ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

OF

CONSTRUCTION OF IMPORT, STORAGE, SALE AND DISTRIBUTION OF HAZARDOUS AND NON-HAZARDOUS PETROLEUM PRODUCTS/CHEMICAL MIXING UNIT/CHEMICAL STORAGE & FORMULATION UNIT BY M/S FALCON ENTERPRISES LIMITED, LOCATED AT ROSHAN STEEL, KAROL GHATTI, BUND ROAD, LAHORE

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PROPONENT:

MR. WALI ALI

Executive Summary

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EXECUTIVE SUMMARY

ABOUT COMPANY

With a strong foundation built on innovation, precision, and sustainability, Falcon Enterprises Limited stands as a pioneering name in Pakistan's specialty chemicals and industry. Established with the aim to deliver excellence in chemical formulation, the company has steadily evolved into a trusted manufacturer and solution provider for a broad spectrum of industries including hazardous and non-hazardous petroleum products. Our name reflects our core philosophy—bringing vibrant life to industrial applications through advanced chemical engineering and a deep understanding of aesthetic and functional requirements. Every product developed under the falcon banner is a result of rigorous research, stringent quality control, and an unyielding commitment to environmental responsibility. Over the years, we have expanded our operations to include a comprehensive schedule of industrial chemicals, solvents, and petroleum products (encompassing both Dangerous Petroleum (DP) and Non-Dangerous Petroleum (NDP) categories). The complete inventory of intended chemicals includes: Hexene, Xylene, Toluene, Solvent oil, White spirit, Sodium meta bisulphate, Ethyl acetate—each designed to meet global standards.

M/s Falcon Enterprises Limited is engaged in the commercial import, warehousing, storage, wholesale, sale, and distribution of various hazardous and non-hazardous petroleum products and chemicals. The company aims to provide reliable chemical storage, handling, supply, and distribution services to meet the requirements of local and international markets. Its operations are intended to be supported by appropriate storage infrastructure, handling equipment, quality control arrangements, and qualified personnel to ensure the safe and efficient management of chemical products.

The company focuses on maintaining product quality, operational efficiency, workplace safety, and responsible chemical management throughout its business activities. Through continuous improvements in operational practices, technology, and resource management, M/s Falcon Enterprises Limited seeks to strengthen its services while minimizing potential environmental impacts associated with the handling, storage, and distribution of petroleum products and chemicals.

The proposed facility will handle products including Hexane, Xylene, Toluene, Solvent Oil, White Spirit, Sodium Metabisulphite, and Ethyl Acetate. The project also encompasses

chemical mixing, storage, and formulation activities, subject to the applicable operational and environmental requirements.

This executive summary presents an overview of the main findings of the Environmental Impact Assessment (EIA) report for "Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit By M/S Falcon Enterprises Limited, Located at Roshan Steel, Karol Ghatti, Bund Road, Lahore". Total area is 14 kanal 7 marla. The estimated cost of the project will be approx... 200 million rupees including land cost

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INTRODUCTION

This summary presents an overview of the main findings of the Environmental Impact Assessment (EIA) report for the "Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit By M/S Falcon Enterprises Limited, Located at Roshan Steel, Karol Ghatti, Bund Road, Lahore. The proposed project site coordinates are **31° 36' 33.3'' N and 74° 21' 41.508'' E**. It is only for Chemical Formulation Unit not production unit or any other purpose. Proponent is requesting for Environmental Approval for said project under section 12 of PEPA (Amended) 2012. The site is situated at Roshan Steel, Karol Ghatti, Bund Road, Lahore, Punjab, Pakistan. Currently project site is an open land where construction will be started after getting environmental approval. Proposed project will be involved for the storage of raw materials for industrial usage and Finishing Products.

SALIENT FEATURE OF PROJECT

Title and Location of Project:

Title of proposed project is "Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit By M/S Falcon Enterprises Limited, located at Roshan Steel, Karol Ghatti, Bund Road, Lahore, which will start construction after getting Environmental Approval from Environment Protection Agency, Punjab. The proposed project site coordinates are **31° 36' 33.3'' N and 74° 21' 41.508'' E.**

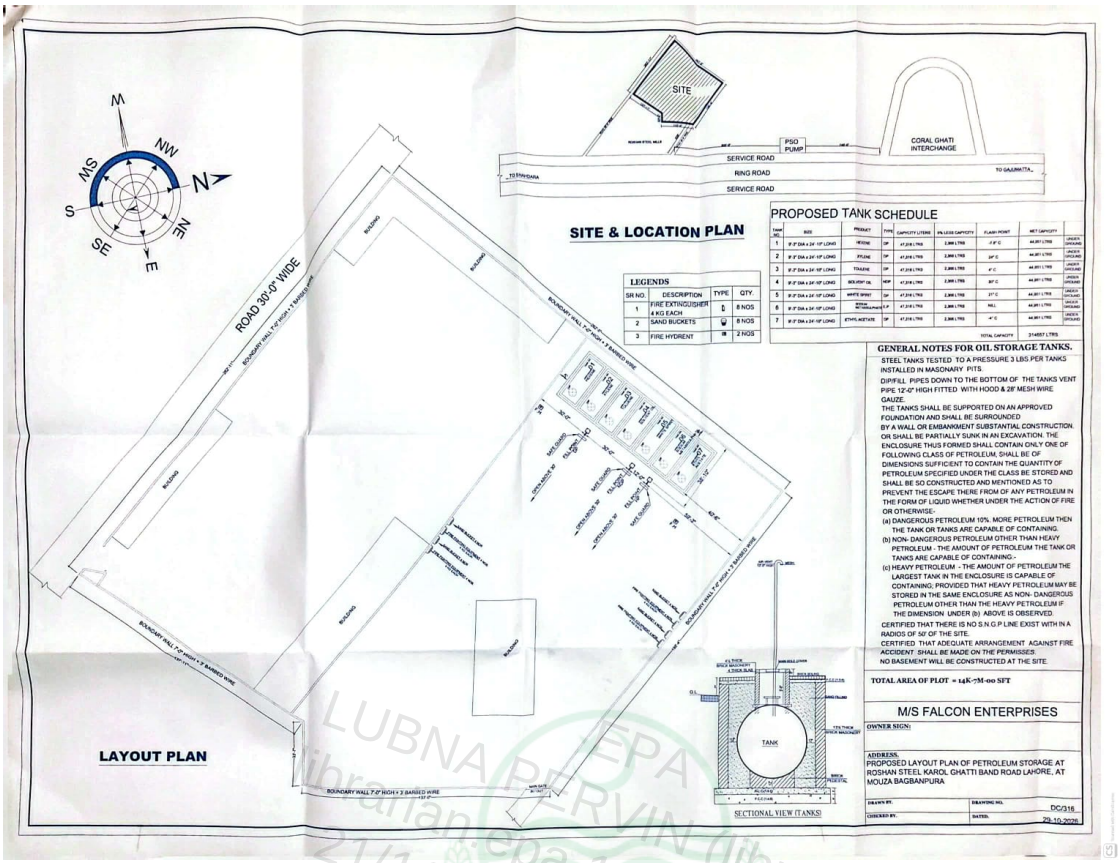
North: Industrial

South: Service Road along with main ring road

East: Industrial Open Land

Wets: Industrial Open Land

Layout Plan



Land Measuring Area

14 kanal and 7 marla is the proposed area of the project (Fard-e-malkiyat along with property ownership documents is attached as an annexure)

