, and the current ecological and hydrological baseline will remain intact. No machinery operation, vehicular movement, or associated emissions will occur, preserving local air and noise quality. Additionally, the potential for public complaints or safety risks associated with excavation activities, such as transportation disruptions or accidents, will be eliminated. Resources saved may be reallocated to less intrusive ventures or alternative development options.

Weaknesses and Threats:

Opting out of the project would result in significant missed opportunities for regional development, revenue generation, and flood mitigation. Accumulation of sand in the riverbed can reduce channel depth, impede water flow, and increase the risk of seasonal flooding, thereby threatening nearby agricultural and residential areas. The construction sector would continue to face challenges in accessing cost-effective sand, potentially driving up material prices and slowing infrastructure growth. Moreover, the project holds substantial potential for employment—both skilled and unskilled—which would be lost if the project is abandoned. Local economic activity, particularly in transport and machinery services, would also be adversely affected.

Conclusion

The “No Project Option” may seem to reduce immediate environmental impact and financial risk; however, it overlooks the long-term social, economic, and industrial benefits associated with the proposed excavation. The absence of the project would constrain local employment and miss the opportunity for balanced approach to environmental conservation and resource utilization while contributing to local

development and disaster risk reduction.. Therefore, the **No Project Option is not recommended.**

4.2 Location alternative

To fulfill the commercial and operational objectives of the proposed sand excavation project under this EIA, the site must be located in an area where substantial sand deposits exist and excavation is technically and economically viable. Simultaneously, it must comply with the legal requirements under the Punjab Mining Concession Rules, 2002, the Punjab Environmental Protection Act, 1997 (Amended 2012), and relevant EPA Punjab regulations.

The Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala has been identified by the Mines and Minerals Department for sand excavation through open auction, which makes it a legally approved and environmentally feasible site. This zone is characterized by active sand deposition due to consistent river flow dynamics, making it a suitable and sustainable location for extraction using dredger technology.

The following key reasons make the Head Khanki/ Thatti Baloch Zone the most appropriate and preferred alternative:

- **Legally Approved Extraction Zone:** The area is notified by the Mines and Minerals Department, ensuring regulatory compliance
- **Abundant Sand Deposits:** Natural deposition due to river flow makes it a rich and renewable source of construction-grade sand.
- **Use of Existing River Channel:** Avoids the need for land development or construction; the riverbed serves as the natural resource base.
- **Proximity to Demand Centers:** The site's location near urban centers facilitates efficient supply to the construction industry.
- **Minimal Infrastructure Requirements:** As dredging is conducted directly within the riverbed, the need for permanent infrastructure is negligible.
- **Lower Environmental Footprint:** Utilizing designated river zones for sand extraction reduces pressure on terrestrial ecosystems and avoids unauthorized mining elsewhere.

Considering all environmental, logistical, legal, and operational factors, the Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala, stands out as the most feasible, cost-effective, and environmentally responsible site for implementing the proposed sand excavation project using dredger machinery

4.3 Modified Construction Technology Alternatives

The proposed sand excavation project will utilize efficient and environmentally responsible techniques that conform to modern standards for resource extraction, operational safety, and ecological sustainability. The primary method involves mechanized sand extraction using a dredger, which offers significant improvements over conventional manual or excavator-based methods. The dredging technique minimizes land disturbance, reduces dust generation, and enhances operational precision in submerged environments, especially in flowing water bodies like rivers. In selecting the technology, priority is given to methods that reduce environmental impact, optimize fuel consumption, and ensure minimal disruption to the river's natural hydrology and surrounding ecology. Equipment and procedures will be selected based on their energy efficiency, durability, operational safety, and compliance with environmental standards set by the Punjab Environmental Protection Agency (EPA) and Mines & Minerals Department.

4.3.1 Technology Alternatives

M/s Nasir Nawaz and Company, as a responsible and environmentally conscious operator, has proposed the use of modern dredger machinery equipped with sediment handling systems to extract sand from the designated riverbed area in the Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala. Compared to traditional methods, the use of dredgers offers several advantages:

- **Minimized Surface Disturbance:** Dredging occurs within the riverbed without requiring access roads or excavation pits on land, reducing surface degradation.
- **Efficient Resource Recovery:** Dredgers can reach deeper sediment layers with greater efficiency, maximizing yield while controlling extraction rates.
- **Reduced Emissions and Noise:** Modern dredging equipment is designed to meet fuel efficiency standards and includes noise control features.
- **Controlled Sediment Removal:** Enables selective and regulated extraction, preventing over-mining and protecting riverbank stability.
- **Compliance with EPA & Mining Regulations:** Dredger operations align with regulatory requirements and reduce the likelihood of unauthorized or damaging practices.

The adoption of this technology reflects a commitment to sustainable resource utilization, environmental protection, and long-term operational viability of sand excavation in the region.

5 DESCRIPTION OF THE PROJECT

This chapter presents all aspects of the proposed project. It details the nature of the proposed project involving the excavation of sand using sand dredger machine, its location, designs and site layout/plan. It presents the activities that will be involved during all stages of project; how product will form, detail of process and machinery as well as details on supportive resources i.e. man power and utility requirements.

5.1 Type & Category of the Project

The proposed project involves the excavation of sand using dredger machines over a total area of 2248.494 acres in the Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala, by M/s Nasir Nawaz and Company. The project aims to extract naturally deposited sand from the riverbed, which has accumulated over time due to seasonal flows and sedimentation. The sand will be excavated using mechanized dredging equipment, which is particularly suitable for wet and water-flowing zones. This method is intended to ensure efficient extraction with minimal environmental disturbance. The excavated sand will be used as a construction material for various infrastructure projects across the region. According to nature of project, cost of project and by also reviewing the IEE / EIA Regulation 2022, the project falls under Schedule II.

5.2 Objective of Project

The primary objective of the proposed sand excavation project is to sustainably extract construction-grade sand from the designated area in Shahbazpur Zone, Tehsil and District Gujrat, to meet the growing demand for raw materials in the construction sector across Punjab and other regions of Pakistan. The key objectives of the project are as follows:

- **To ensure a consistent and legal supply of quality sand** for infrastructure and development projects in the region;
- **To contribute to the local and national economy** through regulated mining activities and revenue generation;
- **To provide direct and indirect employment opportunities** for local communities, enhancing their income and livelihoods;
- **To promote environmentally responsible excavation practices** that align with regulatory requirements and reduce the ecological footprint
- **To support the construction and industrial sectors** by ensuring timely availability of essential raw materials.

5.3 Location & Site Layout of Project

2248.494 acres in the Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala, by M/S Nasir Nawaz and Company.

Table 5-1: Description of the project

Project Name	Sand Excavation by Using Sand Dredger by Nasir Nawaz and Company.					
Project Location	Head Khanki, Thatti Baloch Zone, Tehsil Wazirabad, District Gujranwala.					
UTM Coordinate	POINTS	EASTING	NORTHING	POINTS	EASTING	NORTHING
	A	3298880	916870	D	3302914	918507
	B	3298425	918424	E	33021230	917604
	C	3302249	920789			
Total Area	2248.494 Acres					

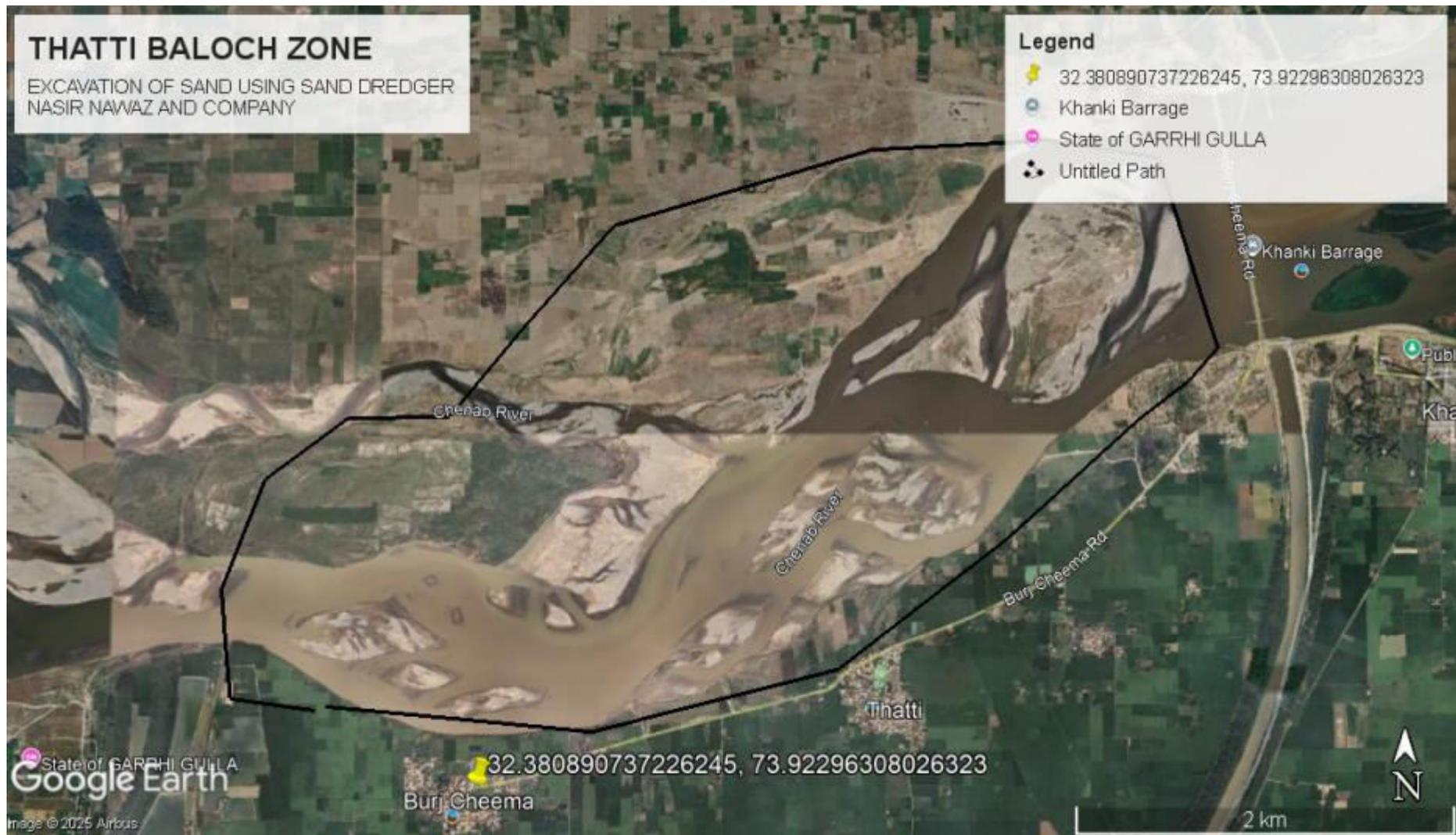


Figure 5-1: Location Map of the Project Area

5.4 Land Use & Vegetation Features on Site

The project site is situated in Head Khanki, Thatti Baloch Zone, Tehsil Wazirabad, District Gujranwala. Land acquired for the proposed mining project is basically river bed. The litho units encountered in the river bed and surrounding area are river born sediments brought and deposited in the flood plains by River. The size of the sediments towards the source host rock is coarse and at the tail end of the river the grain size is reduced to smaller sizes resulted in the formation of clay beds. Soil/Alluvium and sand has been observed in the area.

5.5 Road Access

The proposed sand excavation site, located near Head Khanki in the Thatti Baloch Zone, Tehsil Wazirabad, District Gujranwala, is accessible through a well-connected road network. Primary access from Wazirabad is via Wazirabad Road, which directly links to the Head Khanki area. Additional regional connectivity is provided by the Wazirabad–Pindi Bhattian Road and the Wazirabad–Rasul Nagar Road, both of which serve as important routes for transporting equipment and materials to the project site. For movement toward the western side, the Wazirabad–Alipur Chatha Road offers an alternative approach. Local access to the site is achieved through tertiary village roads passing via Thatti Baloch, with linkages to nearby settlements such as Saroke and Lokri Baloch. These roads are capable of handling light and medium vehicular traffic, with only minor maintenance expected for mobilizing heavy machinery such as sand dredgers.

5.6 Vegetation Features of the Site

The proposed site mainly has scarce grasses and shrubs present on site. While the project area flora includes mainly trees or big plants like Acciamodesta (kikar), Acacia modesta (Phulai), Dalbergiasissoo (Sheesham) are scattered in small numbers in the area that will not be affected during the proposed mining and extraction. Cost & Magnitude of Operation. Approximate cost of the project is PKR 0.20355 billion.

5.7 Schedule of Implementation

The proposed project involves the mechanical excavation of sand using dredger machines over an area of 13,856.679 acres at Shahbazpur Zone, Tehsil and District Gujrat. The excavation will be carried out by M/s Melhi Stone Works International under a lease granted by the Mines and Minerals Department, Punjab.

The operational phase of the project is expected to commence shortly after receiving environmental approval, and the activity will be executed in a phased and regulated manner as per the lease agreement. The sand excavation will be conducted in accordance with environmental and safety regulations to ensure sustainable resource extraction and minimal environmental disturbance.

5.8 Project Description

The proposed project involves the mechanical excavation of sand using dredger machines, undertaken by M/s Nasir Nawaz and Company, over a designated lease area of approximately 2248.494 acres in the Head Khanki/ Thatti Baloch Zone located in Tehsil Wazirabad and District Gujranwala. The project aims to meet the rising demand for quality construction material (sand) in local and regional markets by adopting an environmentally compliant and technically efficient excavation method.

The project will utilize state-of-the-art dredging equipment designed to minimize environmental degradation, noise, and dust emissions while maximizing operational efficiency. Excavated material will be systematically loaded and transported through designated routes to prevent traffic disruption and ensure public safety. All

activities will comply with the regulatory requirements of the Punjab Mining Concession Rules, 2002, and the Punjab Environmental Protection Act, 1997 (Amended 2012).

The project is currently in the initiation phase, and implementation will commence after the grant of environmental approval. The operational setup includes dredgers, excavation support systems, sand collection and transport infrastructure, and onsite safety and monitoring protocols to ensure compliance with environmental and occupational health standards.

5.8.1 PROPOSED INFRASTRUCTURE AND BASIC AMENITIES

Proposed Basic Amenities will be provided to workers at the excavation site	Rest room shelter/Tents, first-aid facility, PP temporary structure office and Portable Bio toilets, etc
Power requirement	Only day time extraction operations will be carried out, hence no electricity is required
Nearest source of Water supply & Demand	Daily water demand will be procured through tanker of nearby villages as per demand.
Manpower Requirement	Total employment in the extraction activities will be around 50 people and local villagers will be preferred for skilled and non-skilled jobs.

5.9 SAND EXCAVATION METHOD

As per Mines & Mineral Rules, No sand mining shall be done 200 feet upstream and 500 feet downstream of a structure. Excavation activities will start in the blocks from the upstream to downstream side. This will not obstruct the movement of water, if any, during monsoon period in the river course. Roads in the lease area for the movement of loaded tippers/ trucks will not have slopes more than 1 in 10 feet. Roads will be properly maintained in lease area and water sprinkling will be done for dust suppression. Every block will have its own approach road, which already exist and is well connected to main highways. Light weight excavators will be used for loading of sand in tippers/trucks.

5.10 METHODS OF MINING

I. Low Flow Season

Excavators will be used for excavation of the sand during dry season. The excavation will be limited to the river bed only. Sand will be extracted through excavators, loaded in dumpers, trolleys or trucks transported to the local market.



Figure 5-2: Excavator

II. High Flow Season

Dredging is an excavation activity or operation usually carried out at least partly underwater, in shallow seas or fresh water areas with the purpose of gathering up bottom sediments and disposing of them at a different location. In all situations the operation is undertaken by special floating plant, known as dredger. A dredger is a piece of equipment which can dig, transport and dump a certain amount of underwater laying soil in a certain time. The quantity of soil moved per unit of time is called production.

Portable river sand suction dredger is widely used for sand dredging, mud dredging, port building and deepening, the centrifugal sand pump can produce certain amount of vacuum, the sand and mud is conveying and discharging by pipeline and floater. The working process of this potable river sand suction dredger is as followed. The high pressure sand pump can produce certain amount of vacuum so the underwater sand and mud can be mixed into slurry; the mixing slurry is conveyed through the pipeline to the specified place.

➤ Features of river sand suction dredger:

- High efficiency, large output and long distance of pump.
- Very simple and fast assembly and dis-assembly, afloat or onshore, simple operation, easy to control.
- Good economic performance. The digging and delivery of material can be completed one time.
- Highly efficient fuel consumption and minimum overall operational costs
- Good access to all parts, especially the dredge pump wearing parts.
- The dredgers can be made according to the customers' request.

➤ Application

- Dredger is used for cleaning river silt, sand production and mining project.
- Applied to dredging rivers, lakes and ponds, reclaiming land, cleaning ports and pumping sand.
- Mainly service for the master dredger and transporter for delivering sand to land.



Figure 5-3: Inner structure of suction dredger

➤ **Sand Dredger**



Figure 5-4: Portable river sand suction dredger



Figure 5-5: Mini portable sand suction dredger



Figure 5-6: Mini portable sand suction dredger

➤ **Main Specifications**

Dredger hull is made of 6 mm thickness steel plate

Model	Dredger Size	Sand Capacity	Max. dig depth	Max. discharge

(inch)	L*W*H(m)	(m ³ /h)	(m)	distance (m)
4	4.5*2.0*0.7	25-30	5-6	50-80
6	5.8*2.2*0.75	45-60	6-8	80-100
8	5.8*2.2*1.00	60-80	8-15	100-120
10	5.8*4.2*1.00	80-100	15-20	120-200

5.11 PROCESS FLOW AND WORKFLOW

Process of Sand Excavation by Sand Dredger – Thatti Baloch Zone

The proposed sand excavation activity in the Thatti Baloch Zone, near Head Khanki (Tehsil Wazirabad, District Gujranwala), will be carried out using a cutter suction-type sand dredger. The operation involves the following sequential stages: The entire mining and extraction process will be conducted in a phased manner to maximize resource recovery while ensuring environmental sustainability. The following steps outline the complete workflow:

1. Site Preparation:

Preliminary Marking of Extraction Zones: The extraction zones will be defined based on the feasibility study and initial geological surveys. Temporary access paths and support facilities will be set up before commencing operations.

2. Mobilization of Equipment

- Transport of dredger, suction/discharge pipes, and auxiliary equipment to the site via Wazirabad Road and local village access roads
- Assembly and launching of the dredger into the designated section of the river near the excavation zone.

3. Positioning & Anchoring

- The dredger is positioned within the allocated coordinates approved by the regulatory authority.
- Anchoring systems and spuds are deployed to maintain stability during operation.

4. Excavation (Dredging) Operation

- The cutter head or suction nozzle is lowered into the riverbed.
- Sand and water mixture is loosened and sucked through the suction pipe.
- Dredging depth is maintained within approved limits (e.g., up to 15–20 m for larger models) to avoid excessive riverbed disturbance.

5. Slurry Pumping & Discharge

- The sand-water mixture (slurry) is pumped through a pipeline to the designated discharge area on the riverbank.

- Discharge points are sited to minimize erosion and protect nearby habitats.

6. Sand Dewatering & Stockpiling

- The slurry is deposited into a containment area where water drains back to the river through controlled channels.
- Sand is left to dry naturally before loading.

7. Loading & Transportation

- Dried sand is loaded onto trucks using front-end loaders or conveyors.
- Transported to market or construction sites via approved road routes.

8. Site Rehabilitation & Demobilization

- Upon completion, the dredger and auxiliary equipment are removed.
- Temporary access points are restored, and any disturbed banks are stabilized.



Figure 5-1: Process Flow Diagram

5.12 HOURS OF OPERATION

The extraction will operate for 10 to 12 hours per day for 6 days per week.

5.13 Site and Operational Parameters

➤ Size

For assessment of the project economic viability, basic parameters including product demand and investment considerations are of major relevance. However, other important considerations also include environment, availability of adequate raw materials for its life-cycle and the basic infrastructure.

5.13.1 Machinery Used

Following table 5-1 details the Type of machinery being used for the proposed project.

Table 5-1: List of Machinery

Category	Equipment / Facilities
Manual Sand Excavation Tools (for small-scale or support tasks)	- Shovels, spades, and hand rakes for minor sand handling- Portable high-bankers and riffle mats for separating coarse debris- Small portable mechanical dredgers for shallow areas
Mechanical Excavation and Dredging Equipment	- Excavators and backhoes for riverbank loading- Cutter suction dredgers or bucket-type mechanical dredgers for in-river excavation- Front-end loaders for stockpile management- Conveyor belts or bucket elevators for sand transfer
Material Handling and Processing Units	- Vibrating screens for removing oversized material and debris- Sand washing units to remove silt and clay particles- Dewatering screens or pits for reducing moisture content before transport
Storage and Transport Equipment	- Dump trucks for sand transportation to market- Transport containers or tippers for bulk loading- On-site covered storage or stockpile areas to protect sand from moisture
Support Facilities and Safety Equipment	- Temporary site office and worker rest shelters- Water pumps and silt curtains for controlling turbidity during dredging- PPE (helmets, life jackets, gloves, boots) for workers- Emergency first-aid kits, fire extinguishers, and rescue boats

5.13.2 Work Force and Work Machinery

The details of the construction staff has been shown below in Table 5-3. The labor will work in one shift of eight (8) hours. The construction machinery which will be utilized for construction is shown in Table 5-2.

Table 5-2: Machinery Requirement

Sr. No.	Type of Machinery	Quantity
1	Excavator	2-4
2	Dumper & Loader	3-6
3	Tractor & Trolley	6-8
4	Water Bowser	2
5	Generator	1
6	Water Pump	2

: List of Construction Staff

Sr. No.	Category of Staff	Tentative Number
1	Supervisor	1
2	Foreman	2
3	Skilled Worker	10
4	Semi-Skilled Worker	20
5	Machinery Operator	8
6	Admin.	1

5.14 Site Layout and Infrastructure

The site layout will include designated zones for extraction, processing, storage, and transportation. Temporary facilities for equipment storage and Labor camps will be set up near high-priority extraction areas to reduce travel time and optimize operations. Internal transportation routes will be established for moving materials between extraction zones and processing units.

5.14.1 Storage and Waste Management

- Temporary Storage Units: Secure storage units for sand will be set on-site.
- Waste Piles and Sediment Management: Unwanted sediment will be stored in controlled piles and used for backfilling and rehabilitation.

5.14.2 Site Layout

The site layout for the mining operations has been designed to optimize the extraction process while minimizing environmental impacts. The layout includes:

1. Extraction Zones:

The designated extraction areas have been selected based on geological surveys and sediment analyses, which indicate high concentrations of deposited sand. These zones are distributed along the 35 km stretch of the riverbed and are segmented to ensure systematic and controlled extraction.

2. Machinery and Equipment Placement:

Heavy machinery, such as dredgers and excavators, will be strategically placed in designated areas to facilitate sediment extraction without disrupting the natural flow of the

river. Portable placer mining equipment will be used in smaller sections to access areas that are not suitable for larger machines.

3. Sediment Management and Processing Units:

Temporary sediment management units will be established near the extraction zones. Sediments will be screened and processed on-site before being transported to the refining facility.

4. Site Facilities:

Support facilities, including administrative offices, equipment storage areas, and temporary worker labor camps will be set up at a central location within the site. Safety zones and monitoring stations will be established to oversee operations and ensure compliance with safety and environmental standards

5. Environmental Protection Zones:

Buffer zones will be maintained between the extraction areas and sensitive ecological habitats to reduce the impact on aquatic and terrestrial life. Silt fences, sediment traps, and diversion channels will be installed as part of the sediment control plan to protect water quality.

6. Transportation Routes:

A network of transportation routes will be established to move raw materials from the extraction zones to the processing units. These routes will be designed to avoid sensitive areas and minimize the disturbance to local communities and wildlife.

5.15 Land Use on the Site

The project site is located entirely within the bed of the River Chenab.. The site is characterized by the dynamic flow of the river, small tributaries, and scattered wetlands that are seasonally inundated. Due to the presence of water throughout the year, the primary land use in the area is associated with the riverine environment and small-scale tourism activities by the local population.

Current Land Use Characteristics:

Riverbed and Wetlands:

- The entire project site comprises the active riverbed, which varies in width depending on seasonal water flow. During dry seasons, the river shrinks to a narrower channel, exposing extensive areas of rocky and sandy riverbed.
- Scattered wetlands are present in low-lying areas along the riverbed. These wetlands provide habitat for aquatic life and are seasonally flooded during high flow periods.

Stone and Gravel Deposits:

- The riverbed is covered with stones, gravel, and alluvial deposits, which are naturally accumulated due to the river's flow. These materials play a role in shaping the river's hydrological and sediment dynamics.

Small Tributaries and Channels:

- Small tributaries and channels are distributed throughout the project area, feeding into the main river. These tributaries support limited aquatic vegetation and serve

Cost and the Magnitude of Operation

The *excavation of sand* project involves significant capital investment of 0.20355 billion. , given the scale and technical requirements of the operation. The cost estimation includes expenses related to infrastructure development, machinery procurement, manpower, environmental management, and post-mining rehabilitation.

5.16 RESTORATION/REHABILITATION AT THE END OF PROJECT LIFE

At the end of the project life of the proposed sand excavation activity using a sand dredger machine, proper restoration and rehabilitation of the site will be undertaken to minimize long-term environmental impacts and ensure landscape stability. The following measures will be implemented:

- **Site Grading and Contouring:** Excavated areas will be levelled and re-contoured to blend with the natural topography and to prevent soil erosion or water stagnation.
- **Backfilling (where applicable):** If feasible, selected areas will be partially backfilled with inert materials to restore original ground conditions, especially in ecologically sensitive zones.
- **Vegetation Restoration:** Indigenous plant species will be reintroduced to promote soil stabilization and habitat recovery. This includes planting grasses and shrubs along riverbanks and disturbed zones.
- **Removal of Equipment and Waste:** All machinery, temporary structures, and residual waste materials will be dismantled and removed from the site to eliminate visual and physical clutter.
- **Water Quality Monitoring:** Post-project, the quality of surface water bodies in the vicinity will be monitored periodically to ensure no residual contamination remains.
- **Stakeholder Engagement:** Local stakeholders will be consulted to ensure rehabilitation aligns with community needs and supports potential future uses such as agriculture, fisheries, or eco-tourism.

These efforts aim to return the site to a safe, stable, and environmentally compatible condition that poses no risk to the surrounding ecosystem or local communities.

Components of the Rehabilitation Program:

1. Landform Stabilization:
 - Disturbed areas, including extraction zones and access paths, will be contoured and stabilized using appropriate techniques such as slope grading, soil compaction, and the addition of rock armoring where necessary.
 - Erosion control measures, such as silt fences and sediment barriers, will be installed to prevent soil loss and maintain riverbank stability.
2. Re-vegetation and Planting Program:

- Native plant species, such as *Tamarix*, *Acacia*, and other drought-resistant shrubs, will be used for re-vegetation. The selection of species will be based on their adaptability to the semi-arid riverine environment and their ability to provide habitat and prevent soil erosion.
 - Scattered wetland areas will be rehabilitated using *Typha* and *Phragmites* to support aquatic biodiversity.
- 3. Soil Management:**
- Nutrient enrichment and soil conditioning will be carried out in areas where soil quality has been degraded due to mining activities. Organic compost and natural fertilizers will be used to restore soil fertility.

4. Water Quality Monitoring and Rehabilitation:
 - Regular water quality monitoring will be conducted during and after the rehabilitation phase to track key parameters such as pH, turbidity, and heavy metal concentrations.
 - Sediment traps and constructed wetlands will be installed in critical areas to filter runoff and reduce turbidity.
5. Removal of Infrastructure and Equipment:
 - All temporary facilities, machinery, and structures used during the mining operations will be dismantled and safely removed from the site.
 - Any contaminated materials will be disposed of according to environmental regulations, and the site will be cleaned of debris and waste.
6. Post-Rehabilitation Monitoring:
 - A comprehensive monitoring program will be established to assess the success of the restoration efforts. This program will run for a minimum of two years after site closure and will include soil quality assessments, vegetation survival rates, and water quality testing.
7. Community Engagement in Rehabilitation:
 - Local communities will be involved in the rehabilitation program, particularly in activities such as re-vegetation and site monitoring. This approach will ensure that the community has a stake in the long-term sustainability of the site.

5.16.1 Expected Outcomes:

The successful implementation of the Restoration and Rehabilitation Program will result in:

- Stabilized riverbanks and restored riparian zones.
- Improved water quality in the River Indus.
- Re-established native vegetation and wildlife habitats.
- A visually restored and ecologically balanced landscape.
- Enhanced long-term land use options for local communities.

5.17 Health, Safety & Hygiene

The *Mining of Precious Minerals / Placer Gold in the River Indus* project will adopt stringent health, safety, and hygiene practices to ensure the well-being of all personnel involved in the operations. Given the challenging riverbed environment and the use of heavy machinery, a comprehensive Health, Safety, and Environmental (HSE) management plan will be implemented. The primary objectives are to prevent accidents, promote safe working conditions, and maintain a high standard of hygiene at the site.

5.17.1 First Aid Facility

To ensure the safety and well-being of personnel during mining operations, first aid provisions will be arranged either by utilizing nearby community health centres or by providing basic first aid facilities at the project site.

5.17.2 Local Health Centre Support:

In case of medical emergencies, nearby community health centres will serve as the primary resource for providing medical care. Agreements will be made with these centres to handle any emergencies related to the project personnel.

5.17.3 On-site First Aid Box:

The project management will ensure the implementation of adequate medical arrangements at the site by the lessee, including the provision of a first aid box. The first aid box will contain essential supplies for treating minor injuries, such as:

- Bandages, antiseptics, and wound care supplies.
- Basic medications such as pain relievers.
- PPE (Personal Protective Equipment) for handling injuries safely.
- Emergency Protocol:
- A clear emergency response plan will be established, outlining the procedures for transporting injured personnel to the local health centres in case of serious injuries. The plan will also include communication protocols and a list of nearby medical facilities.

5.17.4 Safety Trainings

All workers, staff, and visitors to the project site will undergo mandatory safety training sessions. These sessions will be conducted periodically to ensure that everyone is familiar with the health and safety protocols.

- **Induction Training:** All personnel will receive an initial safety induction before commencing work at the site. This training will cover basic safety rules, emergency procedures, and use of Personal Protective Equipment (PPE).
- **Specialized Training for Machinery Operators:** Additional training will be provided to machinery operators on the safe handling of excavators, dredgers, and conveyor systems.
- **Emergency Drills:** Regular emergency drills will be conducted to prepare staff for potential scenarios such as equipment malfunctions, fire, or chemical spills.
- **Refresher Courses:** Periodic refresher courses will be organized to update workers on new safety regulations and best practices.

5.17.5 Use of Drugs and Narcotics

The use of drugs, alcohol, or any other narcotics is strictly prohibited at the project site. A zero-tolerance policy will be enforced to ensure a safe and professional working environment.

- **Drug Testing:** Random drug and alcohol testing will be conducted to discourage substance abuse and identify potential safety risks.
- **Disciplinary Actions:** Any worker found under the influence of drugs or alcohol will be subject to disciplinary action, including suspension or termination of employment.
- **Awareness Campaigns:** Awareness programs will be implemented to educate workers on the risks associated with drug use and promote a healthy lifestyle.

5.17.6 Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) is mandatory for all workers at the project site. The appropriate PPE will be provided based on the nature of the work and the specific hazards associated with each task.

Standard PPE: All personnel will be equipped with helmets, high-visibility vests, safety gloves, steel-toed boots, and protective eyewear

- **Specialized PPE:** Workers involved in excavation, dredging, and material handling will be provided with additional PPE, such as ear protection, dust masks, and harnesses for working at heights.

- **PPE Maintenance:** Regular inspections will be conducted to ensure that PPE is in good condition and provides adequate protection. Damaged or worn-out equipment will be replaced immediately.
- **Training in PPE Usage:** Workers will receive training on the correct usage, maintenance, and storage of PPE to maximize safety.

5.18 Water Requirements

Water is essential for both operational activities and ensuring the health and hygiene of the workforce. Water requirements will be met through a combination of on-site water sources and transported water supplies.

- **Operational Water Use:** Water will be used for sediment processing, dust suppression, and washing equipment. Sediment control measures will be implemented to minimize water wastage.
- **Potable Water Supply:** Clean drinking water will be provided to all workers. Bottled water and water coolers will be placed in various work zones.
- **Hygiene and Sanitation:** Water will be supplied to hygiene facilities, including showers, washrooms, and first aid stations. Proper sanitation practices will be enforced to maintain hygiene at the site.
- **Water Quality Monitoring:** Regular testing will be conducted to ensure that the water used in operations and for consumption is free of contaminants and meets safety standards.

5.19 Solid Waste

The project will generate various types of solid waste, including general waste, packaging materials, and construction debris. A comprehensive solid waste management plan will be implemented to ensure proper handling and disposal.

- **Segregation and Storage:** Waste will be segregated at the source into different categories such as recyclable, hazardous, and general waste. Designated storage areas will be established for each type.

- **Recycling and Reuse:** Recyclable materials such as scrap metal, plastic, and paper will be collected separately and sent to certified recycling facilities.
- **Hazardous Waste:** Hazardous materials, including used oil, batteries, and chemical containers, will be handled in compliance with environmental regulations. Licensed contractors will be engaged for the safe disposal of hazardous waste.
- **Waste Minimization:** Waste minimization strategies, such as reducing packaging and reusing materials on-site, will be promoted to lower the overall waste footprint.
- **Disposal:** Non-recyclable and inert waste will be transported to designated disposal sites in accordance with local regulations and best practices.

5.20 Process Flow Chart

The following process flow chart outlines the key steps in ensuring health, safety, and hygiene at the project site:



This flow chart will be displayed at prominent locations throughout the site to ensure that all personnel are aware of the safety protocols and operational procedures.

6 DESCRIPTION OF THE ENVIRONMENT

6.1 Introduction

This chapter describes the baseline conditions, which cover the existing physical, ecological, and socio-economic environment of the Study Area. Information on these aspects has been derived from the desk study of available data, field visits to the project area as well as information obtained through visits to the Government departments and other agencies namely Irrigation Department, Meteorological Department, Forest offices and prevailing environmental laws and environmental quality standards etc.

6.2 Desk Studies

Project design data was collected from proponents. This data included the available documents, drawings, reports, etc related to the proposed project. The experts conducted a detailed desk study of the above available data before the field visit. Salient features of the Project were thoroughly reviewed to assess their environmental implications. The documents which were consulted and departments visited are Project Head Office, Project Site, Irrigation Department, Meteorological Department, Forest offices and other related officials.

5.9 Site Visits

A team of experts visited the proposed site to collect baseline environmental data for ambient air, noise levels, drinking water and waste water sampling, public consultation, baseline ecological environment data etc. After the survey of the project area the environmental data regarding physical, ecological and socioeconomic aspects were collected for carrying out environmental assessment. Secondary data were also collected from various sources mainly studies carried out by project proponents and reports of other line Departments. A social survey of the proposed area was carried in which people living around the proposed unit site were interviewed to ascertain their views about the project commissioning and operational activities to perceive the impacts on the natural and socioeconomic environment around the proposed project site. This included information on land, surface water, groundwater, air, vegetation, animals and human.

6.3 History of Wazirabad

Wazirabad, located in the northeastern part of Punjab, Pakistan, is a historic city with roots tracing back several centuries. The area is believed to have been settled since the Mughal era, gaining prominence in the late 17th century during the reign of Emperor Shah Jahan. It is traditionally said that the city was named after *Wazir Muhammad Khan*, a local noble and governor who oversaw the construction of roads, bridges, and settlements in the region. During the Sikh period (18th–19th centuries), Wazirabad developed into a strategic administrative and trade center due to its location along the Chenab River and its proximity to key routes connecting Lahore, Gujrat, and Sialkot. The construction of the famous Alexandra Railway Bridge over the Chenab in 1876, during British colonial rule, further boosted its importance as a commercial and transportation hub. Wazirabad has long been known for its craftsmanship, particularly in cutlery manufacturing, earning it the title “*City of Cutlery*”. This industry, which flourished during the colonial era, remains a major economic driver today, with products exported worldwide. In modern times, Wazirabad forms part of District Gujranwala, which is recognized for its industrial base, agricultural productivity, and strong transport links. Its location near the Grand Trunk (GT) Road and the Chenab River continues to sustain its role as a regional trade and manufacturing center.

Geographically, Wazirabad Tehsil is located in the northeast of Punjab, covering an area of about 1,206 km². The land is generally flat and fertile, consisting of a riverine belt along the Chenab River and upland “Bangar” areas, with irrigation provided by the Chenab Canal head-works at Khanki. The tehsil has an average elevation of around 229 meters above sea level. It has a population of nearly one million, with a significant portion living in rural areas and the rest in urban centers. Punjabi is the dominant language spoken, followed by Urdu and several other regional languages. The area is known for its agricultural productivity as well as its cutlery industry, which has gained national and international recognition.



Figure 6-1: Location Map of Wazirabad, District Gujranwala

6.4 Physical Environment

6.4.1 Topography

The topography of Tehsil Wazirabad is generally flat and part of the fertile plains of Punjab, lying within the Rechna Doab between the Chenab and Ravi river systems. The most prominent natural feature is the riverine belt along the Chenab River, which runs along the tehsil's southern and western boundaries, creating rich alluvial soil suitable for intensive agriculture. Away from the river, the land gradually rises into upland areas known as the "Bangar", which are slightly elevated, well-drained, and less prone to flooding. The average elevation of the tehsil is around 229 meters above sea level, with minimal variation, making it ideal for irrigation-based farming. The landscape is dotted with canal networks, most notably fed by the Khanki Headworks, which supply water to both the low-lying riverine tracts and the higher Bangar lands. Overall, the topography supports a blend of agriculture, settlements, and small-scale industry, with no major mountain ranges or steep gradients.

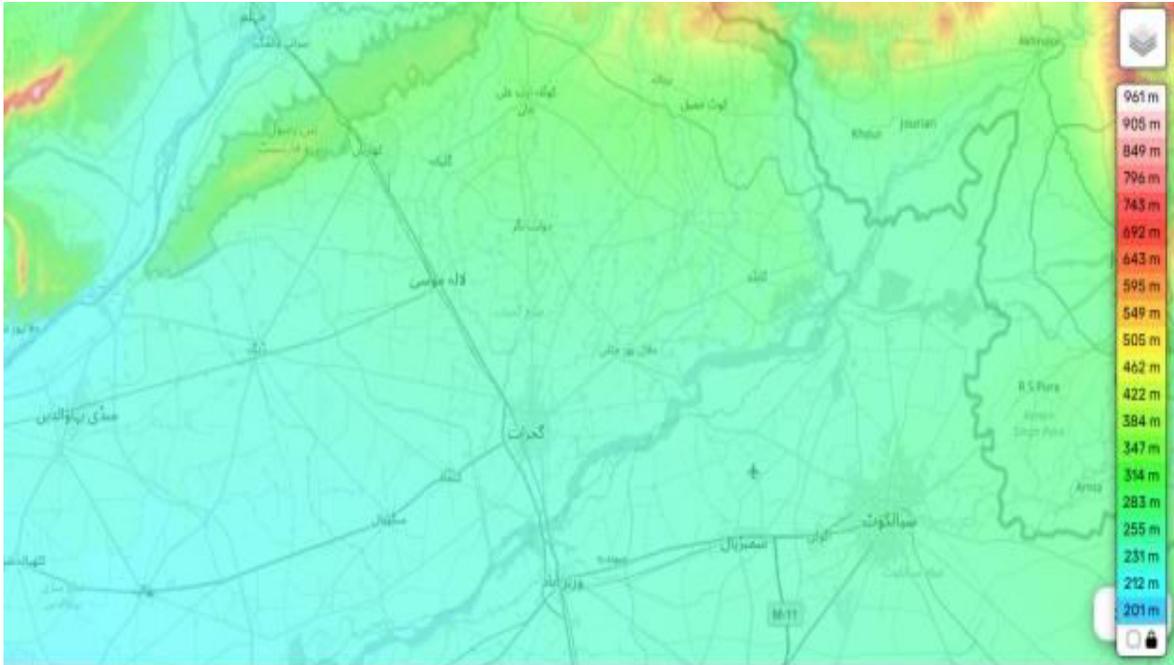


Figure 6-2: Topography of Wazirabad

6.4.2 Geology and Soil

The geology of Tehsil Wazirabad is typical of the alluvial plains of Punjab, formed primarily by the depositional activity of the Chenab River over thousands of years. The subsurface consists mainly of unconsolidated alluvial deposits such as sand, silt, and clay, with occasional gravel layers. These sediments are of Quaternary age and have been brought down from the Himalayan foothills through the river system. The region lacks hard rock formations at shallow depths, with the alluvial layers extending to considerable thickness, making the area suitable for groundwater extraction through shallow and deep tube wells. The soils of Wazirabad Tehsil are predominantly alluvial soils, rich in nutrients and highly fertile. In the riverine belt, the soils are loamy to sandy-loam, well-drained, and suitable for crops like wheat, rice, sugarcane, and vegetables. In the upland “Bangar” areas, the soils tend to be slightly heavier (silty-clay loam) with good moisture-retention capacity but may require proper irrigation for optimal yields. The natural fertility of these soils, coupled with irrigation from the Chenab Canal system, supports intensive agriculture and multiple cropping cycles annually.

6.5 Climate and Meteorology

- **Summer (April to July):** The hot season lasts for 2.7 months, from April 27 to July 18, with an average daily high temperature above 96°F. The hottest month of the year in Wazirabad is June, with an average high of 102°F and low of 79°F.
- **Winter (December to February):** The cool season lasts for 2.6 months, from December 5 to February 23, with an average daily high temperature below 72°F. The coldest month of the year in Wazirabad is January, with an average low of 43°F and high of 65°F.