Source of power

WAPDA Supply

Total Cost

200 million

Proponent Information:

Name	:	*Mr. Wali Ali S/O Mr. Sheikh Ali Rohale*
Contact	:	*0345-4646406*
Mailing Address	:	*House#78-S, Muhallah Phase-2, DHA Lahore Cantt District*
	:	*Lahore*
Designation	:	*Managing Partner/Principal Proponent*
Email		*Sami.asconsultants@gmail.com*

NAME OF THE ORGANIZATION PREPARING THE REPORT

An Environmental Impact Assessment (EIA) study report has been prepared to identify and predict the environmental impacts likely to arise from the commencement of the project along with environmental impact statement followed by delineation of appropriate Environmental Management Plan and Environmental Monitoring Plan to check the implementation of the EMP. Proponents of the project have decided to conduct EIA report through Environmental Consultants, namely A.S. Enterprises located at office # 33, Fazlia Colony, Main Firozpur Road, Lahore.

A Brief Outline of Proposal

A Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit is being established within an industrial premises. The unit will be involved in the formulation and storage of various chemical products including industrial chemicals, solvents, and petroleum products (encompassing both Dangerous Petroleum [DP] and Non-Dangerous Petroleum [NDP] categories). The complete inventory of intended chemicals includes Hexene, Xylene, Toluene, Solvent oil, White spirit, Sodium meta bisulphate, Ethyl acetate. The storage area will be used for keeping raw materials required for industrial usage and finished products. This initiative aims to streamline the mixing process and ensure efficient material handling within the facility.

Name of the project:	Construction of Import, Storage, Sale And Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit By M/S Falcon Enterprises Limited, Located at Roshan Steel, Karol Ghatti, Bund Road, Lahore
Description of project	Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products i.e., Hexane, Xylene, Toluene, Solvent Oil, White Spirit, Sodium Metabisulphate and Ethyl Acetate / Chemical Mixing Unit/Chemical Storage & Formulation Unit By M/S Falcon Enterprises Limited, Located At Roshan Steel, Karol Ghatti, Bund Road, Lahore.
Location of the project:	Roshan Steel, Karol Ghatti, Bund Road, Lahore.

Proposed Area:	Total area is 14 kanal and 7 marla.
Nature of Project:	Nature of the project is proposed. At the time of visit, project site was an open plot and no constructional activities had been started at the project site other than office building.
Cost of the project:	Total cost of the project will be approx. 200 million rupees including land cost.
Project Specification:	The Construction of Import, Storage, Sale And Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit By M/S Falcon Enterprises Limited, Located at Roshan Steel, Karol Ghatti, Bund Road, Lahore, should be designed to store raw materials and finished products efficiently and safely. It should be located in a strategic location, have a robust structure, and be equipped with advanced fire safety and security systems. The Unit should also incorporate energy-efficient features and sustainable practices to minimize its environmental impact. Additionally, it should have a well-designed layout, adequate lighting, ventilation, and material handling systems to optimize storage and retrieval processes.
Detail of Equipment:	The proposed project, will require a range of equipment to ensure efficient operations. Material handling equipment such as forklifts, pallet jacks, stackers, and conveyors will facilitate the movement of goods. Storage systems like pallet racks, shelving, and mezzanine floors will optimize storage space. Additional equipment, including hand trucks, dock levelers, and Unit management systems, will streamline processes. To prioritize safety, personal protective equipment, fire extinguishers, and a fire alarm system will be essential.
Labor/ Workforce:	During construction: 45-50 (estimated) During Operation: 10-20(estimated)
Water Requirement	During the constructional phase of the project approximately 1500-gallon water will be required per day for constructional and domestic uses. During the operational phase of the project

	approx. 2000 Liters/day water will be required for domestic purposes.
Solid waste:	Approx. 600-800 kg/day constructional and domestic waste will be produced during the constructional phase of the project. During operation: 9-10 kg/day domestic. At the time of maintenance project waste will be generated, which will be Handed over to contractors.

PROPOSED TANK SCHEDULE

SR. NO	SIZE	PRODUCT	TYPE	CAPACITY LITRES	5% LESS CAPACITY	FLASH POINT	NET CAPACITY	
1	9'-3"DIA*24'-10"Long	HEXENE	DP	47,316	2,366	-7.6 c	44,951	Under ground
2	9'-3"DIA*24'-10"Long	XYLENE	DP	47,316	2,366	24 c	44,951	Under ground
3	9'-3"DIA*24'-10"Long	TOULENE	DP	47,316	2,366	4 c	44,951	Under Ground
4	9'-3"DIA*24'-10"Long	SOLVENT OIL	NDP	47,316	2,366	30 c	44,951	Under Ground
5	9'-3"DIA*24'-10"Long	WHITE SPIRIT	DP	47,316	2,366	21 c	44,951	Under Ground
6	9'-3"DIA*24'-10"Long	SODIUM METABISULPHATE	EP	47,316	2,366	Nil	44,951	Under ground
7	9'-3"DIA*24'-10"Long	ETHYL ACETATE	DP	47,316	2,366	-4 c	44,951	Under Ground
Total Capacity							**314657**	

GENERAL NOTES FOR OIL STORAGE TANKS

Steel tanks tested to a pressure 3 LBS.PER tanks installed in masonary pits. Dip/fill pipes down to the bottom of the tanks vent pipe 12-0" high fitted with hood & 28' mesh wire Gauze.

The tanks shall be supported on an approved foundation and shall be surrounded by a wall or embankment substantial construction or shall be partially sunk in an excavation. The enclosure thus formed shall contain only one of following class of petroleum, shall be of Dimensions sufficient to contain the quantity of petroleum specified under the class be stored and shall be so constructed and mentioned as to prevent the escape there from of any petroleum in the form of liquid whether under the action of fire or otherwise-

a) Dangerous petroleum 10%. more petroleum than the tank or tanks are capable of containing.
b) Non-Dangerous petroleum other than the heavy petroleum-The amount of Petroleum tank or the tank are capable of containing
c) Heavy Petroleum: The amount of petroleum the largest tank in the same enclosure as non-dangerous petroleum other than the heavy petroleum if the dimension under(b) above is observed.

Certified that there is no S.N.G.P line exist within a radius of 50' of the sites.

Certified that adequate arrangement against fire accident shall be made on the premises.

No basement will be constructed at the site.

The Major Impacts & Recommended Mitigation Measures

Keeping in view, all the findings of the baseline study, and through general observation and desktop study, and understanding of the activities and processes involved in the project, environmental impacts have been anticipated. Following impact assessment methodology; i.e., defining the criteria for evaluation of the impacts, identification of mitigation measures (all possible options), evaluation of the residual impacts and identification of the monitoring requirements, adequate and effective mitigation measures have been proposed for all construction and operation related likely environmental impacts of the project. These mitigation measures have been proposed in order of attempts to eliminate or minimize the impact, provide some compensation or rehabilitate the environment by some means.