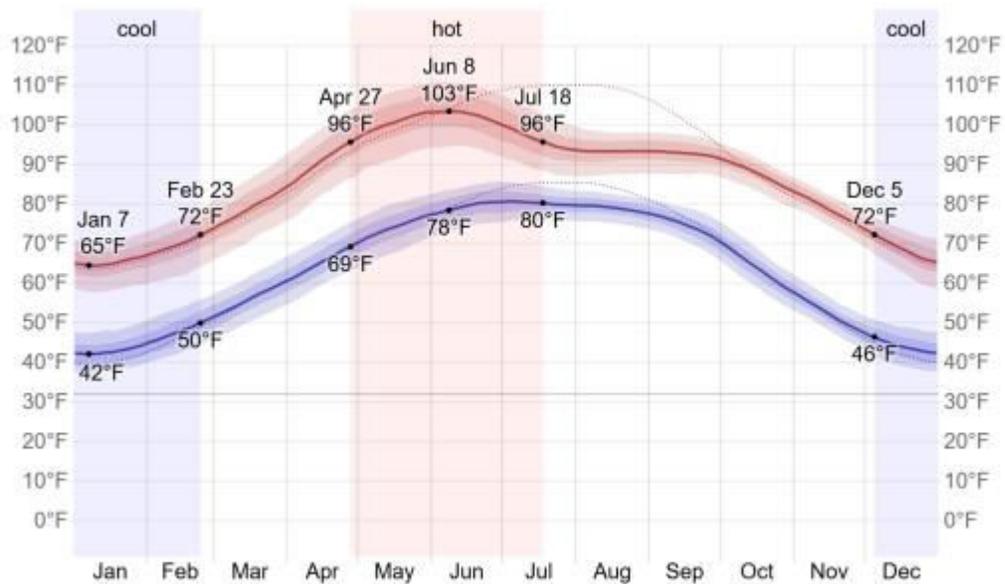


Figure 6-3 Average High and Low Temperature of Wazirabad

- **Rainfall**

To show variation within the months and not just the monthly totals, we show the rainfall accumulated over a sliding 31-day period centered around each day of the year. Wazirabad experiences extreme seasonal variation in monthly rainfall.

- The rainy period of the year lasts for 10 months, from December 11 to October 22, with a sliding 31-day rainfall of at least 0.5 inches. The month with the most rain in Wazirabad is July, with an average rainfall of 6.8 inches.
- The rainless period of the year lasts for 1.7 months, from October 22 to December 11. The month with the least rain in Wazirabad is November, with an average rainfall of 0.3 inches.

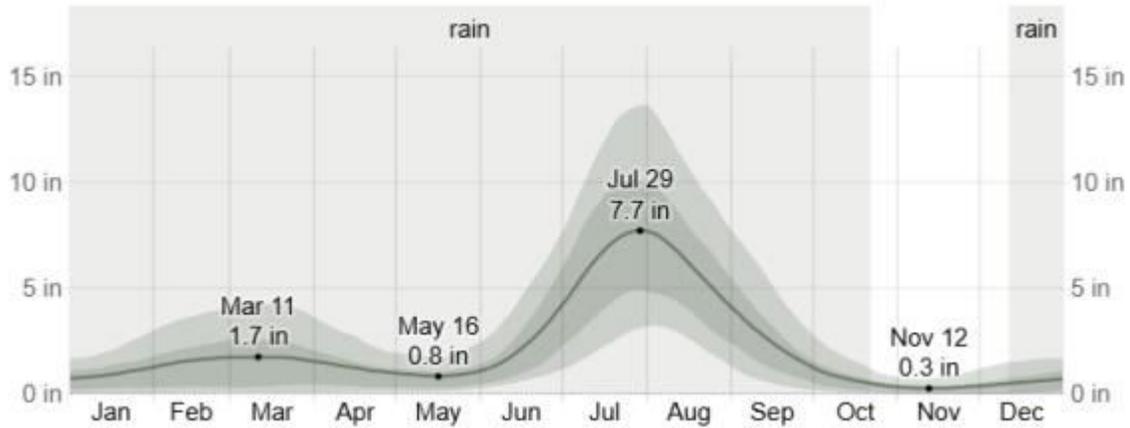


Figure 6-4: Average Monthly Rainfall in Wazirabad

Humidity

Wazirabad experiences extreme seasonal variation in the perceived humidity.

- The muggier period of the year lasts for 4.2 months, from June 6 to October 13, during which time the comfort level is muggy, oppressive, or miserable at least 25% of the time. The month with the most muggy days in Wazirabad is August, with 30.5 days that are muggy or worse.
- The month with the fewest muggy days in Wazirabad is January, with 0.0 days that are muggy or worse.



Figure 6-5 Humidity Comfort level in Wazirabad

6.6 Surface Water Resources:

Tehsil Wazirabad primary surface water resource is the Chenab River, which flows through the area. Additionally, the Upper Chenab Canal system provides irrigation water, and there are also some smaller canals and drains.

1. Chenab River:

The Chenab River is a major river in the Punjab province and forms a significant surface water source for Wazirabad tehsil.

2. Upper Chenab Canal:

This canal system, part of the larger Indus Basin Irrigation System, distributes water from the Chenab River for agricultural use in the region.

3. Other canals and drains:

Besides the main river and canal system, there are smaller canals and drains that contribute to the surface water availability in the area, though they may also be used for drainage purposes.

6.7 Ground Water Resources:

Wazirabad tehsil, located in Gujranwala district, Punjab, Pakistan, relies heavily on groundwater for various uses, including agriculture, drinking water, and industrial activities.

The tehsil has a mix of surface water resources (like the Chenab River) and groundwater resources, with groundwater playing a significant role in supplementing surface water.

1. Extensive Use:

Groundwater is a crucial water source for Wazirabad, especially for irrigation and domestic needs.

2. Canal Irrigation:

The Chenab Canal provides some irrigation, but groundwater is often used to supplement it.

3. Dug Wells and Tube wells:

Both dug wells and tube wells are used for accessing groundwater, though tube wells are more prevalent.

Seismology

Wazirabad Tehsil falls within Seismic Zone 2A of Pakistan. This zone indicates a moderate level of seismic hazard, as defined by the Building Code of Pakistan (BCP) 2007. The tehsil is situated in a region where earthquakes are possible, and building codes are in place to ensure structures can withstand potential seismic activity. Based on data from the past 25 years and our earthquake archive back to 1900, there are about 11.1 quakes on average per year in or near Wazirabad, Punjab Province, Pakistan. However, Wazirabad has had at least 2 quakes above magnitude 5 since 2000, which suggests that larger earthquakes of this size occur infrequently, probably on average approximately every 10 to 15 years

Since 2023, Wazirabad was shaken by 1 quake of magnitude 5.2, 3 quakes between 4.0 and 5.0, 20 quakes between 3.0 and 4.0, and 5 quakes between 2.0 and 3.0. There have been also 6 quakes below magnitude 2.0 which people don't normally feel.

Seismic Zones:

Pakistan is divided into seismic zones based on the potential for earthquakes. Zone 2A represents a moderate level of seismic hazard.

Wazirabad Location:

Wazirabad Tehsil is specifically categorized within Zone 2A, indicating a moderate level of seismic risk for the area.

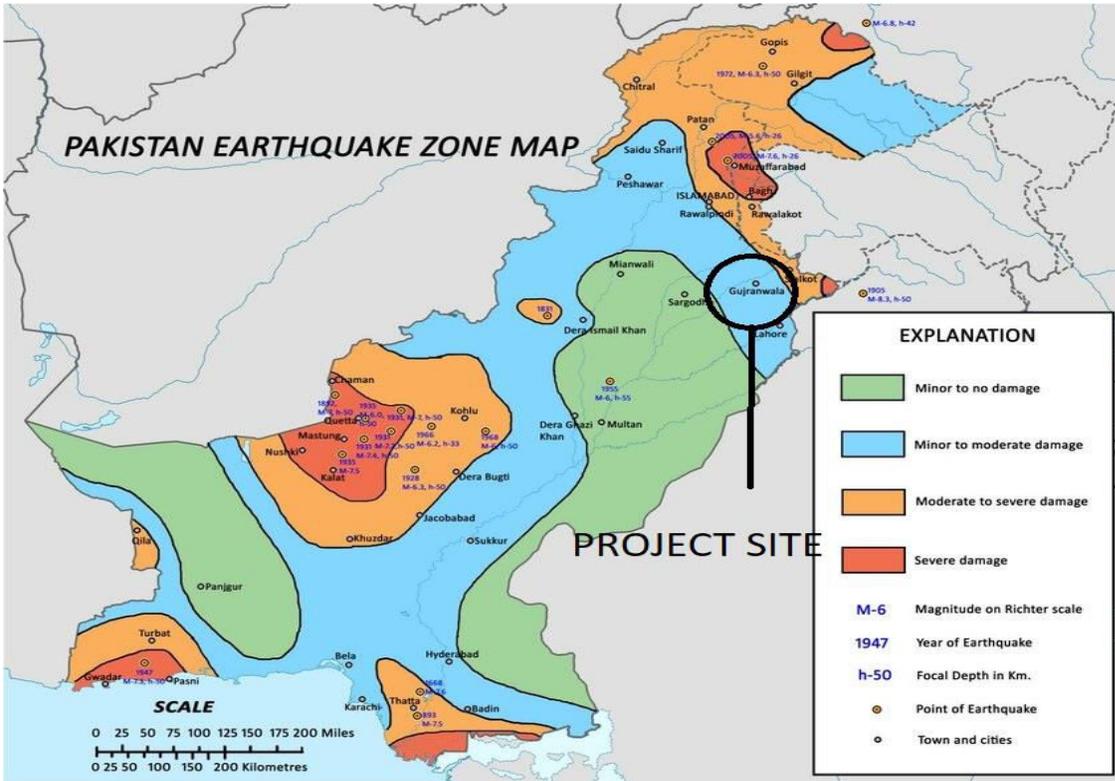


Figure 6-6: Seismic Zone map of Pakistan

Flooding

Wazirabad tehsil has experienced significant flooding due to heavy monsoon rains and overflowing waterways like Nullah Palkhu and the Chenab River. Several areas have been inundated, including Jinnah Colony, Model Colony, Haji Pura, and Gondalpur, with floodwater reaching depths of 4-5 feet, according to Strengthening Participatory Organization. The flooding has prompted rescue operations, including the deployment of army personnel and the establishment of relief camps, to evacuate residents and provide assistance,

Wind Storm

Wind storm activity in Wazirabad, Pakistan, is relatively common during certain parts of the year, particularly in the spring. The windier period typically lasts from late January to late June,

with April being the windiest month. Average wind speeds during this time are around 5.0 miles per hour or higher, with gusts potentially reaching higher speeds.

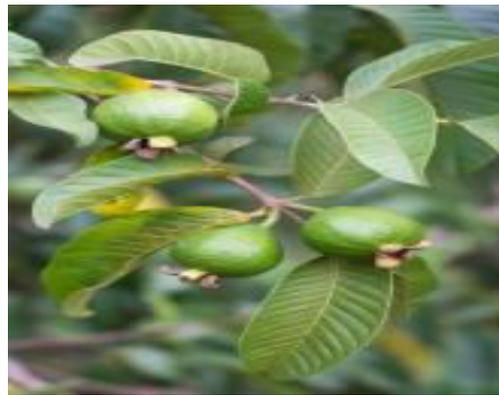
6.8 Ecological Resources

6.8.1 Flora and Fauna

District Gujranwala's flora is dominated by cultivated crops, orchard plants, agroforestry species, and remnants of natural riverine vegetation, shaped by its fertile alluvial soils, subtropical climate, and extensive irrigation network. Major agricultural crops include wheat, rice, sugarcane, maize, fodder species like barseem and sorghum, as well as a variety of vegetables. Orchard cultivation is significant, with citrus (especially kinnow), guava, mango, and pomegranate being prominent. Common agroforestry and roadside trees include shisham (*Dalbergia sissoo*), kikar (*Acacia nilotica*), bair (*Ziziphus mauritiana*), eucalyptus, neem, poplar, and mulberry, serving purposes from timber to shade and fuel. The natural vegetation, largely restricted to the Chenab River's floodplains and canal banks, features species such as kans grass (*Saccharum bengalense*), cattail (*Typha angustifolia*), and athel tree (*Tamarix aphylla*), which support local biodiversity despite ongoing pressures from agriculture and urban expansion.



Chick Pea (*Cicer arietinum*)



Guava (*Psidium guajava*)

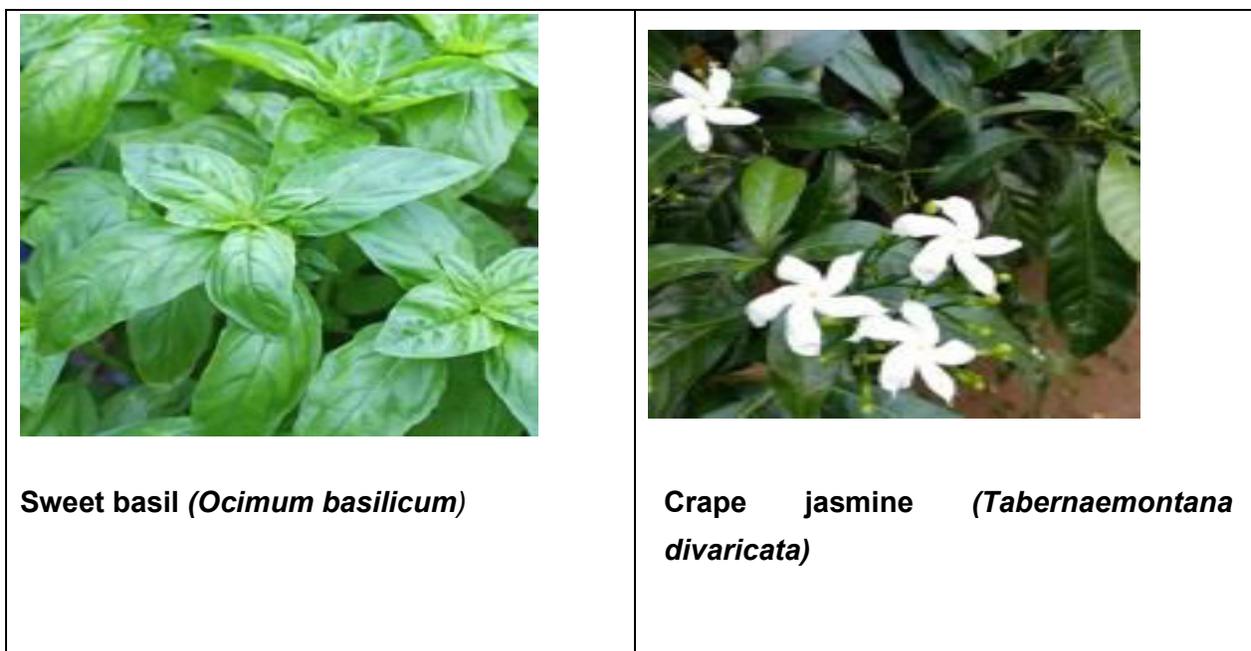


Figure 6-7 Flora of District Gujranwala

Flora

The area around Head Khanki, particularly in the Thatti Baloch Zone of Tehsil Wazirabad, District Gujranwala, supports a variety of native and cultivated floral species due to its fertile alluvial soils and proximity to the Chenab River. Common tree species include *Dalbergia sissoo* (Shisham), *Acacia nilotica* (Kikar), *Azadirachta indica* (Neem), and *Ficus religiosa* (Peepal), which provide shade and help stabilize riverbanks. Shrub and grass species such as *Saccharum bengalense* (Kana grass) and *Cynodon dactylon* (Doob grass) are widespread along the embankments, playing a role in soil conservation. Seasonal crops and flowering plants, including mustard, sunflowers, and marigolds, are also grown in the surrounding agricultural fields, contributing to the region’s scenic and ecological diversity.

Table 6-1: Flora Around Head Khanki, Thatti Balooch Zone

Common Name	Scientific Name	IUCN Status
Shish am	<i>Dalbergia sissoo</i>	LC
Kikar	<i>Acacia nilotica</i>	LC

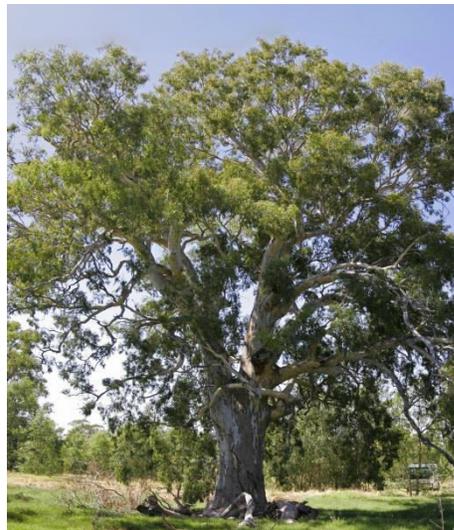
Bair	<i>Sisyphus mauritiana</i>	LC
Eucalyptus	<i>Eucalyptus camaldulensis</i>	LC
Neem	<i>Azadirachta indica</i>	LC
Poplar	<i>Populus deltoides</i>	LC
Mulberry	<i>Morus Alba</i>	LC
Kans Grass	<i>Saccharin bengalense</i>	NE
Cattail	<i>Tippah angustifolia</i>	LC
Athel Tree	<i>Tamarix aphylla</i>	LC

LC: Least Concern

NE: Not Evaluated



Poplar (*Populus deltoides*)



Eucalyptus (*Eucalyptus camaldulensis*)

Fauna of The Project Site

The fauna of the project area around Head Khanki, Thhati Balooch zone, Wazirabad, District Gujranwala is diverse, ranging from wild species near the River Chenab to urban-adapted animals within the city. Common wild mammals include the Indian wild boar, Asiatic jackal, Indian fox, jungle cat, Indian pangolin, and long-eared desert hedgehog, while smaller mammals like the northern palm squirrel, house mouse, and house shrew thrive in populated areas. Birdlife is rich, with over 40 species recorded in parks, gardens, and canal areas. Aquatic habitats host various fish species, and herpetofauna such as reptiles and amphibians are also present. Insects, especially Vespidae wasps like *Vespa orientalis* and *Polistes* species, play key ecological roles as natural pest controllers. This biodiversity reflects both natural ecosystems and human-modified landscapes of Gujranwala.

	
<p>Painted Grasshopper (<i>Poekilocerus pictus</i>)</p>	<p>Blue Pancy (<i>Junonia orithiya</i>)</p>
	
<p>Golden Jackal (<i>Canis aureus</i>)</p>	<p>Bluethroat (<i>Luscinia svecica</i>)</p>

Figure 6-8: Fauna of the project area

Table 6-2: Fauna of Gujranwala district, including their scientific names and IUCN conservation status:

Common name	Scientific name	IUCN
Indian (Bengal) fox	<i>Vulpes bengalens</i>	LC
Jungle cat	<i>Felis chaus</i>	LC
House mouse	<i>Mus musculus</i>	LC
Black rat	<i>Rattus rattus</i>	LC
Etruscan (or pygmy) shrew	<i>Suncus etruscus</i>	LC
Cattle egret	<i>Bubulcus ibis</i>	LC
Little egret	<i>Egretta garzetta</i>	LC
House crow	<i>Corvus splendens</i>	LC
House sparrow	<i>Passer domesticus</i>	LC
Barn swallow	<i>Hirundo rustica</i>	LC
Rohu (common freshwater fish)	<i>Labeo rohita</i>	LC
Common agama	<i>Calotes versicolor</i>	LC
House gecko (species group)	<i>Hemidactylus spp.</i>	LC / NE
Oriental hornet / wasp (examples)	Vespa orientalis, Polistes spp	Mostly Not Evaluated or not assessed at global level

LC: Least Concern

EN: Endangered

NE: Not Evaluated

6.9 Socio-Economic Environment

6.9.1 History

The city was founded by Wazir Khan, the governor and later Grand Vizier of Mughal Emperor Shah Jahan, in the 17th century. The town was taken over by Charat Singh around 1760, together with other towns in the district. Maharaja Ranjit Singh occupied the town in 1809, and Avitabile was appointed as the Nazim of the city. In 1855, Jarral Rajputs of Rajouri's own Saman Burj Wazirabad ruled Wazirabad. He built an entirely new town, with a straight, broad bazaar running through it and side streets at right angles.



Figure.8 Map of Wazirabad

6.9.2 Agriculture activities

Tehsil Wazirabad agriculture sector is characterized by a mix of crop cultivation and livestock farming. The primary crops include wheat and rice, with other crops like cotton and sugarcane also grown. Livestock rearing, particularly of cattle and water buffaloes, is also a significant activity. The fertile lands of the Chenab River basin contribute to the area's agricultural productivity.

6.9.3 Industrial activities

Tehsil Wazirabad is known for its industrial activities, particularly in the manufacturing of cutlery, surgical instruments, and ceramics. It's often referred to as the "City of Cutlery" due to its prominent role in producing high-quality knives, scissors, and related tools. Additionally, the area has a significant number of small and medium manufacturing units for cutlery and stainless utensils.

6.10 Quality of life values

6.10.1 Demographic Survey

As of the 2023 census, Wazirabad district has 142,381 households and a population of 993,412. The district has a sex ratio of 100.19 males to 100 females and a literacy rate of 77.39%: 79.18% for males and 75.62% for females. 271,868 (27.37% of the surveyed population) are under 10 years of age. 369,009 (37.15%) live in urban areas.

6.10.2 Cultural and social status

Gujranwala is a historical and cultural centre in the northeast region of the Punjab province, offering a number of sights and activities. The city hosts bodybuilding tournaments, Kabaddi matches, and weightlifting competitions. Food is another thing Gujranwala is known for. The city has developed a very distinct kind of barbecue foods. Gujranwala has a lot of tourist attractions and places of interest. There are many modern shopping malls where the visitors can enjoy shopping in controlled environment and can buy local and international brands. There is an Officers' Club which has a swimming pool and squash complex, with the scenic natural beauty of Gujranwala Golf and Country Club. There are modern, innovative landmarks like Jinnah Stadium, Pace Shopping Centre and Nishan-e-Manzil. Jinnah Park, Model Town Park, Gulshan Park, Liaqat Park and other recreational places ensure that the city offers something for everyone.

6.10.3 Religion

The majority religion in Wazirabad is Islam. In the Wazirabad Tehsil, approximately 96.39% of the population identifies as Muslim. While there is a Christian minority in the tehsil, their population is significantly smaller, comprising roughly 3.52%

Table 6-3: Religion in Wazirabad district (2023)

Religion	Percent
Islam	96.39%
Christianity	3.52%
Other or not stated	0.09%

6.10.4 : Languages

At the 2023 census, 94.06% of the population identified Punjabi and 4.72% Urdu as their first language.

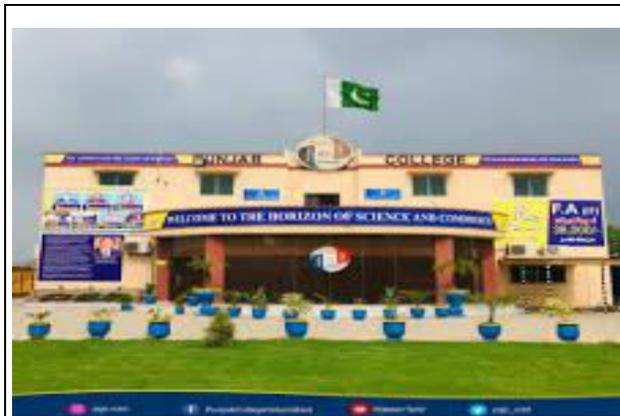
6.10.5 Instituion

- Wazirabad is industrial city which is located under the supervision of Gujranwala District in Punjab province. There are many educational institutions in public and private sectors which are paying their best efforts to provide latest educational services in the Wazirabad region for the local community located here.
- Colleges/Universities in Wazirabad such as Govt. Institute of Commerce, Govt. Vocational Training Institute (W), Cutlery & Small Tools Industry Service Centre are contributing their vital role to educate the entire population located in this area by offering various educational opportunities and courses.
- Among the list of colleges/Universities in Wazirabad the educational institutions like Women Government Degree College, City Science College, Punjab College, Madina University, Technical College and Dilawar Institute Of Technology are offering leading educational services for the students. Numerous other educational government and private institutions are also certifying their role in education zone to develop the vigorous nation.

- Colleges/Universities in Wazirabad are offering their unique educational services for the students to build the healthy sound mind nation. You can see the list of educational institutes from here just in one place

Table 6-4: Institution in Wazirabad

Total Universities in Wazirabad	0
Total Colleges in Wazirabad	2
Courses for Intermediate studies	6
Courses for Bachelor studies	3
Courses for Masters studies	1
Courses for Diplomas & Certificates	0
Government/public institutions	0
Private institutions	1



Punjab Group of Colleges Wazirabad



Wazirabad Institute of Cardiology

Figure 6-9: Institutes of the Project are

6.10.6 Transportation

Wazirabad, a city in Punjab, Pakistan, is well-connected for transportation. It has access to the M2 Motorway via Hafizabad, and is also linked by the railway network. Local transportation within Wazirabad includes buses, taxis, and auto-rickshaws. Additionally,

Wazirabad is a hub for long-distance travel, offering routes to major cities like Lahore, Islamabad, and Karachi.

6.10.7 Land Use

Wazirabad land use is characterized by a mix of residential, commercial, industrial, and agricultural areas, with a strong emphasis on its cutlery and hardware industries. The city is known for its cutlery industries, and it also features a small industrial estate, highlighting its industrial significance. Additionally, Wazirabad has agricultural land, particularly in the outskirts and along the Chenab River, and also includes residential areas and commercial zones.

6.10.8 Health Facilities

Wazirabad offers a range of healthcare facilities including hospitals, clinics, and specialized centers. These facilities cover primary care, maternal and child health, diagnostic services, and more. Some notable examples include the Wazirabad Institute of Cardiology, Hawwa Memorial Hospital, and various clinics specializing in areas like diet management, and dentistry.

6.11 Social amenities in project area

Wazirabad offers basic social amenities including access to clean drinking water, solid waste management, and sewerage systems for a significant portion of households. The city also has a network of roads, streetlights, and parks with amenities like swings, walking tracks, and drinking water. Additionally, charitable organizations in Wazirabad provide support through healthcare, education, and food distribution initiatives, particularly for underprivileged families and individuals

6.12 Implementation of Gender Action Plan

The implementation of a gender action plan in Gujranwala, as part of broader efforts in Pakistan, would involve integrating gender equality considerations into all aspects of planning, policy-making, and project implementation. This includes ensuring women's equal participation and benefit from development initiatives, addressing gender-based violence, and promoting women's economic empowerment. The implementation of a gender action plan in Gujranwala would require a comprehensive and coordinated approach, involving all

stakeholders and focusing on both policy and programmatic interventions to promote gender equality and women's empowerment.

7 SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

7.1 General

The importance of impact assessment in EIA cannot be overstated, as it serves as a fundamental tool for evaluating and understanding the potential effects of a proposed project on the environment. Impact assessment systematically identifies, predicts, and evaluates the anticipated positive and negative consequences of a project, considering various environmental aspects such as air and water quality, biodiversity, soil health, and community well-being. This process is pivotal in informed decision-making, enabling stakeholders to assess the trade-offs and make choices that balance development with environmental conservation. The impact assessment phase provides a comprehensive understanding of the project's potential impacts, allowing for the development of effective mitigation measures and strategies to minimize or eliminate adverse effects. Additionally, it fosters transparency and accountability by providing a basis for public consultation and engagement, ensuring that the concerns and perspectives of affected communities are considered. Overall, impact assessment in EIA is essential for promoting sustainable development practices, preventing environmental degradation, and fostering responsible and informed decision-making in the planning and execution of projects.

7.2 Project Area of Influence

Before commencing the environmental analysis of the project, it is essential to define the specific area of influence. While the primary construction activities will be contained within predetermined boundaries, there are certain aspects where construction-related tasks may extend beyond these confines. These include

- Establishment of construction camps and erection of material grinding plants on temporarily acquired land
- Borrowing soil material from temporarily acquired land
- Quarrying aggregate material; and Construction of haul tracks for transportation of construction material, etc.

Environmental impacts have been identified within the Project Area of Influence; which lies within 0.5 km boundary of the proposed plant building. Therefore, the identification of Project impacts and recommendations of mitigation measures will be limited within this area.

7.3 Methodology for impact assessment

In conducting the impact assessment for the project, a comprehensive methodology was adopted, encompassing both qualitative and quantitative assessments to provide a well-rounded understanding of potential effects. The qualitative assessment involved a systematic and in-depth analysis of the project's potential impacts on various environmental and social aspects. This included considering factors such as air and water quality, biodiversity, community health, and cultural heritage. Qualitative data, often derived from expert opinions, literature reviews, and consultations, were employed to evaluate the significance of these impacts. Simultaneously, a quantitative assessment was carried out to provide a numerical representation of specific parameters, allowing for a more precise measurement of the potential consequences. This involved data collection through field measurements, modeling, and statistical analyses to quantify environmental and social variables. The combination of qualitative and quantitative assessments ensured a holistic and rigorous evaluation, enabling a more nuanced understanding of the project's potential impacts and contributing to the formulation of effective mitigation strategies.

7.4 Project Design related Environmental Problems

The design of the sand excavation project has been developed with a clear emphasis on minimizing environmental impacts while ensuring safe and efficient operational execution. The layout and methodology follow established standard operating procedures (SOPs), including careful site demarcation, dredging techniques, controlled vehicle movement, and sediment management strategies. These measures are intended to prevent soil erosion, reduce turbidity in nearby water bodies, and safeguard aquatic ecosystems during excavation activities. Additionally, the project integrates essential mitigation elements such as sediment traps and buffer zones to control runoff and protect surrounding land uses. To promote ecological balance, a vegetation restoration plan is proposed for areas temporarily disturbed during operations. This includes replantation of native shrubs and grasses along the banks to stabilize soil and enhance habitat conditions post-extraction. The project's design reflects a

conscientious approach that balances resource utilization with environmental stewardship, aiming to ensure minimal ecological disruption and long-term site restoration. This integrated strategy supports not only regulatory compliance but also sustainable sand resource management.

7.5 Impacts during Pre-operational Phase

The detailed risk Matrix of Operational phase is shown in the table.

Table 7-1: Screening of Possible impacts during Pre-operation Phase

S/No.	Potential Issue	Likelihood (Certain, Likely, Unlikely, Rare)	Consequence (Catastrophic, Major, Moderate, Minor)	Risk Level (Significant Medium, Low)	Residual Impact (Short term, Long term)
1	Land Disturbance during Mobilization of dredgers and support boats	Likely	Major	Medium	Short Term
2	Sediment disturbance during anchoring/setup	Likely	Major	Medium	Long Term
3	Increase in noise and vibrations	Rare	Major	Medium	Long Term
4	Temporary increase in air emissions from machinery.	Unlikely	Major	Medium	Short Term
5	Temporary traffic congestion from equipment delivery	Unlikely	Major	Medium	Short Term
6	Risk of fuel/oil leaks during mobilization	Unlikely	Major	Medium	Short Term
7	Waste from packaging	Unlikely	Moderate	Medium	Short

	and mobilization material				Term
9	Possible increase in turbidity during pre-start testing of dredger near shore.	Unlikely	Moderate	Low	No residual Impact
10	Risk of slips, trips, or accidents during unloading and assembly of dredger.	Likely	Moderate	Low	Long Term
11	Increased human activity and noise levels in the project area before operations.	Unlikely	Moderate	Low	No residual Impact

- Critical Risk Level
- Significant Risk Level
- Medium Risk Level
- Low Risk Level

Table 7-2: Summary of Major Impacts during Operational Phase

S/No.	Potential Issue	Likelihood (Certain, Likely, Unlikely, Rare)	Consequence (Catastrophic, Major, Moderate, Minor)	Risk Level (Significant Medium, Low)	Residual Impact (Short term, Long term)
	Air Quality: Emissions From dredger machines and	Likely	Major	Medium	Short Term

	generators may affect local air quality due to the release of dust and exhaust gases.				
	Noise- Noise due to Excavation activity,	Likely	Major	Medium	Long Term
	Water Quality Degradation due to Increase in turbidity, sediment dispersion, contamination of downstream water	Likely	Major	Medium	Long Term
	Health & Safety Issues- different activities at the project site may cause health and safety issues for workers.	Likely	Major	Medium	Short Term
	Land Resource: Soil Erosion and Bank Instability	Likely	Major	Medium	Short Term
	Solid waste	Likely	Major	Medium	Short Term
	Traffic and Transport Impacts	Unlikely	Major	Medium	Short Term
	Climate Change	Likely	Moderate	Medium	Short Term
	Flora & Fauna	Unlikely	Moderate	Low	No residual Impact
	Community Amenity	Likely	Moderate	Low	Short Term

	Local Economy, Community Development and Employment	Likely	Moderate	Low	No residual Impact
	Resettlement	Likely	Major	-	-

-  Critical Risk Level
-  Significant Risk Level
-  Medium Risk Level
-  Low Risk Level

7.5.1 Summary of Impacts and their Mitigation Measures

Table 7-3: Summary of Impacts and their Mitigation Measures During pre-operational phase

Impacts	Mitigation Measures
Land Clearing and Site Preparation	
<ul style="list-style-type: none"> • Minor vegetation may be cleared for access paths, dredger docking, or temporary campsites, potentially disturbing soil and habitats 	Minimize clearance to essential areas only. - Avoid ecologically sensitive zones.
Dust Generation from Vehicle Movement	
Movement of trucks and machinery on unpaved or dirt roads can raise dust, affecting air quality and nearby vegetation or settlements.	- Water sprinkling on access routes. - Limit vehicle speed. - Use covered trucks for material
Noise from Equipment Mobilization	
<ul style="list-style-type: none"> ➤ Mobilization of dredgers and support vehicles can cause temporary noise pollution, affecting wildlife and nearby communities 	- Limit mobilization during daytime. - Use noise-muffling equipment. - Provide PPE to workers.
Improper Material Storage	

<p>If fuels, lubricants, or construction materials (pipes, cement, etc.) are improperly stored, they may lead to soil or water contamination.</p>	<p>- Store materials on impermeable surfaces. - Use spill containment systems</p>
<p>Solid Waste Generation</p>	
<p>Camps and early site activities may produce food waste, packaging, and minor construction waste.</p>	<p>Place bins for segregated waste. - Contract licensed waste collectors for disposal.</p>
<p>Health and Sanitation Issues for Workers</p>	<p>Inadequate facilities can lead to spread of disease and poor hygiene in camps.</p>
<p>Visual Intrusion and Aesthetic Impacts</p>	<p>Initial presence of machinery and camps may degrade scenic views.</p>

Table 7-4: Summary of Impacts and their Mitigation Measures During operational phase

Impacts	Mitigation Measures
LAND ENVIRONMENT	
<ul style="list-style-type: none"> • Obstruction in river flow / course. • Erosion of channel bed and banks. • Increase in channel slope. • Change in channel morphology. • Impact on stream's physical characteristics, such as channel geometry, bed elevation in stream roughness of the bed, flow velocity, discharge capacity, sediment transportation capacity etc • Impact on ecological equilibrium of Riverine regime. 	<ul style="list-style-type: none"> ➤ Extraction of sand will be started from dip side towards rise at the centre and also laterally in 1.0m slice. Unwanted material or spillage (if any) will not be stacked by the side of the excavation voids created. Excavation will be carried out in a manner so that water flow / course will not be obstructed. ➤ Extraction is to be done leaving safety barrier or offset on both sides and maximum barrier should be on concave side of river preferably the flow channel (excavation void created) should be kept straight so as to help avoid erosion as side cutting or collapsing. ➤ Safety zone or buffer area will be created from the river banks to minimize the instability & erosion and to increase the stability of structures. These safety zones will not be mined out ➤ Quantities will be strictly limited so that sand accumulation rates are sufficient to avoid extended impacts on channel morphology ➤ Extraction will be carried out as per approved Mine Plan in scientific and systematic way.

	<ul style="list-style-type: none"> ➤ Sand Extraction will be restricted down to 3.0m below river bed or 1.0m above the ground water table, whichever less. Therefore, the extraction will not intersect the ground water table ➤ The project working will remain confined to river bed only and in no case mining will disturb any surface area outside the river bed which may affect topography or drainage ➤ The extraction from river bed will not have impact on natural drainage of surrounding areas as the excavated sand from river bed is filled with first heavy flow in river during monsoon season.
WATER ENVIRONMENT	
<ul style="list-style-type: none"> • Flow pattern might be changed due to river bed extraction. • Project activities depth will be increased, which may result in increase of flow velocity 	<ul style="list-style-type: none"> ➤ No diversion is proposed. There will not be any adverse impact on flow pattern, surface hydrology and ground water regime. ➤ Extraction activities will be restricted to 3.0m depth, which will not cause much change in flow pattern of the river ➤ An offset will be left from both sides of river, which will minimize the chances of bank failure
<ul style="list-style-type: none"> • Change in surface water quality and ground water quality 	<ul style="list-style-type: none"> ➤ There will be no change in surface water quality as river is seasonal. ➤ Ground water quality will not be affected due to mining activities as it is

	<p>restricted to 3.0m depth and the water level is 9-15 m below the surface of river bed.</p> <ul style="list-style-type: none"> ➤ The extraction will not be allowed below the water table ➤ Regular monitoring of water samples will be done as precautionary measures.
<ul style="list-style-type: none"> • Impact on ground water recharge potential as the thickness of the natural filter materials (sediments) is reduce causing less infiltration 	<p>Extraction will be done as per approved Mine Plan and applicable Rules & Regulation, so that there is no damage on ground water recharge potential due to sand extraction.</p>
<ul style="list-style-type: none"> • Waste water discharge. 	<ul style="list-style-type: none"> ➤ Portable Bio-toilets will be used; hence no sewage / liquid effluent will be generated and contamination is also not expected due to percolation.
<p>AIR POLLUTION & DUST EMISSIONS</p>	

<ul style="list-style-type: none"> • Release of dust emissions from the excavation operations • Release of combustion emissions from transport associated with transport of materials to and from the site 	<ul style="list-style-type: none"> ➤ Use of best practice management techniques during extraction and loading of raw materials. ➤ Use of new, efficient vehicles, driver training to minimize emissions (e.g. prevention of over revving, shut off engines when vehicles not in use), proper maintenance, rationalization of traffic management system to optimize transport efficiency
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NOISE

<ul style="list-style-type: none"> • Transportation of heavy machinery and construction materials to and from the excavation site is expected to generate dust emissions, particularly in dry weather conditions. • Movement of project-related vehicles on unpaved (un-metaled) and dirt roads will lead to significant dust dispersion into the surrounding air. • Repeated use of dirt tracks and temporary haul roads by excavation equipment may elevate airborne particulate matter in the project area. • Drilling or digging of deep holes and excavation of sand can generate localized dust plumes, especially under windy conditions. 	<ul style="list-style-type: none"> • Vehicles transporting sand and materials will be covered with tarpaulins to prevent dust dispersion. • Overloading of vehicles will be strictly avoided to minimize spillage and road dust. • Water will be regularly sprinkled on un-metaled and dirt roads to suppress dust. • Vehicle speeds will be restricted on unpaved roads to control dust emissions. • Excavation and drilling activities will be avoided during high wind conditions. • Dust suppression measures like mist spraying will be implemented during excavation. • Only the necessary area will be excavated at a time to minimize exposed surfaces. • Machinery and project vehicles will be kept well-maintained and regularly
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<ul style="list-style-type: none"> Exhaust emissions and combustion products from diesel-powered machinery and transportation vehicles will contribute to localized air pollution, including the release of CO₂, NO_x, SO₂, and particulate matter (PM₁₀ and PM_{2.5}). 	<p>serviced.</p> <ul style="list-style-type: none"> Use of smoke-emitting and poorly maintained vehicles will be strictly prohibited. Low-emission fuel options (e.g., low-sulfur diesel) will be used where possible. Wind barriers or temporary fencing will be installed around excavation areas if needed. All workers in dusty environments will be provided with appropriate personal protective equipment (PPE), including face masks.
<p>BIOLOGICAL ENVIRONMENT</p>	
<p>Temporary road: Short-term disturbance in habitats of wildlife populations from noise (impacts usually local and short-term)</p>	<p>Do not cut trees that are larger in diameter than local regulations permit, or in the absence of regulations, greater than 90 cm.</p>
<p>Erosion and changes in surface hydrology, causing short and possible long term changes in local habitats</p>	<ul style="list-style-type: none"> ➤ Take topography, natural drainage and site runoff patterns into account. Ensure adequate drainage away from streams, river and other waterways.

<ul style="list-style-type: none"> ➤ Short-term disturbance of habitats from traffic; short-term disturbance of wildlife populations from noise. ➤ Compaction of soils and changes in surface hydrology. ➤ Hunting of local wildlife. 	<ul style="list-style-type: none"> ➤ Keep traffic to the absolute minimum requirements. ➤ Impose and enforce speed limits and provide driving guidelines for vehicle operators. ➤ Treat (water) road surfaces to manage dust. ➤ Allow only authorized employee access to site(s) transportation
SOCIO-ECONOMIC ENVIRONMENT	
<p>Habitation: No loss of habitation.</p>	<ul style="list-style-type: none"> ➤ There is no nearby habitation.
<p>Employment Generation:</p> <ul style="list-style-type: none"> ➤ Direct employment. ➤ Indirect employment to about 268 persons. ➤ Improved income expenditure. ➤ Improved micro investments– savings patterns 	<ul style="list-style-type: none"> ➤ Local people will be employed. ➤ Training will be provided to non workers and unskilled workers. ➤ Awareness programme to motivate people for savings and investment.

Health Impacts

➤ Health impacts on mental, physical and social well-being: The proposed project will not adversely impact the mental physical and social wellbeing. It will improve the well-being of the people and the area

➤ Expectations in fair pay, employee care, social responsibility commitments etc. will be timely met. Grievance redressal mechanism is made to handle complaints from the study area.