Weather describes an impact as having both spatial and temporal impacts, which can be described as the change in an environmental parameter over a specified period and within a defined area, resulting from a particular activity compared with the situation which would have occurred had the activity not been initiated. The expected impacts from the project are mostly insignificant and others are of limited nature. In this regard possible improvements and mitigation measures have been taken. The study also shows that there will be no exploitation and consequential depletion of the local natural resources. The general approach to Environmental Management Plan for the Project, for the construction and operational phases of the Project has been presented, along with an outline plan for the Project Environmental Management Plans (EMPs). Site specific and practically suitable mitigation measures are recommended to mitigate the impacts.

Impact	Mitigation measure
Solid Waste Management	• Solid waste of construction activities will be used for flooring, while the remaining solid waste will be managed as per practices in the area.
Safety	• For community safety, irrelevant persons will not be allowed inside. Safety of the workers will be ensured by developing SOPs for all jobs, training the workers to follow SOPs, discouraging any careless attitude of workers and providing the workers with, and encouraging them to use PPEs.

Proposed Monitoring:

Monitoring at the proposed site has been conducted for:

- Air Environment (Meteorology, Ambient Air Quality, Noise Levels, Traffic Pattern, etc.)
- Water Environment (Quality, and Quantity of all potential water sources: Surface and Groundwater)
- Ecological Environment (Terrestrial and Aquatic Flora & Fauna)
- Socio-Economic Environment (Demographic profile, Occupational structure, educational status, literacy status, etc.)

Conclusion

The Environmental Impact Assessment (EIA) contains description of the project, description of the environmental baselines, potential environmental impacts and suggested mitigation measures. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan is included in the study. While the objectives of this study have been to describe the project and its environmental impact, it also identifies adverse environmental factors associated with the project. Appropriate mitigation measures as explained in the environmental study should reduce, if not eliminate, these impacts so that these are within acceptable limits. It is further concluded that all potential environmental concerns associated with the project have been adequately addressed, and no further study is required in this context.

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CHAPTER 1: INTRODUCTION

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CHAPTER I: INTRODUCTION

1.0 Purpose of the Report

This report intends to fulfill the regulatory requirements set under Punjab Environmental Protection Act (Amended 2012) 1997 and its consequent legislative framework for IEE/EIA including the IEE/EIA Regulations 2022 and the guidelines drafted for IEE and EIA under numerous sectorial heads. The entire set of legislative framework requires any new development project to undergo an IEE or EIA based on the categorization of the project under Schedule I or Schedule II.

1.1 Identification of the Proponent

Wali Ali S/O Sheikh Ali Rohale Proponent of Proposed project "Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit By M/S Falcon Enterprises Limited, Located at Roshan Steel, Karol Ghatti, Bund Road, Lahore, **R/O** House# 78-S, Muhallah Phase-2, DHA Lahore Cantt District Lahore.

1.2 Nature and Size of Project

M/S Falcon Enterprises Limited is going to establish Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit. The Project aims to construct a Chemical Formulation Unit & Storage. This Unit will be Store raw material and finishing products through proper environment friendly conditions. Project area is 14 Kanal 07 Marla and it is located at Roshan Steel, Karol Ghatti, Bund Road, Lahore, where industrial activities are already going on. The proposed project site coordinates are **31°36'33.3"N & 74°21'41.508"E**. Project is an open plot with no worthy flora and fauna here. After getting Environmental Approval under section 12 of PEPA (Amended) 2012, proponent will start construction. Project will follow all SOPs under Basel Convention and all regulatory guidelines. Project cost is 200 million including land cost and proponent is committed to spend 0.1 million for environmental budget. Project has not any worthy fauna and flora and after construction proponent will grow green belt of native flora which will make aesthetic beauty and reduce pollution level. Solid waste during construction phase will be reused in construction activities while solid waste during operational phase will be managed (Collection, storage and disposal) by sanitary workers of that area. Adequate firefighting arrangements will be

provided at the proposed project site to deal with any case of emergency. The socio-economic impacts like employment, education and lifestyle and cultural uplift are the directed benefits during this stage for the people of the project area. Facilities like commodity market and education will also generate working opportunities for the residents of nearby communities. Along with the secondary facilities, the proponent of the proposed project has planned provision of the basic facilities/utilities for the proposed project. Adequate open space has been provided around the buildings in order to maintain the aesthetic beauty of the area.

1.3 Eco-Friendly Features of the Project

Special feature of the project is its eco-friendly design through provision of unique elevation and landscaping. The basic idea of the concept is to create a safe, modern as well as environmentally friendly design to ensure improved working conditions required by the potential users. The reason of adopting sustainability or 'bioclimatic' approach to the design provides opportunities to address problems relating to energy usage and air quality.

Environmental segment/element	Monitoring parameters	Reference location / monitoring Point	Monitoring frequency
CONSTRUCTION PHASE			
Water Quality	As prescribed by the Punjab environmental Drinking Water Quality Standards	Main Drinking Water Source	Quarterly
Ambient air Emissions	Dust, smoke, PM, SOx, NOx, CO,	Use of generators, movement of materials, digging or excavation.	Quarterly
Waste water including Sewage	Ensure that all wastewater is treated to the level set by the PEQS-Pakistan.	The sewage or sanitary wastewater by the campsite and use for other construction activities.	Quarterly
Noise	The Levels prescribed as in Punjab environmental quality standards	The noise produced by the machinery during construction work.	Quarterly
Solid Waste Disposal	Ensure that all wastes are disposed of according to legal requirements of the country.	The waste material, rubble and solid waste produced by the camp Site	Quarterly
OPERATIONAL PHASE			

Environmental segment/element	Monitoring parameters	Reference location / monitoring Point	Monitoring frequency
Waste water including Sewage	Ensure that all wastewater is treated to the level set by the PEQS.	Main Disposal Site	Monthly
Noise	Noise levels	Operation area	Periodic monitoring
Solid Waste Disposal	Ensure that all wastes are disposed of according to legal requirements of the country.	solid waste	Regularly in connection with environmental and safety rounds.

1.4 Location

The project site is Situated Roshan steel, Karol Ghatti, bund road, Lahore. The proposed project site coordinates are 31°36'33.3"N & 74°21'41.508"E



1.5 Extent/scope of IEE/EIA Study

This Environmental Impact Assessment (EIA) report has been conducted in accordance with the requirements of PEPA, 1997 (amended 2012), IEE/EIA Regulations 2022 as well as section 2.3 of the Guidelines for the Perpetration and Review of Environmental Reports 1997/2022. This Environmental Impact

Assessment (EIA) report presents screening of potential environmental impacts of the proposed construction and operational phase and presents the necessary mitigation measures to eliminate or reduce the negative impacts to an acceptable level. The report provides an Environmental Management and Monitoring Plan and the institutional requirements for the implementation of this plan. The format of this EIA covers; Introduction, Screening, Project Description, Environmental Regulatory Framework, Description of the Environment, Public Participation/Stakeholder Consultation, Screening of Potential Environmental Impacts and Mitigation Measures, Environmental management and Monitoring Plan, Conclusions and Recommendations and Annexure.