8 ENVIRONMENTAL MANAGEMENT PLAN & MONITORING PLAN

As desired by the matrix/mandate of the officially approved EIA Report guidelines, the Environmental Management Plan (EMP) presented in this section highlights the followings:

- i. Mitigation / Compensation Measures during Lease Development Phase
- ii. Mitigation / Compensation Measures during Operation Phase
- iii. Environmental Monitoring
- iv. Training Needs
- v. Construction Traffic Management Plan

8.1 Institutional Capacity

The overall responsibility for compliance with the environmental management plan rests with the project proponent. He will appoint a HSE/Project Manager of relevant qualification. HSE/Project Manager will act as Environmental Manager and will manage all HSE conditions at the PEQS.

A certain degree of redundancy is inevitable across all management levels, but this is in order to ensure that compliance with the environmental management plan is crosschecked.

Following functionaries will be involved in the implementation of EMP

- Project Proponent
- HSE Officer
- In-Charge Administration
- Supervisor of project

8.2 Training Schedule

Trainings will be conducted at unit after completion of constructional phase; It will be imparted by a team of experienced trainers.



Figure 8-1: Institutional Capacity for the implementation of EMP

Management will hire HSE officer, HSE officer will be responsible for conducting the training of the labor, which will be organized either by the management of project or by the contractor. Following schedules of training will be implemented:

Table 8-1 Training Program

Sr. No	Description of program	Labor / Personnel involved	Time/ duration
1)	General HSE Training	Trainers and whole labor	Quarterly for 1 hour
2)	Instrument use/ workplace specific items	Trainers and whole labor	Quarterly for 1 hour
3)	PPEs use and safe work practices at work site.	Trainers and whole labor	Quarterly for 1 hour
4)	Reporting and investigating accidents/ incidents	Trainers and whole labor	Quarterly for 1 hour
5)	Emergency procedures	Trainers and whole labor	Quarterly for 1 hour
6)	Medical and first aid	Trainers and whole labor	Quarterly for 1 hour
7)	Health and safety promotion	Trainers and whole Labor	Quarterly for 1 hour

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. HSE/Project Manager should play a key role in this respect and arrange the training programs. HSE/Project Manager will

provide training to staff and workers about the best environmental management practices at the construction site and effective implementation of the EMMP. The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality Standards (PEQS), Usage of personal protection equipment's, and health and safety related issues on the construction site.

The HSE/Project Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually Transmitted Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work. Training should also consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation.

8.3 Training of Contractor

Training of building contractor & workers will be the part of the TORs regarding the construction of the scheme.

TORs will be including the training and submission of reports in the following area

- 1) Handling of Machineries in a safe way
- 2) Use of PPEs
- 3) Maintenance of vehicles and submission of Environmental Monitoring Reports
- 4) Maintenance of Water Consumption records
- 5) Testing of water and waste water and submission of Environmental Monitoring Reports
- 6) Placement of safety signs/boards during construction
- 7) Sprinkling of water on the roads and dusty tracks
- 8) Monitoring of generator emissions

Training regarding all other aspects of HSE will be ensured by the contractor during the construction phase.

8.4 Equipment Maintenance Detail

The management of the subject project will maintain records for Health, Safety & Environment and will hire Environmental / unit manager to check and deal with the unit issues. All mobile equipment is to be inspected and maintained according to the following Equipment Inspection Schedule as a minimum. Records of all inspections and maintenance are completed and maintained for review and approval.

Maintenance of equipment, release of lubrication fluids, etc., is performed only in approved areas. Spills and leaks from equipment are cleaned up promptly.

Table 8-2: Equipment Maintenance Details

Equipment	Type of Maintenance	Frequency	Responsible Personnel	Maintenance Location	Environmental Safeguards
Sand Dredger	Engine check, oil change, pump inspection	Weekly / Monthly	Mechanical Supervisor	On-site (designated area)	Use spill-proof containers, proper oil disposal
Generator	Fuel system check, oil & filter replacement	Bi-weekly	Generator Technician	On-site	Avoid refueling near water body, use drip trays
Excavator (if used)	Hydraulic check, track inspection	Weekly	Equipment Operator	Workshop / Maintenance Bay	Collect and dispose of used lubricants properly
Fuel Storage Tank	Leak inspection, valve maintenance	Weekly	Safety & Maintenance Officer	On-site Fueling Point	Secondary containment, spill response kit nearby
Service Vehicles	Brake check, oil change, tire check	Monthly	Vehicle Fleet Manager	Off-site Workshop	Ensure roadworthiness, no leakage
Portable Pumps	Impeller inspection, fuel line check	Bi-weekly	Pump Technician	Equipment Shelter Area	Use proper storage for fuel; avoid overfilling

8.5 ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management Plan (EMP) is presented in this section. Mitigation and compensation measures to address the environmental issues during excavation of sand are described in this section.

Table 8-3: Environment Management plan for Operational Phase/ Excavation Phase

Environmental Aspect	Potential Impact	Proposed Mitigation Measures	Expected Outcome	Responsible Party	Monitoring Method / Frequency
Air Quality	Dust emissions during excavation, loading, and transport.	<ul style="list-style-type: none"> • Water spraying on haul roads and dusty stockpiles. • Cover trucks carrying sand. • Enforce speed limits on unpaved surfaces. • Maintain dredger & vehicles to reduce exhaust emissions. • Provide dust masks to workers. 	Dust limited to site area; reduced exposure to workers and community.	Contractor / Site Manager	Visual inspection, maintenance logs (Daily)
Ground & Water – Pollution Prevention	Importation of pollutants in fill or construction material.	Select only approved, clean material sources; contractor to follow source material specification.	Reduced risk of contaminating site soils.	Contractor / Environmental Officer	Material source inspection (Before use)
	Accidental release of fuels, oils, chemicals	<ul style="list-style-type: none"> • Establish and enforce spill prevention procedures. • Store 	Minimized spill incidents and	Contractor / Environmental	Weekly inspection;

	during delivery, storage, transport, or use.	hazardous materials with secondary containment. • Refuel in designated, contained areas. • Train staff in safe handling.	contamination.	Officer	incident records
	Accidental release of liquid wastes during removal from site.	Implement waste handling protocols; use licensed waste transporters.	Avoid ground or water contamination.	Contractor	Inspection logs (Weekly)
	Accidental discharge of sewage.	Provide portable bio-toilets; no discharge to ground; contract licensed waste handlers.	Nil sewage-related contamination.	Contractor	Sanitation logs (Weekly)
	Sediment run-off into aquatic habitats.	Minimize open excavation faces; use drainage grooves and sedimentation ponds.	Controlled sediment load in water.	Contractor	Site inspection after rainfall events
	Groundwater contamination.	Use non-hazardous materials where possible; store hazardous materials with containment; remove contaminated soil as per regulations.	Negligible contamination risk.	Contractor / Environmental Officer	Monthly inspection, records
Material Use & Waste Management	Solid waste generation from workers & maintenance.	• Provide waste bins. • Segregate recyclables (metal, plastic, glass). • Dispose only at approved facilities.	Proper waste disposal, reduced litter.	Contractor	Waste disposal records (Weekly)
Flora & Fauna	Loss of vegetation at	Unavoidable clearance to be offset	Long-term habitat	Contractor /	Pre & post

	excavation site.	by restoration and habitat improvement around site.	restoration.	Environmental Officer	vegetation surveys
	Disturbance to fauna habitats.	Seasonal fauna survey before works; relocate fauna under expert supervision.	Short-term relocation; long-term recovery after restoration.	Environmental Specialist	Fauna monitoring reports
	Increased exploitation of nearby habitats.	Implement "Habitat Survey and Management Study" with community cooperation and alternative livelihoods.	Improved habitat protection.	Project Proponent	Annual ecological report
Landscape & Visual	Visual disturbance from dredging activity, site infrastructure, and lighting.	Sensitive site layout; minimal night works; shield lighting where possible.	Reduced visual intrusion.	Contractor	Visual impact check (Monthly)
Noise & Vibration	Noise from dredger, pumps, and truck traffic.	<ul style="list-style-type: none"> • Good site management. • Maintain equipment. • Limit noisy activities to daylight hours. • Use link roads to bypass residential areas. 	Reduced noise disturbance.	Contractor	Noise meter readings (Monthly)
Traffic Management	Increased heavy vehicle movement through local roads.	<ul style="list-style-type: none"> • Define and use approved access routes. • Minimize truck trips. • Train drivers. • Install warning signs at entry/exit points. 	Reduced congestion and road safety risk.	Contractor / Transport Manager	Traffic logs & incident reports (Daily)

Occupational Health & Safety	Worker injuries, drowning risk, equipment hazards.	<ul style="list-style-type: none"> • Provide PPE (life jackets, helmets, gloves). • Safety induction training. • First aid kits and emergency plan on site. 	Improved worker safety; fewer accidents.	Contractor / Safety Officer	Safety audit & PPE check (Monthly)
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Table 8-4: **Social Impacts during Operational Phase**

Social Impact	Proposed Mitigation	Residual Impact	Residual Impact Rating
<p>Increased Employment. (Positive Change)</p>	<ul style="list-style-type: none"> • Measures to maximize local employment. Recommended: • Local recruitment and training. • Prioritization of employment of Project area • Identification of targets of local people to be employed by skill levels. 	<p>This depends on skills of the people. Enhanced apprenticeship/training for some local people whose skills could be improved including Recruitment Policy to extend in future to limited sponsorship for workers / local people children.</p>	<p>Major beneficial.</p>
<p>Increased National tax and budget (Positive Change).</p>	<p>Assistance to villagers to formulate projects and strengthen advocacy. Money from improved royalty budget can be used to realize these objectives. Proponent may offer skills training for improved planning &</p>	<p>Increased Regional & National Budget and secondary impact on local Communities. Residual impact will depend on effectiveness of allocation process in favour of</p>	<p>Major beneficial.</p>

	project formulation.	affected villages. An ineffective process would cause conflict / discontent.	
Extended and improved road and implications for local economy (minor/moderate beneficial).	Regulations relating to road side and commercial activities to be adhered to by business persons and enforced by Community. Monitoring of health, road safety issue. Curative and preventive action to be taken if issues identified by monitoring.	Improved opportunities should be seen in increased opportunities and wealth of villages. It may be difficult to apportion this only to the new road or cement works given the current increasingly dynamic economic environment.	Minor beneficial.

8.6 OTHER MITIGATION MEASURES

Mitigation of Human Impacts

Economic Environment

The extraction project could have both positive and negative impacts on the economic environment. Whilst there is significant potential for positive economic benefits of the Project, the extent to which it is likely to lead to economic development and or inflation depends on the Project approach to providing services to its workers (e.g. transport, canteen services, and in-house medical care).

Mitigation: The Company needs to consider the Socio-economic baseline context and consult community leaders and civil society when making economic development agreements.

8.6.1 Employment, Livelihoods and Income Generating Activities

Access to Project Employment is a key priority for local stakeholders. In both development/construction and operational phases there is an opportunity for maximizing positive impacts of the Company on local employment through involving unskilled (and where possible skilled) labour from all Project communities. However, although the generation of employment opportunities resulting from Project activities is expected as a positive impact, there is a risk that conflicts could arise between local inhabitants and new comers or outsiders over such employment opportunities. Furthermore there is high risk that, unless Project employment by the Company and contractors is managed appropriately, nepotism would influence the recruitment procedure, meaning that people without connections would not get access to Project opportunities. Namely employment and other livelihood benefits. This could lead to a moderate risk of social conflict.

Mitigation Measures:

The Company needs to identify the skills that it needs for its development and operations phases that could be provided as part of a community skills development program providing basic vocational training in the communities.

8.6.2 Occupational Safety & Health Measures

Development and operational activities could expose workers to health and safety risks. In particular, the following activities could have negative health impacts: noise and dust; working with heavy equipment (strains and accidents); working in confined spaces (fumes could mean respiratory impacts), heavy lifting, storage, handling and use of dangerous substances and waste (strains and accident risks), and working under noisy conditions (hearing and stress/psychological impacts). Excavations and transportation of materials may cause further health and safety negative impacts.

Mitigation Measures:

The Company will demonstrate a best practice occupational health scheme, and share plans for the health maintenance and emergency services for their employees so that local health infrastructure capacity is not put under greater strain. An important mitigation is the forming of partnerships of understanding and relationship building with local health care providers.

Company's contractors will adopt strict construction and operation practices with best technology and health and safety training to ensure the safety of its workers.

8.6.3 ENVIRONMENTAL MONITORING

Ambient Air Quality

An ambient air quality monitoring system and program should be installed at least 2-3 months prior to the start of main development activities.

It is recommended that the monitoring program should cover as a minimum, the chemical parameters under the environmental legal requirement.

Meteorological data should be recorded in parallel to air quality monitoring at the same reference location.

Monitoring parameters and frequency are to be carried out according to the requirement of Pakistan Environment Protection Act, 1997, under Category-A "Guidelines for Self-Monitoring and Reporting by Industry (SMART). Ambient air quality monitoring should be carried out biannually, at least.

Noise

An ambient noise measurement program should be instituted upon commissioning of the project. The monitoring program should consider the noise limits during day-time and night-time at the closest point of public contact.

Table 8-5: Environmental Monitoring plan

Environmental Component	Parameters to be Monitored	Monitoring Method	Frequency	Responsibility	Compliance Standard / Reference
Air Quality	Particulate Matter (PM ₁₀ , PM _{2.5}), Dust fallout	Portable air quality meters, visual inspection	Quarterly (or during peak excavation)	Contractor / Environmental Officer	PEQS for Ambient Air Quality
Water Quality (River & Nearby Water Bodies)	pH, Turbidity, TSS, Oil & Grease, DO	Grab sampling & lab testing	Quarterly	Environmental Officer / Third-party lab	PEQS for Surface Water Quality
Noise Levels	dB(A) levels at site boundary & nearest settlement	Sound level meter	Monthly	Contractor / Environmental Officer	PEQS for Noise
Soil Quality (at dredger station & temporary stockpiles)	Soil texture, heavy metals, oil contamination	Sampling & laboratory analysis	Bi-annually	Environmental Officer / Third-party lab	PEQS for Soil Quality
Biodiversity (Aquatic & Riparian Flora/Fauna)	Presence of key aquatic species, disturbance	Visual observation & photographi	Bi-annually	Environmental Specialist	IUCN Red List / Punjab Wildlife

	signs	c record			Act
Solid Waste Management	Waste segregation, storage, and disposal practices	Site inspection checklist	Monthly	Contractor	Local municipal waste management rules
Occupational Health & Safety	PPE use, training, accident records	Site audits, safety records	Monthly	HSE Officer	Pakistan Factories Act & ILO Standards
Fuel & Oil Handling	Storage condition, spill prevention measures	Visual inspection	Monthly	Environmental Officer	IFC EHS Guidelines
Rehabilitation Measures	Reinstatement of dredged/affected areas	Site inspection & photographic record	After completion of dredging	Contractor / Supervising Engineer	Project-specific EMP

Table 8-6: Environmental Management & Monitoring Cost

Category	Activity / Item	Unit Cost (PKR)	Total Cost (PKR)
Air Quality Management	Dust suppression (water sprinkling on access roads)	20,000 / month	240,000
	Portable air quality meter (PM ₁₀ /PM _{2.5})	150,000	150,000
Water Quality Protection	Water quality sampling & laboratory testing (pH, TSS, Oil & Grease)	15,000 / sample	60,000
Noise Control	Noise level meter (dB meter)	80,000	80,000
	Noise monitoring (site & nearest settlement)	8,000 / monitoring	32,000

Category	Activity / Item	Unit Cost (PKR)	Total Cost (PKR)
Soil Quality Monitoring	Soil sampling & lab analysis (heavy metals, oil contamination)	10,000 / sample	20,000
Biodiversity Monitoring	Ecologist / Environmental Specialist visits	30,000 / visit	60,000
Solid Waste Management	Waste bins & collection	—	25,000
Fuel & Oil Spill Prevention	Secondary containment trays, spill kits	—	50,000
Occupational Health & Safety (OHS)	PPE (helmets, gloves, vests, boots)	5,000 / worker	75,000
	First Aid Kit & replenishment	—	15,000
Training & Awareness	HSE training sessions	20,000 / session	40,000
Rehabilitation / Site Restoration	Reinstatement & clean-up	—	100,000
Environmental Reporting & Audits	Documentation, compliance reports	50,000	50,000

8.7 Assigning responsibility for implementation (by name or position)

In order to ensure implementation and effective operation of the Environmental Management Plan (EMP), it is of utmost importance that responsibilities be fixed to specific persons so that each one of them should be answerable in case of lapse or mishap. Accordingly, hereunder the same responsibilities have been described:

Table - 5.3: Responsibilities of Management

OFFICIAL CONCERNED	RESPONSIBILITY
Works Manager	<ul style="list-style-type: none"><li data-bbox="810 779 1321 1025">i. Ultimate in-charge and responsible for all the operations of Environmental Management Plan (E.M.P) set up.<li data-bbox="810 1059 1321 1205">ii. He will be responsible to ensure smooth functioning of the E.M.P system.<li data-bbox="810 1238 1321 1429">iii. Daily progress on the state of the environmental status will be reported to him in writing by the Shift Production Foremen.<li data-bbox="810 1462 1321 1653">iv. All other E.M.P matters, issues and problems will be reported to him (for rectification) by the Shift Production Foremen.<li data-bbox="810 1686 1321 1877">v. He will work as bridge between the Governments concerned authorities and the senior most management of the project.<li data-bbox="810 1910 1321 2011">vi. He will be answerable to the higher management in all

	matters relating to E.M.P. and report at least monthly about the state of the E.M.P. operations.
2- Site Manager	<ul style="list-style-type: none"> i. He will be responsible to ensure smooth functioning of the entire E.M.P. ii. He will be responsible to rectify any problem regarding environmental matter. iii. He will directly report to the Works Manager. All matters relating to E.M.P. on daily basis

8.8 TRAINING NEEDS

In order to effectively operate the EMP all the staff to be engaged in this activity should be trained extensively.

The person to monitor gaseous emissions, PM and noise levels should be extensively trained to handle his job capably. Training program should include use of monitoring instruments, data generation, processing, interpretation, recording and presentation.

8.9 SOCIAL MANAGEMENT PLAN

8.9.1 Recommendations and Mitigation Measures

(The following recommendations are made preliminary and will be adjusted based on the results of the Social Impact Assessment process.)

Based on the initial benchmark study, the following preliminary recommendations will be further adjusted according to the results of the Social Impact Assessment process to be conducted at a later stage:

- The management of the Project can capitalize on the positive attitude of the people of area towards proposed Project by offering them maximum

employment opportunities at the development stage and any stage of operational phase.

- Insufficient and inadequate socio-economic structure of the community of the area also provides ample opportunities to Company management to win sympathies of local people in their favour, by introducing meaningful and manageable plan of community development.
- Aggressive and comprehensive plantation plan can also lessen fear of local people towards environmental issues.
- Sustainable development approach through conservation of natural resources would be the best strategy to compensate negative socio-environmental impacts.
- Social responsible attitude and stewardship of company management towards local people and resources can make project people friendly.
- Prior to action of the Project installation a comprehensive awareness campaign may be launched at masses level to avoid any conflict.
- To avoid any political, ethnic and value conflict, the administration of the plant may win the confidence of local powerful elites, authorities, leaders and interest groups by adopting informal confidence building measures.

8.10 Traffic Management Plan

A Construction Traffic Management Plan (CTMP) is necessary to minimize traffic delays, maintain motorist and worker safety, complete roadwork in a timely manner, and maintain access for businesses and residents. It is a mandatory requirement for all roads and highways projects and is defined in several places in the contract specifications of the bid package.

For each of the road projects the contractor will work closely, identify the work areas and activities requiring traffic diversion or safety delays, discuss with local communities and then initiate a traffic control program at each work site.

A typical CTMP addresses the following key issues and processes identified within a construction work zone, defined by the contractor:

- Safety and amenity of road users and the public;

- Site security, site access and signage;
- Project identification, including advertising and site signage;
- Traffic and road user delay and inconvenience management;
- Speed limit signage;
- Traffic transfer (switch) arrangements and procedures;
- Maintenance during construction;
- Traffic and safety management responsibilities;
- Construction staging including detailing the intersection layout and capacities for each and every construction stage;
- Impact of construction traffic on local roads, in particular; and
- Emergency and Incident Response Plans.

The contractor will provide at least two traffic control people at each end of the worksite, supplied with two-way communication and signs or flags. For larger detours, the contractor will provide signage and diversion barriers such as fences or wooden, metal barriers kept in place during the work.

The schedule and level of traffic control will be matched with the work to be done and the specifications on the contract documents.

The Table below (Table 5.5) lists the traffic related issues to be dealt with by the contractor and the actions needed to prevent or mitigate negative effects. The contractor is expected to know the details of this table and any instructions defined in the contract specifications and any special conditions:

Table 0-1: Traffic Issues and Mitigation Actions

Issue	Impact	Proposed Prevention/Mitigation Measure
Construction methods may cause disruption to traffic.	Traffic delays causing frustration to drivers.	Consider construction methods at design stage to reflect community needs & reduce delay times, minimizing impact on traffic.