1.6 SCOPE OF STUDY

For the EIA study, the scope of work is as under:

- Description of physical, ecological and socio-economic conditions in and around the facility.
- Project impact identification, prediction and significance at all stages of the project including planning, implementation and operation.
- Identification and assessment of the workability of mitigation measures to offset or minimize negative project impacts on environment.
- Identification of occupational hazards during all stages of the project and laying down suggestions for improvement in the conditions.

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METHODOLOGY

Methodology of preparing EIA report follows:

- **SCOPING**

The key activities of this phase include:

Project Data Compilation: A generic description of the activities relevant to environmental assessment is compiled with the help of the proponent.

Published Literature Review: Secondary data on weather, water resources and vegetation, and other relevant environmental features of the project area and the similar projects, is reviewed and compiled.

Legislative Review: Information on relevant legislations, regulations, guidelines, and standards is reviewed and compiled.

Identification of Potential Impacts: The information collected is reviewed and potential environmental issues are identified.

Identification of Mitigation Measures: Mitigation measures are identified for all the likely impacts in order of preference for avoiding the impacts altogether, minimizing their frequency or extent and compensating or rectifying the losses; as may be found practicable in the project.

Selection of Alternatives: Based on the potential impacts and the cost required to mitigate them, most crucial project employing the best available technology at the most feasible site is selected.

Scoping Meeting: A scoping meeting was held to share this basic level of project information with all the project stakeholders before the information is incorporated into the report, so that some improvement can be sought out in the data as may be necessary, better or more friendly alternatives can be selected, and better and more practicable mitigation measures can be suggested.

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- **BASELINE DATA COLLECTION**

A considerable amount of baseline information on the project area was available from the environmental studies previously conducted in the region of other projects. A field visit was conducted to collect primary data on the water quality, ambient air quality, noise level, and ecological species surviving in the area and the ecosystems prevalent, and the lifestyle, socio-cultural setup, income and sources of income and the facilities available for the residents in the areas around the unit. For ambient air and water quality, tests were conducted by an EPA-certified laboratory, noise level was measured using noise meter, and for socioeconomic profile, people around the site were interviewed.

- **IMPACT ASSESSMENT**

The environmental and socio-economic features and other project information collected, is used to assess the potential impacts of the activities. The issues studied include potential project impacts on:

- Geomorphology
- Meteorology
- Groundwater and surface water quality
- Ambient air quality& noise level
- The ecology of the area, including flora and fauna
- Local communities

Wherever possible and applicable, the discussion covers the following aspects:

- The potential change(s) in environmental parameters likely to be affected by project related activities
- The identification of potential impacts
- The evaluation of the likelihood and significance of potential impacts
- The defining of mitigation measures to reduce impacts to as low as practicable
- The prediction of any residual impacts, including all long-term and short-term, direct and indirect, and beneficial and adverse impacts
- The drafting of monitoring arrangements of residual impacts

- **DOCUMENTATION**

This EIA Report is prepared according to the relevant guidelines prescribed by the Punjab Environmental Protection Agency at the end of assessment. It includes findings of all the phases of the assessment process. Before preparation of the final report for submittal to the EPA Punjab, draft report was presented to the Proponent for review and comments.

STRUCTURE OF REPORT

The EIA study has been accomplished following the requirements serial 2.3 “Guidelines for the preparation and review of Environmental Report, October 1997. This report comprises following chapters:

Chapter 1: Introduction briefly present the project background, Objective, methodology, and need of the EIA study. (A description of the project, proponent and consultants, the need for the project and the report and method of preparing it).

Chapter 2: Project Description furnishes information about the location of the proposed project, cost and size of the project, its major component and alternative considered for the proposed project to select at the preferred alternatives for detailed environmental assessment. (Full description of the relevant parts of the project and summary of project inputs and outputs).

Chapter 3: Policy, statutory, and institutional Framework comprise policy guidelines, statuary obligation and role of institutions concerning EIA study of the proposed project. (A description of the pertinent national & provincial legislations, regulations and policies that are relevant and applicable to the project and a demonstration of how the project conforms to them).

Chapter 4: Baseline Study (Description of project area's existing physical, biological and socio-economic condition, including geomorphology and soils, water resources, air quality, flora, fauna and demography).

Chapter 5: Public Consultation: Identify the main Stakeholders and their concerns rose through scoping sessions and deals with the measures to mitigate the social impacts.

Chapter 6: Project Impacts and mitigation measures (Presents an assessment of the project's impacts, suggested mitigation measures in order of eliminating or minimizing the impacts or compensating for the loss or rehabilitating the environment, residual impacts and the monitoring requirements).

Chapter7: Environmental Management & Monitoring Plans (Provides Environmental Management Plan & Environmental Monitoring Plan for both construction and operation phases of the project).

Chapter 8: Conclusions & Recommendations (Concludes the EIA Report with a few recommendations to conduct the project in environment-friendly manner).

CHAPTER 2: SCREENING

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CHAPTER 2: SCREENING

According to the Section 12 of Punjab Environmental Protection Act, 1997 (Amended 2012) which states that "No proponent of a project shall commence construction or operation unless he has filed with the Government Agency designated by Federal Environmental Protection Agency or Provincial Environmental Protection Agencies, as the case may be or where the project is likely to cause an adverse environmental effect an Environmental Impact Assessment (EIA) and has obtained from the Government Agency approval in respect thereof."

The subject proposal is "Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit By M/S Falcon Enterprises Limited" Situated Roshan Steel, Karol Ghatti, Bund Road, Lahore. Estimated cost is 200 million.

Screening is performed at the first stage of the EIA process which result in a key EIA decision, namely to either conduct the assessment (based on likely significant impact) or not conduct it (in the anticipated absence of impact). Screening was done as early as possible in the development of the proposal and other stakeholders to be aware of possible EIA obligation.

The standardize approach i.e., define in applicable regulations was applied. According to Review of IEE and EIA Regulations, 2022; the proposed project (Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit) falls under Schedule II (list of projects requiring an EIA), Category- G (waste storage and disposal), Sub category-3 (Hazardous Substance or waste Storage Warehouse) of the IEE/EIA Regulations, 2022, made under section 12 of the Punjab environment protection Act 1997 (Amendment 2012) under which the environmental impact assessment (EIA) is mandatory for getting Environmental Approval. Thus, an EIA Report is being prepared for duly submission in EPA, Punjab and the Director General, EPA Punjab is the authority to issues the request Environmental Approval after proper review the project.

Moreover, following factor were also considered at the earlier stage:

- ✓ Magnitude of change in environmental conditions
- ✓ Diversity of new features with the existing environment
- ✓ Potential for trans-boundary or over large area impact

- ✓ Number of people affected
- ✓ Likelihood of affecting receptors of other types (fauna and flora, businesses, facilities) be affected?
- ✓ Probability of affecting valuable or scarce features or resource
- ✓ Risk or breached environmental standers
- ✓ Risk of affected protected site, area, features
- ✓ High/low probability of the affect occurring
- ✓ Either effect is permanent or temporary
- ✓ Long/short duration of effect
- ✓ Is it impact continuous rather than intermittent?
- ✓ If is it intermittent, will it be frequent rather than rare
- ✓ Reversibility of impact
- ✓ The likelihood to avoid, or reduce or repair or compensate for the effect

After detailed analysis on the basis of these factors: the proposed project was found suitable for Environmental Impact Assessment (EIA) study rather than Initial Environmental Examination (IEE) study.