<p>Traffic management inadequate anticipation & communication of issues.</p>	<p>Potential community issues causing dissatisfaction & frustration.</p>	<ul style="list-style-type: none"> • Determine traffic routes & engage with community to refine details. • Confirm pre-existing conditions. Consider the need for night assessment • Identify any short-term corrective actions.
<p>Severe traffic delays perceived by community as a direct result of the construction activities.</p>	<p>Community dissatisfaction, claims for loss of trade, time delays.</p>	<ul style="list-style-type: none"> • Establish good public relations from start. • Erect early warning information signs • Early engagement of affected property/business owners to explain process and ascertain needs & potential effects of changed access.
<p>Access for emergency services restricted.</p>	<p>Emergency vehicles & personnel unable to attend to an emergency situation.</p>	<p>Liaise with emergency services at an early stage to establish requirements and measures to be adopted in the vehicle movement plan.</p>
<p>Local bus & other commercial operators.</p>	<p>Impact bus routes, commercial operations, and disruption to business causing frustration.</p>	<p>Bus routes to remain unchanged where possible to avoid changes due to construction activities.</p>
<p>Major traffic incidents.</p>	<p>Local traffic disrupted upsetting locals.</p>	<ul style="list-style-type: none"> • Regular checking of TMP implementation • Have procedures in place for rapid recovery and keep locals

		informed.
Access to site for deliveries.	Traffic disruption or interference.	<ul style="list-style-type: none"> • TMP development in conjunction with local administration, police & community. • High-risk locations will need additional & detailed considerations. • Simplification of traffic staging will simplify access arrangements & minimize impacts.
Traffic Speed.	Works in multiple areas may result in intermittent speed changes that may frustrate road users.	<ul style="list-style-type: none"> • Reduced traffic speeds within construction zone. • Construction zone to be in manageable lengths. • CTMP to consider simplifying traffic staging to avoid construction zone impacting on traffic.
Pedestrian access.	Potential disruption to progress causing pedestrians to not comply with pedestrian provisions.	Liaise closely with the relevant bodies from an early stage to ensure pedestrian access provisions are adequately addressed, well established and maintained.
Lowering speeds, when it is perceived unnecessary.	Poor public opinion and safety for workers if motorists start ignoring limits.	<ul style="list-style-type: none"> • Appropriate design of traffic protection measures, intersections, alignments etc. to allow consistent speed limits. • Coordination with local communities.

Too many changed configurations.	Unfamiliarity causing potential confusion of road users that may cause traffic incidents.	<ul style="list-style-type: none"> • Keep motorists on existing alignment for as long as possible. • Effective use of VMSs for advanced notification & clear direction during any traffic flow adjustments.
Inadequate provisions for breakdowns during construction.	Traffic delay.	Design temporary break down bays. Consider temporary verges where possible during design of traffic staging.
Public or livestock entering work-site or access to site.	Traffic Incident.	<ul style="list-style-type: none"> • Provide clear delineation and fencing. Educate community work cover requirements. • Channel interests through formally organized tours
Dangerous entry & exits to sites & properties.	Traffic Incident.	Ensure that entries /exits are designed to cater for expected traffic volumes & with respect to sight distances, acceleration & deceleration provision & clear advanced warning signage.
Seasonal traffic variations not allowed for.	High volumes during holidays and weekends.	<ul style="list-style-type: none"> • Consider seasonal volumes in programming works. • Keep RMS informed and up to date. Be aware of reporting and notification requirements.
Reduced allowable movements.	Traffic delay, confusion to commuters that may lead to an incident.	Implement effective community engagement strategies that will consider businesses, property owner's requirements.
Cyclists demand for better access & routes during construction	Confusion to pedestrians & cyclists resulting in dangerous	Engagement with locals, cycle groups & commuters to ensure provision for cyclists is well addressed & notified to

including safety measures.	movements. Community dissatisfaction	the community.
Damage to local roads due to heavy vehicle movements.	Vehicle damage and potential incidents. Poor community and council relationship.	<ul style="list-style-type: none"> • Allow for heavy vehicle movements in traffic staging and planning ensuring existing, temporary alignment & pavements are suitable during the construction period. • Carry out road dilapidation surveys. • Early repair of damaged roads.
Impact of construction traffic on local side roads.	Increased traffic & damages to the local roads.	<ul style="list-style-type: none"> • Monitor the road safety on during construction. • Implement measures where reasonable and feasible, in consultation with PIU, should additional road safety issues be identified appropriate road safety

Table 0-2: Environmental Monitoring Plans

Sr. No.	Particular	Monitoring Plan
1.	Land Environment	<ul style="list-style-type: none"> • Safety zone of about 45m on each side of the rail/ road bridges and 45m radius around the wells located in the river bed have been earmarked. • 20m offset will be left against the banks to protect from side collapse. • To prevent erosion, moving the road or footpath will be kept away from the river's edge. • Care will be taken to ensure that ponding is not formed in the river bed

2	Air Environment	<p><u>Unpaved Roads</u></p> <ul style="list-style-type: none"> • Water sprinkling will be done for dust suppression • Levelling of roads will be done to maintain the uniform speed of the trucks/tippers. <p><u>Paved Roads</u></p> <ul style="list-style-type: none"> • The roads will be maintained. • Regular cleaning will be done to reduce the chances of road dust to become airborne. • Water sprinkling will be done on a fixed stretch of paved road passing through the villages. • Adequate transportation routes will be decided to transport the mineral and will be maintained properly. • Speed breakers will be constructed to restrict the speed of transporting vehicles. However, limiting of vehicular speed will be adopted. <p><u>Transportation</u></p> <ul style="list-style-type: none"> • The vehicles will be maintained to control the air emissions. • The speed of the vehicles will be maintained uniform. • PUC certified vehicles will be used. • The loaded vehicles will be covered with tarpaulin. • Over loading will be avoided.
3.	Noise	<ul style="list-style-type: none"> • Regular inspection and maintenance of vehicles and equipment will be performed to ensure efficiency and worn parts will be replaced. • Limited numbers of equipments will be used on-site. • The vehicles will be maintained in good condition and overloading will be avoided. • Speed limits will be enforced in relation to road conditions and on-route communities. • Road surfaces will be maintained in good condition to reduce tyre noise and to assure continuous traffic

		<p>flow to avoid prolonged idling.</p> <ul style="list-style-type: none"> • Noise monitoring will be conducted on a regular basis to determine compliance with noise criteria. • Personal protective devices i.e., earmuffs and earplugs will be provided to workers, working in high noise areas. • Periodical medical checkup will be organized for all workers to check any noise related health problems.
4.	Socio-Economic Aspect	<ul style="list-style-type: none"> • Direct employment to the local people which help to sustain their livelihood. • During the operational phase by the implementation of certain CSR activities indirect employment will also generate. • Improved livelihood. • Training will be provided to the local persons • Awareness programs will be organized.

8.11 ENVIRONMENTAL ACTION PROGRAM

The Project Proponent is quite conscious of its responsibility for maintaining clean and a healthy environment. The management is also keen to modify and make more efficient measures towards suppression of pollution sources. Adequate fund for Pollution Control Measures are provided as a part of overall project financing to ensure the availability of proper treatment facilities. This cost will be spending phase wise along with the growth of project.

8.12 CONCLUSION

Various aspects of project activities were considered and related impacts were evaluated. Considering all the possible ways to mitigate the environmental concerns Environmental Management Plan was prepared and fund has been allocated for the same. The EMP is dynamic, flexible and subjected to periodic review. For project where the major environmental impacts are associated, EMP will be under regular review.

Senior Management responsible for the project will conduct a review of EMP and its implementation to ensure that the EMP remains effective and appropriate. Thus,

the proper steps will be taken to accomplish all the goals mentioned in the EMP and the project will bring the positive impact in the study area

9 OCCUPATIONAL HEALTH AND SAFETY PLAN

The Occupational Health and Safety (OHS) plan holds paramount importance within the framework of an EIA. This plan is a comprehensive document that outlines strategies and protocols to safeguard the well-being of workers involved in the project. Beyond the ethical imperative of ensuring a safe working environment, the OHS plan is integral to regulatory compliance and risk management. It identifies potential occupational hazards associated with the project, establishes preventive measures, and details emergency response procedures. By incorporating an OHS plan into the EIA, not only is the health and safety of the workforce prioritized, but it also contributes to the overall success and sustainability of the project. A well-executed OHS plan minimizes the likelihood of accidents, injuries, and occupational health issues, fostering a workplace culture that values the welfare of its personnel. In essence, the OHS plan, as part of the EIA process, aligns with responsible and ethical project management, ensuring that occupational health and safety considerations are seamlessly integrated into the project's design, implementation, and on-going operations.

9.1 Objectives of Occupational Health and Safety

The objectives of Health and Safety plan are given below

- ✓ **Protect the health and safety of employees, contractors, visitors, and the surrounding community.** *This includes preventing injuries, illnesses, and fatalities caused by wires and cables manufacturing unit.*
- ✓ Comply with all applicable health, safety, and environmental regulations.

9.2 Scope of Occupational Health and Safety Plan

This plan shall be applicable to all phases of the facility, including:

- Construction and erection of production halls and utilities
- Commissioning and testing of equipment
- Routine operations, maintenance, and repairs
- Storage and handling of raw materials and chemicals (e.g., PVC, copper)
- Waste management and emergency response

9.3 Key Components Covered in the OHS Scope

1. Hazard Identification & Risk Assessment (HIRA)

- Assessment of physical, chemical, electrical, and mechanical hazards.
- Job hazard analysis for high-risk activities (e.g., extrusion, annealing, tinning).

2. Safe Work Practices

- SOPs for equipment operation (drawing machines, extruders, electroplating units).
- Lockout/tagout (LOTO) protocols during maintenance.
- Permits to work for hot works, confined spaces, and working at heights.

3. Personal Protective Equipment (PPE)

- Mandating use of helmets, gloves, eye protection, safety shoes, hearing protection.
- PPE issuance, inspection, and training.

4. Fire Safety & Emergency Preparedness

- Installation of fire alarms, extinguishers, hydrants, and smoke detectors.
- Emergency response drills (fire, chemical spill, electrical short-circuit).
- Designated evacuation routes and muster points.

5. Occupational Health Surveillance

- Periodic medical screening of workers (especially for noise exposure, chemical handling).
- Monitoring of indoor air quality and noise levels in operational zones.

6. Training & Awareness

- Induction training for new employees and contractors.
- Periodic HSE training (e.g., fire safety, first aid, use of PPE, hazard communication).
- Toolbox talks before high-risk jobs.

7. Incident Reporting and Investigation

- Procedures for reporting near misses, injuries, and unsafe conditions.

- Root cause analysis and corrective action implementation.

8. *Monitoring and Compliance*

- Regular safety inspections and audits by HSE team.
- Compliance with national HSE laws (e.g., PEPA, Punjab Occupational Safety Act).
- Coordination with regulatory authorities during inspections or audits.

9. *Occupational Safety Infrastructure*

- Dedicated first aid rooms, HSE office, safety signage.

9.4 Personal Protective Equipment

- In the wires and cables manufacturing industry, workers are routinely exposed to a range of occupational hazards involving mechanical equipment, high temperatures, electrical components, and chemical substances. The use of ***Personal Protective Equipment (PPE)*** is essential for ensuring a safe and compliant workplace. Below are key PPE-related safety considerations specific to this sector:
- PPE provides a crucial line of defence against various occupational hazards prevalent. It includes items such as safety helmets, gloves, safety glasses, and respiratory protection, which shield workers from potential injuries, chemical exposures, and airborne particles.
- Utilizing PPE is often a legal requirement and is mandated by occupational health and safety regulations. Adhering to these regulations not only ensures the safety of workers but also prevents regulatory penalties and legal issues for the manufacturing unit.

Chemical Exposure Protection

- During processes such as extrusion, insulation, sheathing, and electroplating, workers may be exposed to various chemicals including PVC compounds, plasticizers, lubricants, and acids used in cleaning or plating.
- Chemical-resistant gloves, face shields, aprons, and protective suits safeguard workers from skin contact, chemical burns, and potential toxic exposure.

Airborne Particulates and Fumes

- The manufacturing environment may contain fine dust particles, polymer fumes, or metallic vapors, especially in the drawing, tinning, and annealing sections.
- Use of respirators or industrial-grade face masks is essential to prevent inhalation of harmful substances, protect respiratory health, and reduce the risk of long-term respiratory issues.

Mechanical and Electrical Hazards

- Operators working with high-speed machines (e.g., wire drawing, bunching, and stranding units) face risks of cuts, entanglement, or electrical shocks.
- Safety helmets, anti-static overalls, steel-toed boots, insulated gloves, and safety goggles provide robust protection against physical and electrical hazards.

Emergency Response Readiness

- In the event of fire, chemical spills, or equipment failure, PPE plays a critical role in protecting workers from immediate danger.
- Hard hats, flame-resistant clothing, and reinforced footwear provide extra protection during accidents or evacuation procedures.

Worker Comfort and Compliance

- Properly fitted, ergonomic PPE ensures worker comfort, especially during long shifts in high-temperature zones (e.g., extrusion or annealing areas).
- Comfortable PPE encourages consistent usage, helps reduce fatigue, and promotes a culture of safety and responsibility.

Employer Commitment and Workforce Morale

- Provision of high-quality PPE reflects the employer's dedication to worker welfare and regulatory compliance (e.g., under PEPA, OSHA, and provincial labor laws).
- This boosts employee trust, morale, and retention, while also enhancing productivity and overall operational safety.

9.5 PPE Required For Construction Phase

During the construction of a project, including a paper manufacturing unit, a comprehensive set of Personal Protective Equipment (PPE) is necessary to safeguard the health and safety of workers involved in various tasks. The specific PPE requirements may vary based on the nature of construction activities, potential

hazards, and regulatory standards. Here is a general list of PPE commonly required during construction:

Head Protection: Hard hats to protect against falling objects, impact, or head injuries.

Eye and Face Protection: Safety glasses or goggles to shield the eyes from dust, debris, or other airborne particles. Face shields for additional protection during tasks with a higher risk of facial exposure.

Hearing Protection: Earplugs or earmuffs to reduce exposure to loud noises, especially in areas with heavy machinery or construction equipment.

Respiratory Protection: Dust masks or respirators to protect against inhalation of dust, particulates, or hazardous substances.

Hand Protection: Safety gloves appropriate for the specific tasks, such as cut-resistant gloves, leather gloves, or chemical-resistant gloves.

Body Protection: High-visibility vests or clothing to enhance visibility, especially in areas with moving equipment. Reflective clothing for night time or low-visibility construction activities. Protective clothing, such as coveralls, for tasks involving exposure to hazardous substances.

Foot Protection: Steel-toed safety boots or shoes to protect against crushing injuries, falling objects, or punctures.

Fall Protection: Safety harnesses, lanyards, and other fall protection systems for workers operating at heights or in elevated areas.

Hand and Arm Protection: Elbow and knee pads for tasks that involve kneeling or crawling. Wrist support or braces for tasks with repetitive motions.

Weather Protection: Weather-appropriate clothing, such as rain gear, insulated clothing, or sunscreen, depending on the climate and weather conditions.

First Aid Kit: Access to a well-equipped first aid kit to provide immediate care for minor injuries.



Figure 9-1: PPEs for Construction Phase

It is essential for the construction project management to conduct a thorough hazard assessment to identify the specific risks associated with each construction activity and determine the appropriate PPE for the workers involved. Regular training, monitoring, and enforcement of PPE usage contribute to a safer construction environment.

9.6 Safety Signs during Construction Phase

Safety signs serve as critical elements in maintaining a secure and hazard-free environment at construction sites. Their importance lies in their ability to effectively communicate potential risks and hazards to workers, visitors, and contractors. By providing clear information about safety procedures, required personal protective equipment, and safe work practices, these signs play a pivotal role in preventing accidents and injuries. Moreover, safety signs contribute to regulatory compliance, ensuring adherence to local regulations and occupational health and safety standards. They also serve as essential tools for emergency response by indicating the location of emergency exits, first aid stations, fire extinguishers, and other emergency equipment. In addition to their role in risk reduction, safety signs assist in site navigation, guiding individuals to specific areas and enhancing overall organization. Beyond practical benefits, safety signs contribute to fostering a culture

of safety awareness among the workforce. They communicate important safety policies, promote compliance with site-specific regulations, and reduce the project's liability by showcasing a commitment to responsible construction practices. Ultimately, safety signs are integral components in creating a safe, compliant, and organized construction site conducive to the well-being of all involved parties.



Figure 9-1: Safety signs for Constructional Phase

9.7 Personal Protective Equipment during Operational Phase

Personal protective equipment (PPE) is an important part of any health and safety plan at wires and cables manufacturing units. PPE can help to protect employees from a variety of hazards, including:

- PPE can help to protect employees from exposure to LPG vapors, which can be harmful to the respiratory system and can cause burns.
- PPE can help to protect employees from flying debris and from the heat and flames associated with an explosion.
- PPE can help to protect employees from burns and from exposure to smoke and toxic gases.
- PPE can also help to protect employees from other hazards, such as slips, trips, and falls.



Figure 9-2: PPES for Operational P

10 STAKEHOLDER CONSULTATION

Stakeholder consultation is of paramount importance in the EIA process as it facilitates inclusive decision-making, fosters transparency, and enhances the overall quality of the assessment. Involving stakeholders, including local communities, governmental bodies, non-governmental organizations, and affected parties, ensures that diverse perspectives, concerns, and local knowledge are taken into account. This inclusive approach contributes to the identification of potential environmental and social impacts that might not be evident from a solely technical or regulatory standpoint. Stakeholder consultation is a way to involve both the primary and secondary stakeholders in making decisions about the project. Stakeholder engagement builds trust, allows for the exchange of valuable information, and empowers communities by giving them a voice in the decision-making process.

Moreover, it helps to align the project with the needs and expectations of the local population, minimizing conflicts and fostering a sense of shared responsibility for environmental stewardship. In essence, stakeholder consultation transforms the EIA into a more robust and credible tool, enhancing the sustainability and social acceptance of proposed projects.

10.1 Objectives of Stakeholder Consultation

In 1992, the United Nations Conference on the Environment and Development (UNCED) supported the idea of involving the public in decision-making, and this was outlined in one of the key documents of the conference called Agenda 21.

Agenda 21 is a comprehensive plan for global actions focused on sustainable development and deals with how people interact with the environment. It highlights the importance of including the public in making decisions about the environment to achieve sustainable development.

The objectives of stakeholder consultation in the context of EIA are multi-faceted, aiming to foster meaningful engagement, inclusivity, and informed decision-making. Some key objectives include:

- ✓ Ensure the inclusion of diverse stakeholder perspectives in the decision-making process, promoting a more comprehensive understanding of potential environmental and social impacts.
- ✓ Provide a platform for stakeholders to express their concerns, values, and local knowledge related to the project, contributing to a more nuanced understanding of potential impacts and benefits.
- ✓ Gather valuable insights and feedback that can be integrated into the project design, helping to address and mitigate potential adverse impacts and enhance positive contributions.
- ✓ Establish trust among stakeholders by being transparent, responsive, and open to dialogue. Building trust is essential for the successful implementation of the project and its long-term acceptance by the community.
- ✓ Fulfil regulatory requirements by actively engaging with stakeholders, demonstrating a commitment to compliance with environmental and social standards, and addressing concerns raised during the consultation process.

- ✓ Facilitate an open and inclusive dialogue to build understanding and acceptance of the project within the affected communities, minimizing potential conflicts and fostering a sense of shared responsibility.
- ✓ Integrate local knowledge and community input to enhance the overall sustainability of the project, aligning it with the needs and aspirations of the affected stakeholders.
- ✓ Disseminate accurate and accessible information about the project, its potential impacts, and proposed mitigation measures to ensure that stakeholders are well-informed and can actively participate in the decision-making process.
- ✓ Consider the needs and interests of all affected parties, including vulnerable or marginalized groups, to ensure that the benefits and burdens of the project are distributed equitably.
- ✓ Create a platform for addressing conflicts and disputes, allowing for the resolution of issues through open communication and negotiation.



Figure 10-1 Stakeholder Management

By achieving these objectives, stakeholder consultation contributes to the overall success and sustainability of the project, enhancing its social, environmental, and economic outcomes while fostering positive relationships with the communities it impacts.

10.2 Proponent Environment Management Team

A comprehensive discussion on all conceivable impacts and corresponding mitigation measures related to the project was conducted with both the proponent and project management. In this collaborative dialogue, a thorough examination of potential environmental, social, and economic implications of the project took place. The proponent and management, demonstrating a proactive commitment to responsible practices, assured the incorporation of all suggested mitigation measures to effectively control and address any discrepancies that may arise during the project's implementation. Their pledge to embrace these measures underscores a dedication to environmental stewardship and sustainable practices. By actively engaging in this discourse, the proponent and management not only exhibit a commitment to regulatory compliance but also demonstrate a broader responsibility to the well-being of the community and the preservation of the surrounding environment. This collaborative approach ensures that the project aligns with best practices, fostering a positive impact on the environment and minimizing any potential adverse effects.

10.3 The Responsible Authority

The Proponent assumes the crucial role of the responsible authority, pledging to undertake all necessary measures both prior to the commencement of the project and throughout its operational phases. This commitment encompasses a comprehensive approach to project management, ensuring that all regulatory requirements, environmental standards, and best practices are diligently adhered to. Before project initiation, the Proponent commits to conducting thorough assessments and implementing necessary preparatory measures to mitigate potential impacts. This includes adopting robust environmental management strategies, obtaining required permits, and addressing any concerns raised during stakeholder consultations. Throughout the operational phase, the Proponent maintains an ongoing commitment to environmental sustainability and regulatory compliance. This involves continuous monitoring, prompt response to emerging issues, and the implementation of adaptive management practices. By assuming the mantle of responsibility, the Proponent not only safeguards the project's integrity but also prioritizes the well-being of the environment, local communities, and all stakeholders involved. This proactive stance ensures that the project operates within the

parameters of environmental and ethical standards, reflecting a dedication to responsible and sustainable project execution.

Table 10-1: Stakeholders and Their Roles and Responsibilities

Stakeholders	Roles
Proponent/Responsible Authority	The discussion with the proponent proposed the mitigation measures and alternatives to control any disparity in the project.
Environmental Expert	The consultants from the Integrated Environment Consultants survey the project site to gather relevant information and to record the local community stance and behaviors regarding the project. And also the evaluation of socio-economic impacts of the project has been done.
Government Departments	The consulted government department includes Environmental protection agency, wildlife, planning, and development. The departments overviewed the proposed projects and its socio-economic impacts.
Local affected communities	The surveys determined the extent of community that could be affected and their verdict about the proposed project.

10.4 Other departments and agencies

A comprehensive impact analysis was conducted in collaboration with key stakeholders, including project management, the local community, educational institutes, health institutions, hospitals, and non-governmental organizations (NGOs). This inclusive approach sought to gather diverse perspectives and insights related to the implementation of the project. The engagement process involved scoping sessions, focused group discussions, and wayside consultations, providing a multifaceted platform for dialogue and information exchange. Through these forums, all pertinent issues associated with the project were thoroughly examined, including potential environmental, social, and economic impacts. The proactive involvement of stakeholders, representing various sectors of the community, ensured that a holistic understanding of the project's implications was achieved. This collaborative effort not only fostered transparency but also allowed for the incorporation of valuable local knowledge and concerns into the impact analysis. By actively engaging with stakeholders through diverse communication channels, the project management demonstrated a commitment to responsible and inclusive decision-making, setting the stage for a well-informed and socially accepted project implementation process.

10.5 Environmental Practitioners and Experts

Our dedicated team undertook a comprehensive site visit, engaging in extensive discussions with a broad spectrum of project stakeholders. This inclusive approach involved reaching out to residents from nearby villages and beyond, ensuring a diverse representation of perspectives to assess the socio-economic impacts of the project. The community demographic was richly diverse, encompassing individuals from various professions, such as those employed in different fields, business owners, doctors, expatriates, military personnel, and educators. In a conscious effort to ensure gender inclusivity, consultations with women were prioritized to gather their unique perspectives on how the project could contribute to the improvement of the area. While some women openly shared their thoughts, it was evident that social norms in the area made many feel hesitant, creating discomfort with speaking or being photographed. This nuanced understanding allowed our team to respect and navigate the cultural sensitivities of the community. The local community, nonetheless, proved to be a wellspring of information, offering valuable insights into the project and expressing predominantly positive views regarding its potential for

development. This holistic approach to stakeholder engagement not only highlights the diverse fabric of the community but also underscores the importance of cultural sensitivity in ensuring meaningful and respectful interactions during the assessment of socio-economic impacts.

10.6 Discussed Points

The points that have been kept in view while consulting stakeholders are as follows:

- Activities of the project and their consequences.
- Requirements of the people likely to be affected.
- Mitigation measures or compensation strategies.
- Role of the affected people in the implementation and development of the project.

10.7 Affected and Wider Community

In the vicinity of the proposed project, there is no identified affected community; however, the proactive engagement of the proponent with inhabitants from various villages has been instrumental in understanding and addressing local perspectives. The absence of a distinct affected community does not diminish the importance of comprehensive consultations. The proponent has undertaken conscientious efforts to reach out to residents across different villages, fostering a dialogue to assess the community's sentiments towards the project. Remarkably, the feedback from these consultations has been overwhelmingly positive, with residents expressing favorable views regarding the proposed endeavor. This positive reception is indicative of the proactive communication and collaborative approach adopted by the proponent, establishing a foundation of mutual understanding and support within the broader community. While the absence of an affected community streamlines certain aspects of the engagement process, the commitment to inclusive consultations with diverse stakeholders remains integral to building a harmonious relationship with the local population.

11 CONCLUSION AND RECOMMENDATIONS

Based on the study conducted for Environmental Impact Assessment (EIA) of the project, the following recommendations are made:

- Plantation as far as permissible and within the scope of the project be carried out.
- Sustainable development approach through conservation of natural environment be followed.
- Environmental aspects of the project should be well taken care through implementation of the Environmental Management Plan as recommended in this report.
- The project management may adopt “cleaner and greener environment” as its motto and this will make the project more environment friendly.

On the basis of the findings of the EIA, it is concluded that the project will not pose any adverse impact on the local population and the environment. Therefore, it is recommended that the competent authority may please be issues Environmental Approval for the construction and operation of this project.

REFERENCES

Listed below are some of the documents, reports and other references consulted during the preparation of this report:

- i. Information and data provided by project proponents;
- ii. Project Pre-feasibility Study Report;
- iii. Technical Design Data related to the project.
- iv. Information gathered through discussions with the project related persons of the project proponent;
- v. Discussion with concerned government officials;
- vi. Punjab Environment Quality Standards for Municipal and Liquid Industrial Effluents, The Ministry of Environment, Government of Punjab vide its Notification, Islamabad, the 5th August, 2016 under SO(G)/EPD/7-26/2013 established standards for Drinking Water Quality
- vii. Punjab Environment Quality Standards for Ambient Air, August 2016;
- viii. Punjab Environment Quality Standards Noise Levels August 2016;
- ix. Punjab Environment Quality Standards for Drinking Water August 2016.;
- x. Pakistan Environmental Protection Act, 1997;
- xi. The Punjab Environmental Protection (Amendment) Act 2011 covers aspects related to:
 - a. the protection, conservation, rehabilitation and improvement of the environment and the prevention, control of pollution and promotion of sustainable development;
 - b. establishing complete regulatory and monitoring bodies, policies, rules, regulations and national environmental quality standards; and
 - c. to ensure enforcement, the act establishes regulating bodies i.e. Punjab Environmental Protection Council (PEPC) and responsible

bodies i.e. Punjab Environmental Protection Agency (Punjab EPA) at Provincial level.

- xii. Land Use Policies and Environmental Legal Framework including;
- xiii. Environment related Laws in Pakistan and the Province of Punjab;
- xiv. The Pakistan National Conservation Strategy, Environment and Urban Affairs' Division (presently- Ministry of Environment, Urban Affairs and Wild Life), Government of Pakistan, Islamabad;
- xv. Government of Pakistan, Pakistan Environmental Protection Agency, Policy and Procedures for Filing, Review and Approval of Environmental Assessment, 2000;
- xvi. Environmental Assessment Requirements and Environmental Review Procedures of the Asian Development Bank, 1993;
- xvii. GOOGLE EARTH, maps.
- xviii. Guidelines for Public Consultations - These guidelines cover:
 - Consultation, involvement and participation of Stakeholders
 - Techniques for public consultation (principles, levels of involvements, tools, building trust)
 - Effective public consultation (planning, stages of EIA where consultation is appropriate)
 - Consensus building and dispute resolution.
- xix. Applicable International Environmental and Occupational Safety and Health Laws and Regulations;
- xx. Applicable International Environmental and Occupational Safety and Health Laws and Regulations;
- xxi. National Resettlement Policy (Draft), Government of Pakistan, March 2002.

TERM OF REFERENCES

1. The Consultant is required to carry out an Environment Assessment Study of the Project as required under section 12 of Pakistan Environmental Protection Act 1997/ Punjab Environmental Protection Act 2012.
2. The Study should be comprehensive and should cover all aspects which are envisaged under the relevant national and provincials laws & regulations including but not limited to:
 - Identification and recommendation for suitable solution/treatment/mitigation measures of emissions and effluents such as waste water and sludge etc in accordance with Punjab Environmental Quality Standards (PEQS).
 - Identification and recommendation for suitable solution/treatment/mitigation measures of solvents, oils (tar), hazardous waste, organic compounds, steam, flue gases, particulate matter and chemical compounds harmful for the environment and other substances leading to air, noise, water and soil pollution in accordance with PEQS.
3. The Study should be acceptable to the relevant national and/or provincial authorities (relevant authorities) in Punjab.

ANNEXURES

ANNEXURE A

CNIC OF THE PROJECT PROPONENT

PAKISTAN National Identity Card
ISLAMIC REPUBLIC OF PAKISTAN

Name
Muhammad Bakhsh

Father Name
Muhammad Nawaz

Gender: M Country of Stay: Pakistan

Identity Number: 34104-2234091-7 Date of Birth: 01.01.1950

Date of Issue: 12.10.2020 Date of Expiry: Lifetime

Holder's Signature

94704

محمد بخش
محمد نواز

94704

34104-2234091-7
محمد بخش
خلع گوجرانوالہ
مستقل پتہ: ذاک خانہ قادر آباد کالونی، چمنی گھلا، تحصیل
و ضلع حافظ آباد

505371101035
289-50-417061

Woman & Mobini
Registrar General of Pakistan

گمشدہ کارڈ ملنے پر قریبی لیٹر بکس میں ڈال دیں

ANNEXURE B

LEASE DOCUMENTS OF MINES & MINERAL DEPARTMENT

(رجسٹرڈ)

فون نمبر-0559330582

ایم ایل / ڈی ڈی ایم ایم / گوجرانوالہ - عام ریت / بھسرا / ہیڈ خانگی / ٹھٹھی بلوچ زون / 327

دفتر ڈپٹی ڈائریکٹر مائنز اینڈ منرلز

گوجرانوالہ ریجن گوجرانوالہ

مورخہ: 26.06.2025



میسرز ناصر نواز اینڈ کمپنی،

ایتام:

سکنہ، فاضل ٹاؤن، ہیڈ کوارٹرز، علی پور چھتہ تحصیل وزیر آباد ضلع گوجرانوالہ۔

معذرتی پتہ برائے ٹکسی عام ریت / بھسرا برقیہ 2248.494 (ریڈروہ اسٹیشن: بلخ) / ٹھٹھی بلوچ زون تحصیل وزیر آباد ضلع گوجرانوالہ۔

لسلسلہ عیلام عام ادنیٰ معدنیات بذریعہ B آکشن مورخہ 04.06.2025 (ریڈروہ اسٹیشن: بلخ) / (14,50,00,000) لائسنسنگ اتھارٹی نے آپ کی بولی مبلغ - / 20,35,50,000 روپے (مبلغ میں کروڑ پچاس لاکھ پچاس ہزار روپے) بابت معذرتی پتہ بلوچان بالا منظور کرتے ہوئے پتہ بڑا برائے عرصہ دو سال از 26.06.2025 تا 26.06.2027 معذرتی مراعاتی قوانین مجریہ 2002 اور ان میں کی گئی سروسجہ تراشم و درج ذیل شرائط کے تحت عطا کرتی ہے۔

(1) یہ کہ آپ کی بولی کا زرچہرام ادا شدہ رقم مبلغ - / 5,08,87,500 روپے (پندرہ کروڑ چھتیس لاکھ باسٹھ ہزار پانچ سو روپے صرف) جو کہ کئی قسطوں میں (پانچ کروڑ علاوہ آپ بقایا رقم مبلغ - / 15,26,62,500 روپے) پندرہ کروڑ چھتیس لاکھ باسٹھ ہزار پانچ سو روپے صرف) جو کہ کئی قسطوں میں (پانچ کروڑ 5,08,87,500 روپے) (پانچ کروڑ آٹھ لاکھ ستاسی ہزار پانچ سو روپے) کے حساب سے نیچے دی گئی تواریخ میں ادا کرنے کے پابند ہیں۔ مندرجہ ذیل اقساط جمع کروانے کے بعد ٹریڈری چالان کا اصل پرت دفتر حذا کو خود یا بذریعہ ڈاک ارسال کرنا ہوگا۔ علاوہ ازیں ہر قسط کے ہمراہ زر قسط کا 110% ٹیکس مبلغ - / 50,88,750 روپے اس کی اصل رسید چالان دفتر حذا کو مہیا کرنا ہوگی۔

CG3808 Receipts under the Mines and Oil-Fields and Minerals Development Act 01 Receipt from Rents and Royalties, Annual Fees, Charges, Fees, Application Fee, Cost of Plans, etc."	25.12.2025	دوسری قسط کی تاریخ ادائیگی
	25.06.2026	تیسری قسط کی تاریخ ادائیگی
	25.12.2026	چوتھی قسط کی تاریخ ادائیگی

(2) اگر آپ مذکورہ بالا اقساط میں سے کوئی قسط مقررہ وقت پر جمع کروانے اور ٹریڈری چالان دفتر حذا میں وصول کرانے میں ناکام رہے تو لائسنسنگ اتھارٹی پنجاب معذرتی مراعاتی قوانین مجریہ 2002 کے قاعدہ (2) 207 کے تحت آپ کا پتہ منسوخ کر دے گی اور جمع شدہ سیکورٹی ضمیمہ کر لی جائیگی۔ تاہم اس کاروائی سے قبل پتہ دار کو ذمہ داری شوالی کا موقع فراہم کیا جائے گا۔

(3) یہ کہ پتہ معدن جہاں ہے اور جیسے ہے کی بنیاد پر عطاء کیا جا رہا ہے۔ حسب شرائط عیلام، پتہ دار نے معدن کے ذخائر کا معائنہ کر کے بولی دی ہے۔ لہذا پتہ حذا الاٹ ہونے کے بعد اس بارے اس کا کوئی اعتراض قابل پزیرائی نہ ہوگا۔

(4) کامیاب بولی دہندہ پتہ سے نکالی معدن کرنے کا پابند ہوگا۔ اگر بغیر وجہ کوئی پتہ دار پتہ سے کسی معدن نہ کرے گا تو اس کا پتہ پنجاب معذرتی قانون (2) 207B کے تحت منسوخ کر دیا جائے گا۔

(5) پتہ الاٹ ہونے کی صورت میں پتہ دار کو پتہ سے دستبردار ہونے کا اختیار نہ ہوگا۔

(6) یہ کہ آپ لائسنسنگ ایڈ کے اجراء سے پندرہ دن کے اندر اندر اپنے خرچہ پر عطا شدہ قتبہ کی حد بندی کر آکر تمام کوٹوں پر حد بندی ستون لگائیں گے۔ جس کی اونچائی سطح زمین سے کم از کم ایک میٹر ہوگی اور ان ستونوں کی بنیاد کی موٹائی نصف میٹر قطر یا نصف میٹر مربع سے کم نہیں ہوگی۔ اگر آپ سرکاری طور پر قتبہ کی حد بندی کرانا چاہیں تو اس کے لیے حکومت کی طرف سے مقرر کردہ فیس سرکاری خزانے میں جمع کر آکر اصل چالان ہمراہ باقاعدہ درخواست دیں گے سروسجہ فیس کے بغیر حد بندی کی درخواستیں بھی معنی سمجھی جائیں گی اور ان پر کوئی کاروائی نہیں کی جائے گی۔ اور کسی قسم کا عذر تسلیم نہیں کیا جائے گا۔ حد بندی کے ستون مشنک نقشہ اور شیڈی گئی سروسجہ تفصیلات کے مطابق ہونی چاہئیں۔

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Deputy Director
Miner and Minerals

از مورخہ 26.06.2025 تا 25.06.2027

ایم ایل / ڈی ڈی ایم ایم / گوجرانوالہ - عام ریت / بھسرا / ہڈ خاکی / طشٹی بلوچ زون
میلنگ - / 20,35,50,000 روپے بنام: میسرز نامر لوڈ اینڈ کھنی



Scale: 1:50000

Survey Sheet No. 43-H/15

Block No. Head Khanki Thatti / Baloch Zone

Points	Easting (M)	Northing (M)	Points	Easting (M)	Northing (M)
A	3298880	916870	D	3302914	918507
B	3298425	918424	E	3301230	917604
C	3302249	920789			

Total Area = 2248.494 Acres

- (7) یہ کہ معیادہ ختم ہونے کے بعد آپ کو رقبہ کا قبضہ فوری طور پر خود بخود سرکار و گزار کرنا ہو گا۔ جس کے بعد آپ کسی طور پر بھی رقبہ میں کام کرنے کے مجاز نہ ہونگے۔
- (8) یہ کہ قبضہ کی مدت ختم ہونے یا قبضہ کی منسوخی کی صورت میں آپ کو رقبہ کا قبضہ فوری طور پر از خود لائسنسنگ اتھارٹی یا اس کے مجاز نمائندے کے حوالے کرنا ہو گا۔ نیز آپ کو مدت ختم ہونے یا اسکی منسوخی کے ایک ماہ کے اندر موقع پر سے عمارت، مشینری، نکاسی شدہ معدن یا دیگر اشیاء کو بند شدہ رقبہ سے ہٹانا ہو گا۔ اگر آپ ایسا نہیں کریں گے تو آپ کے معاوضے کے حق کو تسلیم کیے بغیر مندرجہ بالا اشیاء بحق لائسنسنگ اتھارٹی ضبط تصور ہوگی، لائسنسنگ اتھارٹی جس طرح مناسب سمجھے گی ان اشیاء کو موقع سے ہٹانے کی مجاز ہوگی۔
- (9) پنجاب معدنی مراعاتی قوانین 2002 کی سیکشن 2 (XXIV) کے تحت عام ریت، سینڈ، سٹون، سٹون، سلٹ، سٹون اور گریول اور معدنیات کھلاتے ہیں۔ ادنیٰ معدنیات کو الاٹ کرنے اور ریگولٹ کرنے کے لیے پنجاب معدنی مراعاتی قوانین 2002 کی Part-4 حصہ میں ہے۔ جو کہ پنجاب معدنی قوانین 191 تا 236 پر مشتمل ہے۔
- (10) یہ کہ لینڈ ریویو ایکٹ 1967 کی سیکشن 49 کے تحت تمام معدنیات حکومت کی ملکیت ہیں۔ جبکہ مائیکز، پنڈ آئل، فیلڈ اینڈ منرل ڈیولپمنٹ ایکٹ 1948 کی دفعہ (2) کے تحت حکومت پنجاب کو معدنیات (ماسوائے آئل، گیس، نیوکلیر منرل) کے انتظام و انصرام کرنے کا اختیار حاصل ہے۔ اور اسی ایکٹ کی دفعہ (2) کے تحت حکومت پنجاب نے معدنیات کو الاٹ کرنے اور ریگولٹ کرنے کے لیے پنجاب مائنگ کنٹینشن رولز 2002 وضع کیے ہیں۔ ان قوانین کی دفعہ 218 کے تحت بغیر پید معدن حاصل کیے نکاسی معدن کرنے یا باضابطہ پید دار کے نکاسی معدن کے کام میں رکاوٹ ڈالنے والے کو تین سال قید یا پچاس ہزار روپے جرمانہ یا دونوں سزا دی جاسکتی ہیں۔
- (11) آپ معدنی پید ہذا میں نکاسی معدن میں کسی قسم کی رکاوٹ پیش آنے کی صورت میں پندرہ یوم کے اندر اندر دفتر ہذا کو تحریری اطلاع کرنے کے پابند ہوں گے۔ بصورت دیگر آپ کسی قسم کی رعایتیہ کے حقدار نہ ہوں گے۔
- (12) یہ کہ آپ ریلوے لائن، سڑک، پانی کے ذخائر، بجلی کی لائن، سونٹی گیس کی پائپ لائن یا دیگر مفاد عامہ کی تنصیبات یا آثار قدیمہ کی اہمیت والی جگہ وغیرہ سے 100 میٹر تک نکاسی معدن کا کام نہیں کریں گے، البتہ آپ لائسنسنگ اتھارٹی سے تحریری اجازت حاصل کر کے اور عام شدہ شرائط کے تابع مندرجہ بالا جگہوں سے 100 میٹر کے اندر تک کام کرنے کے مجاز ہو سکتے ہیں۔
- (13) یہ کہ اگر آپ کے زیر تصرف حکومت کی ملکیتی زمین ہو تو ایسی صورت میں آپ متعلقہ حکومت کے ریونیو قوانین یا متعلقہ ضلع میں لاگو قوانین کے تحت مقرر کردہ ریٹ کے مطابق مالکانہ ادا کریں گے اور پرائیویٹ مالک اراضی سے نکاسی معدن کے لیے اسکی باہمی رضامندی سے مالکانہ ادا کر کے نکاسی معدن کریں گے۔ فریقین کے درمیان باہمی رضامندی نہ ہونے کی صورت میں پنجاب معدنی قواعد 208 کے تحت لائسنسنگ اتھارٹی کی طرف سے مقرر کردہ ریٹ اور طریقہ کار کے مطابق مالکانہ ادا کیے کریں گے، لائسنسنگ اتھارٹی کا ریٹ کے بارے میں کیا گیا فیصلہ حتمی تصور ہو گا۔ اور اگر مالک اراضی بھی اپنی ذاتی زمین سے معدن کی نکاسی کرے گا تو وہ بھی محکمہ معدنیات سے پید دار کو رقبہ کی ادا کرنے کا پابند ہو گا۔
- (14) یہ کہ اگر معدنی نکاسی کے کسی کام کی وجہ سے کسی شخص کو نقصان یا پریشانی کا سامنا کرنا پڑے تو ایسی صورت میں آپ متعلقہ اتھارٹی کی طرف سے قانون کے مطابق طے کردہ معاوضہ متعلقہ شخص کو ادا کرنے کے پابند ہوں گے۔
- (15) یہ کہ اگر زیر تصرف پید / رقبہ یا اس کا کوئی حصہ کسی مفاد عامہ کے مقصد کے لیے حکومت کو درکار ہو تو ایسی صورت میں لائسنسنگ اتھارٹی کو مطلوبہ رقبہ واپس لینے کا اختیار حاصل ہو گا۔ البتہ زر نیامی میں چھوٹے رقبہ کی نسبت سے کمی کر دی جائے گی۔