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CHAPTER 3: SCOPING

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CHAPTER 3: SCOPING

3.1 Spatial and Temporal Boundaries of Environmental Assessment

Project site is open land. That open land will be utilized for construction of Chemical Formulation Unit & Storage/Mixing of Hazardous chemical. Total area of site is 14 kanal 7 marla. A little bit odor issue could rose that will be controlled by adopting proper mitigation measures. Moreover, residential areas are present at safe distance from project site so they would not impact due to odor problem.



Figure 2: Receptors Areal View

3.2 Important issues and concern raised during consultation

During consultation it was observed that maximum of people was in favor of project and following issues and concerns were raised. Stakeholder Consultation it is mentioned in detail in **Chapter 08**.

During survey following concerns of the local community, Government Departments and Environmental Practitioners and experts were noted

- Nuisance must be controlled.
- ASP/State of the art technology must be adopted.
- Locals should be preferred for the job opportunities.
- Monitoring should be done regularly to check efficiency comply with PEQS
- Solid waste should be managed effectively by adopting the standard practices of the area.
- Cleanliness of the area should be ensured.
- An effective EMMP should be designed and enforced with true spirit.
- Health of the workers should be ensured.

- Plantation of indigenous species must be carried out at extensive scale.
- Proper disposal of sludge should be practiced.
- Removal of shrubs and bushes should be avoided to the extent possible.

3.3 Significant impacts and factors to be determined

Main impacts and factors to be determined are:

- Occupational Health and safety.
- Site Security.
- Traffic Management.
- Hygiene management.
- Job opportunities for locals.
- Resource conservation.
- Avoid excessive water consumption.
- Energy efficient techniques must be adopted.
- Proper site restoration after construction.
- Tree plantation at designated green areas.
- Emergency preparedness.

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CHAPTER 4: CONCEDRATION OF ALTERNATIVES

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CHAPTER 4: CONSIDERATION OF ALTERNATIVES

4.0. Consideration of alternatives

This section covers the project alternative consideration for establishment of the proposed industrial unit. An analysis of the available alternative is necessary to establish that the most suitable management and technology options are adopted for the project, while minimizing environmental impact. This evaluation explains the selection of the most feasible alternative in term of economics, environment, and health & safety. In particular, it outlines the following options that were considered for this project.

4.1. Site Alternatives, their selection and rejection criteria

Selection of the site for the proposed industrial plant was governed by many considerations, both the economic analysis of the estimated costs as well as judgment as to the modifying effects of other factors which are more the matter of judgment rather than mathematical calculations, and have considerable effect on the smooth working of the business unit.

The sites were considered for the establishment of proposed unit in and around the Faisalabad as it has become an industrial hub of the country. In the light of general discussion of the factors influencing the industrial location; the sites were evaluated based upon the following criteria;

- **Land:** Suitability, adequacy, and comparable cost of the sites to install the plant and to expand it whenever feasible.
- **Labor**: Availability and affordable wage rates taking cost to benefit analysis into consideration of the skilled, semi-skilled, un-skilled person is required.
- **Transportation**: Regular and sufficient transportation facilities for delivery of materials, dispatch of finished products and for the use of the employees
- **Market**: Size of the local market and the cost of transporting to central markets vis-a-vis the extent of demand.
- **Auxiliary Facilities:** Character of community regarding taxes, legal regulations, public up lift services, financial facilities, educational opportunities, etc.

In the light of this criteria; it was found most feasible to establish the proposed unit in current location which is already EPA approved - owing to the availability of all the facilities under

one roof and minimized hassle of management. The decision was made based upon the following merits:

Roads and other Basic Infrastructure

Basic infrastructures such as roads, water, electricity, telephone, internet etc. are available in the that area. The project site is well connected to the rest of the country by a network of roads and railway lines for transportation of raw materials and final product at cheaper cost. Proponent selected this site for establishment of his unit due to availability of world class industrial infrastructure and safe and secure working environment.

Availability of Manpower

Technical, skilled and unskilled labor is required for construction and operation of the proposed unit. All categories of the labor required for the subject project are available conveniently and plentifully at affordable cost at the present site. This factor also supports the selection of present site for establishment of the unit.

Market for the End Product

There is a tremendous scope for expansion in the chemical & color sector. The per capita consumption of these chemical as compared with the neighboring and other regional countries, is still low, but again this low consumption level indicates that there is a lot of potential for this industry. For instance, the usage of chemicals in different industry has reversed the consumption trend. With due attention to enhance the productivity and improving quality through innovative technique, the exports of product, which was virtually unheard of in recent years, has become an export industry in Pakistan.

Environment

The proposed project is located at Roshan Steel, Karol Ghatti, Bund Road, Lahore where already industrial activity is going on. Environmental considerations are extremely important for project sitting. Baseline Environmental Study was carried out in and around the project site to develop an idea about the physical and biological receptors of the area. Settings around the project area do not show any sensitivity of environment. There is no worth mentioning forestry, biodiversity, fishery, flora, fauna and heritage that can get affected due to proposed project. Also, the project site is situated in the area where population centers are away from the project site. These factors also supported selection of the present site. The project will be

regulated Paction Act 1997 (Amended 2012) and is compliance with the National Environmental Quality Standards (NEQS). Even Environmental Management Plan (UMP) und Environmental Monitoring Plan (MP) will be operational. Taking in consideration all the above-described factors, the selected site in most suited for development of the proposed project,

4.2. Design/Technology Alternatives, their Selection and Rejection Criteria

During the planning and development of the proposed project, different design and technological alternatives are considered to identify the most appropriate options for the import, storage, handling, mixing, formulation, sale, and distribution of hazardous and non-hazardous petroleum products and chemicals. The assessment of alternatives takes into account technical feasibility, operational requirements, environmental performance, occupational health and safety, economic viability, resource efficiency, and compliance with applicable environmental regulations and standards. The selection of the preferred design and technology is based on their ability to ensure safe chemical handling, minimize the risk of accidental spills, leaks, fire and emissions, and reduce potential impacts on the surrounding environment. Alternatives that may result in increased environmental risks, inefficient resource utilization, inadequate safety arrangements, or higher operational and maintenance requirements are considered less suitable and may be rejected. The preferred approach aims to achieve operational efficiency while ensuring environmental protection, workplace safety, and sustainable management of the proposed facility.

4.3. Environmental Alternatives, their Selection and Rejection Criteria

Every development project causes alteration in the existing environment inevitably that can be positive as well as negative. The negative environmental impacts of the proposed industry can be gaseous emission, increased noise levels, excessive water usage, groundwater contamination, and surface water contamination etc. The "no-go" alternative, also referred as the "no-action" alternative or "zero-alternative, can be a consideration in this case. It assumes that the activity does not go ahead, implying a continuation of the current situation or the status quo. It is basically a consideration of the original and undisturbed environment without any development. This option is considered to ensure that all possibilities have been taken into consideration before deciding on a final course of action and also to provide a baseline sinuation against which the other suggested alternatives can be measured.

In a situation where negative environmental impacts have high significance, the "no-go" alternative takes on particular importance. In some cases, the "no-go' alternative may be the only realistic alternative and then it has a critical role to play. It is not true to assume that the 'to-go' alternative la necessarily the best from an environmental perspective. In many cases, expansions and upgrades of existing industries (the "go" alternative) permit the implementation of technological improvements such as the replacement of outdated equipment that leads to reduced emissions to the air or water, in addition to the primary aim of increased production capacity.

The 'no-go' alternative provides the means to compare the impacts of project alternatives with the scenario of a project not going ahead. In evaluating the 'no-go' alternative here; the benefits of the proposed project are more valued for the country. The wide range of applications for hazardous and non-hazardous petroleum products i.e., hexane, xylene, toluene, solvent oil, white spirit, sodium meta bisulphate and ethyl acetate makes them highly versatile in the industry. With various formulations, each product variation can serve multiple industrial purposes. Whether used for large-scale industrial production or specialized short-run projects, these products can be tailored to meet stringent performance, aesthetic, and durability standards.

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4.4. Economic Alternatives, their Selection and Rejection Criteria

Economic alternatives were evaluated by considering the capital and operational costs of the proposed unit. Key factors such as land cost, infrastructure availability, and machinery expenses were carefully analyzed. To reduce infrastructure and management costs, land has been chosen within an already developed industrial estate where basic facilities, such as road networks and utilities, are readily available. State-of-the-art machinery will be installed as a one-time investment, ensuring reduced maintenance expenses and uninterrupted production during the operational phase. This approach will enhance cost efficiency while maintaining consistent output of high-quality hazardous and non-hazardous petroleum products i.e., hexane, xylene, toluene, solvent oil, white spirit, sodium metabisulphate and ethyl acetate.

CHAPTER 5: DESCRIPTION OF THE PROJECT

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CHAPTER V: DESCRIPTION OF THE PROJECT

General

This section deals with project components. It describes the category of the project, cost & magnitude of the project, operation equipment's etc. The information presented in this section is based on project site survey.

5.0 Type and Category of the Project

M/S falcon enterprises limited is going to establish construction of import, storage, sale and distribution of hazardous and non-hazardous petroleum products/chemical mixing unit/chemical storage & formulation unit at Roshan steel, Karol Ghatti, Bund Road, Lahore. According to projects categorization for environmental assessment studies, the proposed project that is construction of import, storage, sale and distribution of hazardous and non-hazardous petroleum products/chemical mixing unit/chemical storage & formulation unit, fall in according to Punjab Environmental Protection Act, the project falls in Schedule II under Category-G (Waste Storage and Disposal), Sub-Category-3 (Hazardous Substance or Waste Storage Warehouse). This report is required to fulfill the legal requirements set under section 12 of the Punjab Environmental Protection Act, 1997 (Amended 2012). Said project is construction of construction of import, storage, sale and distribution of hazardous and non-hazardous petroleum products/chemical mixing unit/chemical storage & formulation unit by m/s falcon enterprises limited, located at Roshan steel, Karol Ghatti, bund road, Lahore.

5.1 Objectives of the Project

M/S Falcon Enterprises Limited is going to establish construction of construction of import, storage, sale and distribution of hazardous and non-hazardous petroleum products/chemical mixing unit/chemical storage & formulation unit, in the premises of industrial area. The propose project aims to construct a Chemical Formulation Unit at Roshan steel, Karol Ghatti, bund road, Lahore, where raw materials for industrial use age and finishing products will be stored through proper environment friendly conditions. construction of import, storage, sale and distribution of hazardous and non-hazardous petroleum products/chemical mixing unit/chemical storage & formulation unit is committed to provide board solutions and management to high standard of corporate governance and adheres to high ethical standards.

5.2 Total Area of Project

The total area is 14 kanal 7 marla.

Cost Breakup

The total cost of project is approx. 146 million. This cost is now including land cost, infrastructure cost and Equipment's cost.

SR.NO	PARTICULARS	AMOUNT
1.	TOTAL LAND COST (14 kanal 7 marla)	RS 153,500,000
2.	TOTAL BUILDING COST	RS 10,000,000
3.	FUTURE BUILDING COST	RS 11,000,000
4.	SOLAR 25KVA	RS 2,000,000
5.	GENERATOR 25KVA	RS 1,000,000
6.	MACHINE COST	RS 4,500,000
7.	GRAND TOTAL	RS 200,000,000/-PKR

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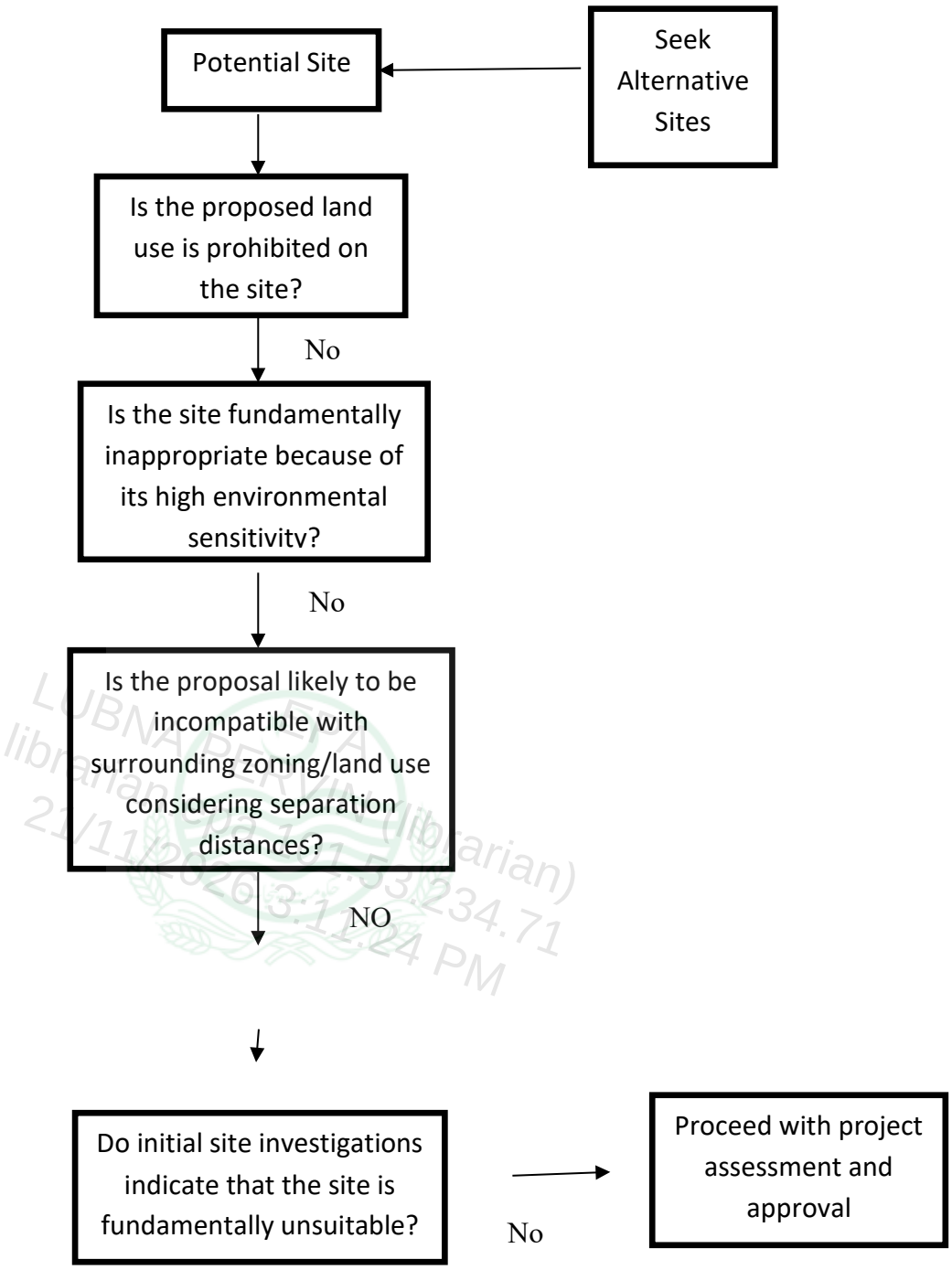
5.3 Alternatives Considered