[2]

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- (16) یہ کہ آپ اپنی کاپی یا فرم کے دستور (Constitution) میں لائسنسنگ اتھارٹی کی طرف سے پیشگی تحریری اجازت حاصل کیے بغیر کسی قسم کی تبدیلی کرنے کے مجاز نہ ہوں گے۔
- (17) یہ کہ آپ معدنی پتہ کے تحت حاصل شدہ حقوق یا معدنی پتہ کا رقبہ یا اس کا کوئی حصہ لائسنسنگ اتھارٹی سے پیشگی تحریری اجازت کے بغیر کسی دیگر شخص کو منتقل نہیں کر سکیں گے۔ اگر آپ ایسا معدنی پتہ کسی دیگر شخص کو منتقل کرنا چاہیں گے تو آپ یہ عادیہ ختم ہونے سے کم از کم تین ماہ پیشتر درخواست برائے منتقلی پتہ مقرر کردہ نئس ذاتی طور پر لائسنسنگ اتھارٹی یا اسکے نامزد آفیسر کے پاس جمع کرائیں گے اور درخواست پر آپ کے اور پتہ حاصل کرنے والے شخص کے دستخط کسی مجاز آفیسر کے سامنے ضروری ہیں۔ لائسنسنگ اتھارٹی کی طرف سے پتہ کی منتقلی کی منظوری کے بعد آپ (Assignor) کی طرف سے پہلے سے جمع کرائی گئی سیکورٹی صرف اس وقت آپ کو واپس کی جائے گی جب پتہ حاصل کرنے والا شخص (Assignee) کی طرف سے نئی سیکورٹی حکمہ کے پاس جمع کرا دی جائے گی۔ وگرنہ نتائج کی ذمہ داری آپ پر ہوگی۔
- (18) یہ کہ آپ اس وقت تک الاٹ شدہ رقبہ سے معدن رواگی نہیں کریں گے جب تک آپ اپنے دستخطوں یا اپنے نامزد نمائندہ کے دستخطوں سے ایسی دستخطی سلیپ جو کہ لائسنسنگ اتھارٹی کی طرف سے مقرر کی گئی ہو جاری نہیں کریں گے جس پر آپ کا نام، پتہ، کا نام یا نمبر اور محل وقوع، گاڑی کا نمبر، ڈسٹریکٹ سلیپ کا نمبر، تاریخ اجراء اور نتیجی جائیداد معدن کی مقدار، قیمت اور شیڈول رقم مندرج ہو۔ اگر آپ مجوزہ ڈسٹریکٹ سلیپ جاری کرنے میں ناکام رہے تو لائسنسنگ اتھارٹی یا اس کی طرف سے نامزد آفیسر آپ پر حکومت کی طرف سے مقرر کیا گیا جرمانہ عائد کرے گا (ڈسٹریکٹ سلیپ کا نمونہ لفٹ ہے)۔ اور مسلسل خلاف ورزی کی صورت میں قاعدہ (3) 229 کے تحت پتہ منسوخ کر دیا جائے گا۔
- (19) یہ کہ آپ موقع پر چیک پوسٹ کے محل وقوع اور اپنے مجاز نمائندہ کے تمام کو آف بمعدن دستخط لائسنسنگ اتھارٹی کے اجراء سے اندر دس یوم دفتر ہذا کو مطلع کر آئیں گے، صرف مجاز نمائندہ ہی ڈسٹریکٹ سلیپ پر دستخط کرے گا، مجاز نمائندہ کی تقرری میں بعد ازاں اگر کوئی تبدیلی کی گئی ہو تو اسکی اطلاع دفتر ہذا کو اندر تین یوم فراہم کرنا ہوگی وگرنہ نتائج کی ذمہ داری آپ پر ہوگی۔
- (20) یہ کہ حکمہ آپاچی کی طرف سے بنائے گئے ایسے حائلتی بندوں، سپروں (Spurs)، تربت گاہوں اور دیگر تھیمیاٹ وغیرہ سے 100 میٹر تک عام ریت کی نکالی کا کام کرنے کے مجاز نہ ہوں گے۔ تاہم حکومت کی طرف سے بذریعہ نوٹیفیکیشن مقررہ قرار دیے گئے ناصلا تک بھی نکالی معدن کے مجاز نہ ہوں گے۔
- (21) یہ کہ آپ آئی گزر گاہوں کے درمیان کوئی ایسی تعمیر یا تھیمیاٹ نہ کریں گے اور نہ ہی معدنی نکالی کا کام اس طریقے سے کریں گے جس سے پانی کے بہاؤ اور آبی گزر گاہوں میں کسی قسم کی رکاوٹ پیدا ہو سکتی ہو۔
- (22) یہ کہ آپ دریا یا ندی نالوں میں بارش یا سیلاب کی وجہ سے کام متاثر ہونے کی صورت میں یا خطر ناک کابھکی کی بناء پر کام متاثر ہونے کی وجہ سے کسی قسم کی رعایت کے حقدار نہ ہوں گے۔ الاٹمنٹ میں درج جارج سے پتہ کی تاریخ اور قبضہ پتہ تصور ہوگا اور آپ اس میں کسی قسم کی ترمیم کا حق حاصل نہ ہوگا۔
- (23) آپ ما سز ایکٹ 1923ء کی ریگولیشن کے مطابق کام کریں گے، نیز چیف انسپکٹر آف مائنز پنجاب کی طرف سے وقتاً فوقتاً جاری کی گئی ہدایات پر عمل کرنے کے پابند ہوں گے۔
- (24) آپ تمام اقسام کے ٹیکس ہائے جو حکومت پاکستان، حکومت پنجاب، کی منظوری سے لاگو ہوں گے ادا کرنے کے پابند ہوں گے۔ نیز آپ حکومت پنجاب اور حکومت پاکستان کی طرف سے لاگو کردہ قوانین کے تحت ہوں گے۔
- (25) عطا شدہ تمام رقبہ میں معدن کا پایا جان ضروری نہیں۔ نیز زیر قبضہ رقبہ کے کسی حصہ پر ہونے والا کام پورے عطا شدہ رقبہ میں کام تصور ہوگا۔
- (26) عطا شدہ رقبہ میں پہلے سے تحصیل شدہ کریٹرز، عمارات یا دیگر کسی قسم کی تھیمیاٹ کی بناء پر پتہ دار کسی رعایت کا حقدار نہ ہوگا۔
- (27) پتہ دار حکومت پنجاب کی طرف سے مقرر کردہ درج ذیل شیڈول ریت سے زائد عام ریت / گھسرا، گریول، سینڈ سٹون اور سلیٹ سٹون کی قیمت فروخت وصول نہیں کرے گا اور اگر ایسا کرتا ہو یا پایا گیا تو اس کے خلاف پنجاب معدنی مراعاتی قوانین مجریہ 2002 کے قاعدہ نمبر 195- A کے تحت کارروائی عمل میں لائی جائے گی اور لائسنسنگ اتھارٹی اس خلاف ورزی پر اس کا معدنی پتہ منسوخ کرنے کی مجاز ہوگی۔ تاہم پتہ دار شیڈول ریت کے زیادہ سے زیادہ نصف تک مالکانہ بھی وصول کرنے کا مجاز ہوگا۔ جس کی ادائیگی مالک اراضی کو کرنا ہوگی۔
- (28) اگر پتہ ہذا کھل رقبہ یا اس کا کچھ حصہ حکمہ جنگلات کے زیر قبضہ اراضی میں واقع ہو تو آپ نکالی معدن / ریت وغیرہ کرنے سے قبل متعلقہ تھیم جنگلات سے نکالی معدن کا معاہدہ کریں گے جس میں:
- (i) ریت کی نکالی صرف آبی راستہ (خشک یا بندی) والے رقبہ سے ہی کی جائے گی اور متعلقہ تھیم جنگلات ریت نکالنے والے رقبہ کی نشاندہی کرے گا اور آپ صرف نشاندہی والے رقبہ سے ہی ریت نکالنے کے مجاز ہوں گے۔ اگر تھیم جنگلات کسی بھی جنگل کی اراضی سے معدن کی نکالی کی اجازت نہ دے تو آپ وہاں سے نکالی نہ کرنے کے پابند ہوں گے۔
- (ii) آپ حکمہ جنگلات کے ساتھ تخمینہ شدہ مقدار ریت کا مالکانہ جو حکمہ مائنز اینڈ منرلز وقتاً فوقتاً مقرر کرتا ہے کے مطابق ادا کرنے کے پابند ہوں گے۔ اور رقم مالکانہ پیشگی ادا کرنے کے پابند ہوں گے۔

از مورخہ 26.06.2025 تا 25.06.2027

ایم ایل / ڈی ڈی ایم ایم / گوجرانوالہ - عام ریت / بھسرا / اہیلہ خاکی / ٹھٹھی بلوچ زون
میلغ - 203550000/20 روپے بنام: میسرز ناصر نواز اینڈ کمپنی



(iii) نکاحی ریت کے لیے متعلقہ متہم جنگلات راستہ کا تعین کرے گا جس کا Surface Rent ٹیکہ جنگلات اور جو ٹیکہ مائنز اینڈ منرلز کے تعین شدہ شرح کے مطابق پیشگی ادا کرنے کا پابند ہوگا۔

(iv) ٹیکس اور نکاحی ریت اس روٹ کی توڑ پھوڑ کی وقتاً فوقتاً 'مرمت اور ٹیکس کی منظوری کے بعد مکمل طور پر اس کی مرمت کا ذمہ دار ہوگا۔

(v) ٹیکس اور نکاحی ریت متعلقہ متہم جنگلات کے پاس راستہ کی بحالی کے لیے مقررہ سیکورٹی بحساب فی ایکڑ جمع کرانے کا جو غیر تسلی بخش بحالی کی صورت میں شامل ضلعی ہوگی۔

(vi) اگر ٹیکس اور نکاحی ریت کا نمائندہ کسی قسم کے نقصان چھلکا کرے تو اس کے خلاف فاریسٹ ایکٹ 1927 ترمیم شدہ 2010 کے تحت تادیبی کارروائی کی جاسکے گی۔

(29)۔ یہ کہ کسی بھی پید سے نکاحی ریت بذریعہ ڈریج مشین کی ہرگز اجازت نہ ہوگی۔ البتہ دریائی ریت کے پید جات میں جیتے پائی میں، ٹیکس اور نکاحی ریت کی اجازت لینے کے بعد، ڈریج مشین سے نکاحی ریت برطانیہ شراٹکا ٹیکہ ماحولیات ہوگی۔ شرط ہڈا کی خلاف ورزی پر فوری طور پر پید منسوخ کر دیا جاسکے گا۔

(30) یہ کہ پید کی حفاظت کے دوران متعلقہ معدنی قوانین میں ترمیم کے تحت اگر کوئی اضافی شراٹکا عائد کی گئیں تو پید دار اس کی پابندی کرنے کا پابند ہوگا۔

(31) آپ ٹیکہ محفوظ ماحولیات پنجاب کی طرف سے منظور شدہ Environmental Approval میں درج تمام شراٹکا و ضوابط پر عمل کرنے سے چاہندے ہوں گے۔

(32) لاہور ہائی کورٹ ملتان بینچ نے اپنے فیصلہ مورخہ 29.04.2016 کے تحت سرنڈرول 219 اور رولز (a) اور (b) 207 ختم کر دیا تھا جس نے لاہور ہائی کورٹ ملتان بینچ کے مذکور بالا فیصلے کے خلاف لاہور ہائی کورٹ ڈویژن بینچ لاہور میں اپیل درکار رکھی ہے جس میں لاہور ہائی کورٹ ڈویژن بینچ لاہور نے لاہور ہائی کورٹ ملتان بینچ کے فیصلہ کو منسوخ کر دیا ہے اس لیے یہ روزنامہ الحال رہا عمل میں۔

سیکرٹری ضلع غلام سبکی / ڈی ڈی ایم ایم / گوجرانوالہ
Deputy Director
Miner and Minerals
Gujranwala Region

تفصیل 15% سیکورٹی

نمبر شمار	سی / ایس ڈی آر نمبر	رقم میلغ	بینک	تاریخ
1	3513130000034	240-32-500/-	عسکری بینک، علی پور چمنڈ برانچ	20.06.2025
2	06038062	65-00-000/-	یونائیٹڈ بینک لیسٹڈ، ماویک برانچ	18.06.2025

مورخہ 26.06.2025

تعمیر مر اسلہ نمبر ایم ایم ایل / ڈی ڈی ایم ایم / گوجرانوالہ - عام ریت / بھسرا / اہیلہ خاکی / ٹھٹھی بلوچ زون /

- جناب ڈائریکٹر جنرل مائنز اینڈ منرلز پنجاب، پونچھ حاکم ملتان روڈ لاہور۔
- جناب ڈائریکٹر انفارمیشن، مائنز اینڈ منرلز پنجاب، پونچھ حاکم ملتان روڈ لاہور۔
- جناب ڈپٹی سیکرٹری گوجرانوالہ۔
- ڈپٹی سیکرٹری ٹیکسٹائل مائنز اینڈ منرلز ڈیپارٹمنٹ پنجاب لاہور۔
- سپرنٹنڈنٹ آئی ایس صدر دفتر لاہور۔
- جناب جوینئر انسپکٹر آف مائنز سیکشن۔
- جناب ڈپٹی سیکرٹری فارسٹ آفسیر گوجرانوالہ۔
- ایگزیکٹو انجینئر (ٹیکسٹائل) ضلع گوجرانوالہ۔
- اسسٹنٹ ڈائریکٹر ٹیکسٹائل ماحولیات، گوجرانوالہ۔
- مسٹر غلام ای آفیسر ضلع گوجرانوالہ۔



سیکرٹری ضلع نظام کشتی / ایٹمی ڈائریکٹر مائنز اینڈ مینرلز
گوجرانوالہ

ردائی رسید

منقول شدہ شیڈول حکومت پنجاب
ضلع: گوجرانوالہ

عام ریت = ملغ 300 فی سینکڑہ

بھسرا / گھسر = ملغ 100 فی سینکڑہ

نام پتہ دار: میسرز ناصر نواز اینڈ کمپنی

ایم ایل / ڈی ڈی ایم ایم / گوجرانوالہ - عام ریت / بھسرا / ہیڈ خانگی / عطشی بلوچ ذون

تاریخ: ٹرک / ڈریکٹر ٹرائی نمبر

مقدار معدن: رقم وصول شدہ

دستخط نمائندہ / شہ پتہ دار

رسید بابت لوڈنگ + مٹی پٹانا + راستہ ہوار کرنا وغیرہ

نام پتہ دار:

ایم ایل / ڈی ڈی ایم ایم / گوجرانوالہ - عام ریت / بھسرا / ہیڈ خانگی / عطشی بلوچ ذون

تاریخ: ٹرک / ڈریکٹر ٹرائی نمبر

مقدار معدن: رقم وصول شدہ

دستخط نمائندہ / شہ پتہ دار

رسیدات بابت مالکانہ

منقول شدہ شیڈول حکومت پنجاب

ضلع: گوجرانوالہ

عام ریت = ملغ 150 فی سینکڑہ

بھسرا / گھسر = ملغ 50 فی سینکڑہ

ایم ایل / ڈی ڈی ایم ایم / گوجرانوالہ - عام ریت / بھسرا / ہیڈ خانگی / عطشی بلوچ ذون

عام ریت ()

نام پتہ دار / مالک اراضی: ٹرک / ڈریکٹر ٹرائی نمبر

مقدار معدن: رقم وصول شدہ

دستخط نمائندہ / شہ پتہ دار

Deputy Director
Miner and Minerals
Gujranwala Region

آمدت مناب ڈی ایچ ڈی ایئر ٹیکس ایس۔ نرقی لکھنات ڈی ایئر ایئر

مکانات مناب ڈی ایئر ٹیکس ایس۔ نرقی لکھنات ڈی ایئر ایئر

مکانات مناب ڈی ایئر ٹیکس ایس۔ نرقی لکھنات ڈی ایئر ایئر

1- مکانات مناب ڈی ایئر ٹیکس ایس۔ نرقی لکھنات ڈی ایئر ایئر
 دینے 4 6/25 کو منبہ ڈی ایئر ٹیکس ایس۔ نرقی لکھنات ڈی ایئر ایئر
 جوہر منبہ ڈی ایئر ٹیکس ایس۔ نرقی لکھنات ڈی ایئر ایئر
 سیکورٹی ٹیکس 10% Tax طاری ہوا تھا۔

2- مکانات مناب ڈی ایئر ٹیکس ایس۔ نرقی لکھنات ڈی ایئر ایئر
 Tax + 2% ٹیکس ایس۔ نرقی لکھنات ڈی ایئر ایئر

① R 24032500
 R 24032500
 No 0034
 20 6/25

② No 2660 38062
 R 65,00,000-
 R 30,32,500

③
 = TAX
 % 10
 No 6883
 88750
 30,00,000
 2,90,000
 5088750



مکانات مناب ڈی ایئر ٹیکس ایس۔ نرقی لکھنات ڈی ایئر ایئر

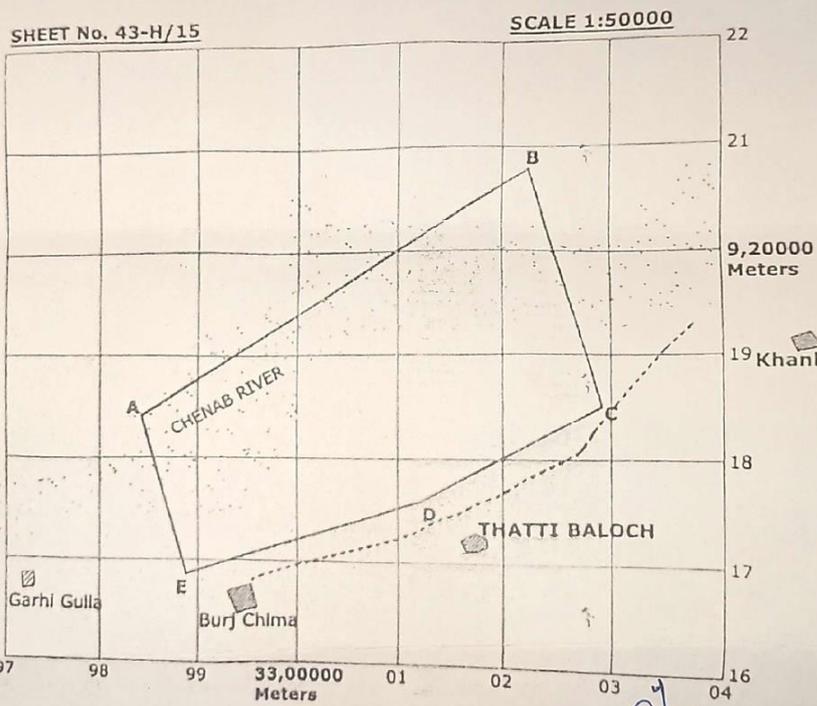
ANNEXURE C

AKS-SHAJRA

PLAN SHOWING THE AREA OF ORDINARY SAND HEAD
KHANKI, THATTI BALOCH ZONE, DISTRICT GUJRANWALA.

POINTS	EASTING (M)	NORTHING (M)
A.	3298880	916870
B.	3298425	918424
C.	3302249	920789
D.	3302914	918507
E.	3301230	917604
TOTAL AREA = 2248.494 ACRES		

Amen E



S & D G
G.R.W

Deputy Director
Miner and Minerals
Gujranwala Region