The proposed project open plots where almost industrial and commercial activities are going on. The said project is an open plot where proper construction will be started after getting environmental approval. Following site selection principles are followed during site selection for the proposed project.



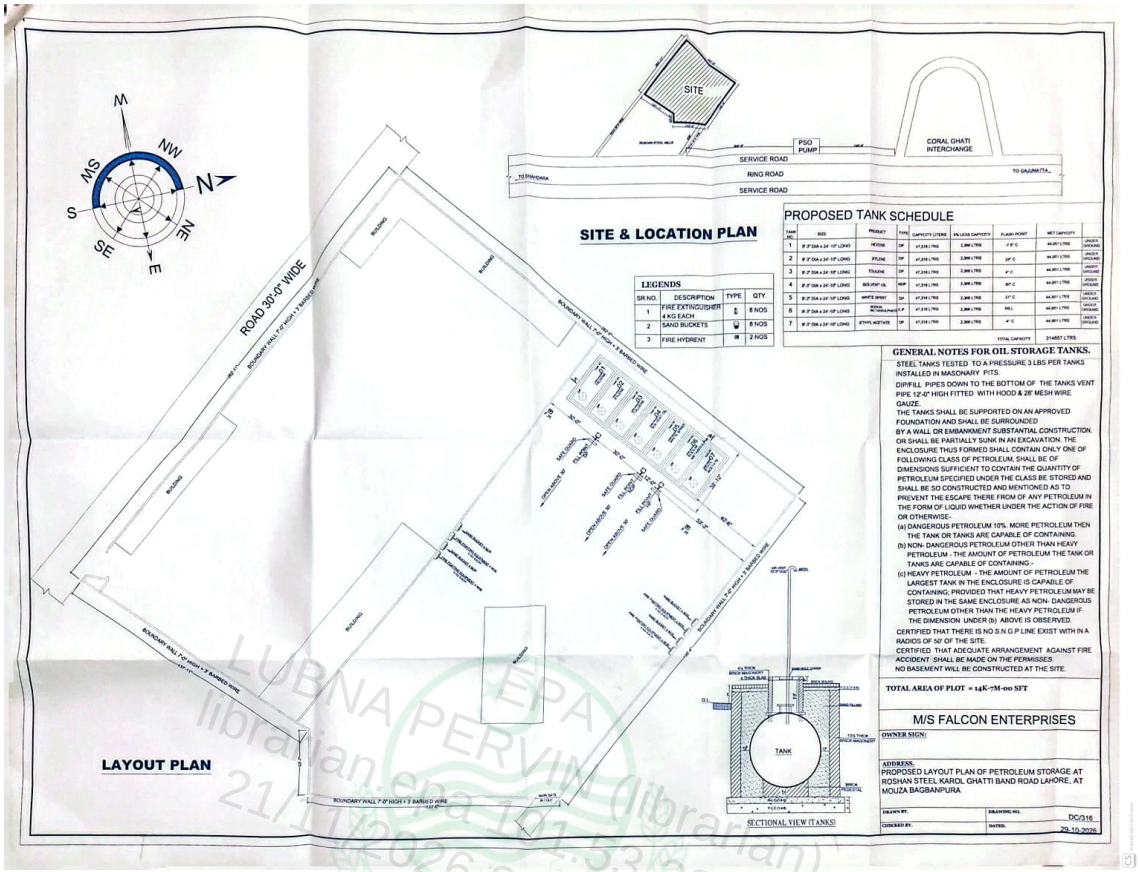
5.4 Location Plan/Map

The Project site is at Roshan Steel, Karol Ghatti, Bund Road, Lahore. The project layout plan is attached herewith this report as annexure. The proposed project site coordinates are 31°36'33.3"N & 74°21'41.508"E.

Google earth view of project site is also attached here with.

SITE LAYOUT OF THE PROJECT

Layout map of the project site is also annexed with the report.



LAND USE ON SITE

Site existing for the Construction of the subject project is Rental property (Rental Agreement is attached as annexure).

ROAD ACCESS

The proposed project site can be assessed through Karol Ghatti, Bund Road, Lahore.



5.5 Magnitude of the Operation Including Capital Cost and Associated Activities

The proponent is going to construct "Construction of Import, Storage, Sale And Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit By M/S Falcon Enterprises Limited, located at Roshan Steel, Karol Ghatti, Bund Road, Lahore, will be involved in the activities to Processes the Raw Materials and Temporarily store Finishing Products. Said project need Environmental Approval under section 12 of PEPA (Amended) 2012 as it is a small Unit By M/S Falcon Enterprises Limited. The cost of project is 200 million including land cost and proponent is committed to maintain the environment and working condition in the healthy environment. For this sake proponent has committed to have 0.1 million budgets for the environment to maintain the environment conditions like tree plantation, PPEs for workers during working conditions.

5.6 Project Description

Collection & Transportation:

- A Suitable Vehicle will be sent for collection depending on the quantity of Raw Materials and Finishing Products.
- The total quantity & type at waste will be entered into the manifest along with the customer's signature & stamp.

- The vehicle used for the transportation will follow the provisions of Motor Vehicles Act.
- All the raw Materials for Industrial use age and Finishing Products will be transported in good packing condition.
- The people engaged for the process of collection will be qualities and shall provide all the benefit of labor laws, medical insurance.
- The people engaged will be provided with all the necessary safety equipment.

Storage of Raw Materials & Finishing Products:

- ❖ Adequate storage space will be provided in the premises estimating the maximum quantity.
- ❖ Storage area will be designed to withstand the load of Raw Materials and Finishing products.
- ❖ Automatic smoke, Heat detection system should be provided in the sheds. Adequate firefighting systems would be provided for the storage area, along with the areas in the facility.
- ❖ Doors and approaches of the storing area will be of suitable sizes for entry of fork lift and firefighting equipment.
- ❖ The exhaust of the vehicles used for the purpose of handling, lifting and transportation within the facility such forklifts of trucks will be fitted with the approved type of spark arrester.
- ❖ All the necessary records of storage area will be maintained and will be made available for checking.
- ❖ Smoking will be prohibited in and around the storage areas
- ❖ Good housekeeping will be maintained around the storage areas.
- ❖ Adequate lighting (both natural and electrical) will be provided in the storage area.
- ❖ Bulbs, Wires, mobiles etc. will be stored separately in individual carton boxes and with proper labeling.

List of Raw Materials/chemicals and Final Products:

- ➢ HEXANE,
- ➢ XYLENE,
- ➢ TOLUENE,
- ➢ SOLVENT OIL,
- ➢ WHITE SPIRIT,

- SODIUM METABISULPHATE AND
- ETHYL ACETATE

LIST OF MACHINERY:

- GENERAL MIXER
- BEAD MILL
- ROLLER MILL

5.7 Water Requirement

The quantity of water at the project site during construction phase and operational phase will be used only for domestic purpose.

5.8 Wastewater Generation and Disposal

Wastewater generates from the construction phase will be reused almost for sprinkling purpose and reuse for making construction of the Unit of proposed project. There will be domestic wastewater during construction phase. During operational phase there will be septic tank at project site by which wastewater will be disposed off to drain specify for this area.

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5.9 Solid Waste Generation and Disposal

- **Construction phase**

Solid waste generation during construction phase will be mostly bricks, wood pieces etc. which will be collected by sanitary workers of that site.

- **Operational phase**

There is no solid waste produce in the operation only domestic waste produce.

5.10 Energy Demand

The source of energy for this plant is WAPDA only.

5.11 Manpower Required

1. Health, Safety & Hygiene

There will be 40-50 workers will be hired for construction while during operational phase, there will be 10-20 (estimated) workers who will work in environmentally friendly conditions.

2. First Aid facility

At workplace workers and employers have enough information, knowledge and training regarding first aid treatment in case of any emergency. The project provides proper medical facilities to workers and staff to cope with any incidental accidents and tackle them.

3. Safety Trainings

Workers and all the staff get proper training about the work and safety practices.

4. Use of Drugs and Narcotics

Drugs and narcotics are strictly prohibited during working hours in working area.

5. Security:

No smoking will be allowed at the project site. Moreover, except staff nobody will be allowed to enter in the Project area.

6. Personal Protective Equipment (PPEs)

Workers are provided with PPEs as Masks, Gloves, Helmets, Safety shoes & other personal protective equipment during the working hours to ensure personnel health & safety. Implementation of PPEs is ensured by the proponent for the project.

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- The components

  1.Safety Hats/ Helmets

  2.Ear Protection

  3. Respirators and dust masks

  4. Safety Coveralls

  5. Safety footwear

  6. Safety Eye protection

  7.Safety gloves

Protection	Occupational Hazards	PPEs
Head Protection	Falling objects, inadequate height clearance, and overhead power cords	Helmets with or without electrical protection
Hand protection	Hazardous material, cuts or lacerations, vibrations, extreme temperatures	Synthetic or Rubber gloves, leather, insulating material etc.
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation	Glasses, shield protective, etc.

Hearing protection	Noise, ultra sound	Hearing protectors like ear plugs, ear muffs
Respiratory protection	Dust, fogs, fumes, gases, smokes, vapors, oxygen deficiency	Facemasks or air supply
Body protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration	Aprons, insulating clothing etc. of appropriate materials

7. Risk Assessment and Disaster Management Plan

Risk Assessment study for the project was carried out. According to the studies and local people of the area the subject area is not natural disaster prone. Project proponent has developed Disaster Management Plan (DMP) in place for onsite emergency.

8. Occupational Exposure Mitigation Planning

To control any occupational health and safety impact a detailed planning for mitigation measures has been done. All employees are trained for EHS policies and practices. The management has developed environmental management plan to implement the mitigation measures further. The plan will include institutional measures such as occupational health & safety planning and environmental compliance monitoring for environmental parameters

5.12 Proposed Schedule of Implementation

Detailed feasibility studies and designing of the project have been completed. Necessary legal, administrative and financial formalities are being finalized. The project is expected to be completed within 1 year from the date of environmental approval. Subsequently the operational and maintenance aspects of the project will be undertaken by the proponent.

In implementation following activities are included;

- Property documents are attached herewith this EIA report.
- Lay out plan of project sites is available (attached herewith this EIA report).

5.13 Details of Restoration and Rehabilitation Plan

Said project is an open plot where construction for Chemical Formulation Unit and Storage will be started after getting Environmental Approval under section 12 of PEPA (Amended) 2012. The project site is located in some sort of industrial area and

the population is away from 2-3 km radius while there is no fauna and flora however grass and bushes like oak is present. So, project is not involved for restoration and rehabilitation. Project is environment friendly from all aspects.

5.14 Vegetation Features on Site

The baseline study of area has revealed that project site is an open plot where there is no worthy plantation exist except some bushed. But after construction, proponent is committed to plant the plantation like indigenous flora Shisham, Barr, and some fruity trees like mango, guava etc.

5.15 Emergency System

Proponent has planned to make emergency system at the Go down. In emergency system, fire extinguishers and fire hydrants are included. Total 4 fire extinguishers and two fire hydrants will be allocated at different locations of Go down, fire extinguishers will be allocated as vertical position at 6 feet above from ground level.

5.16 General SOP at Project Site

- Hiring technical labor
- Lifting of waste from site while using required equipment
- Safe transport arrangement

- ✓ For meeting international standards, we have a vision of Safety First. Meeting this requirement, we have set HSE orientation to each labor technical and non-technical both. Precautions are followed to minimize the physical injury of each individual.
- ✓ PPEs are must worn before doing any job activity.
- ✓ All relevant MHE's are provided pre-hand to labors for lifting/off-loading in Unit premises i.e., cover all, Safety shoes, safety hats, ear cover, hand gloves etc. has been provided on job requirement basis
- ✓ Safety measures are taken before performing any job at site and considers risk factor involve in any job and only then we perform the job accordingly.
- ✓ Fixed safe assembly areas at site in-case of fire, earthquake or any other scenario with exit area's indications.

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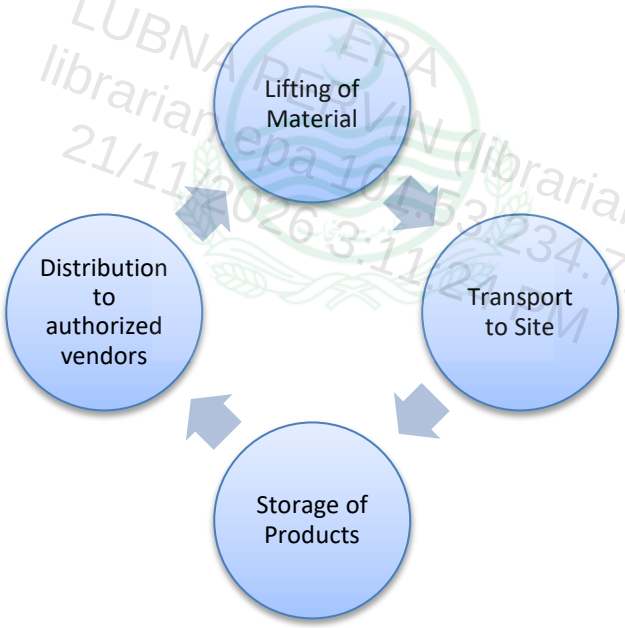
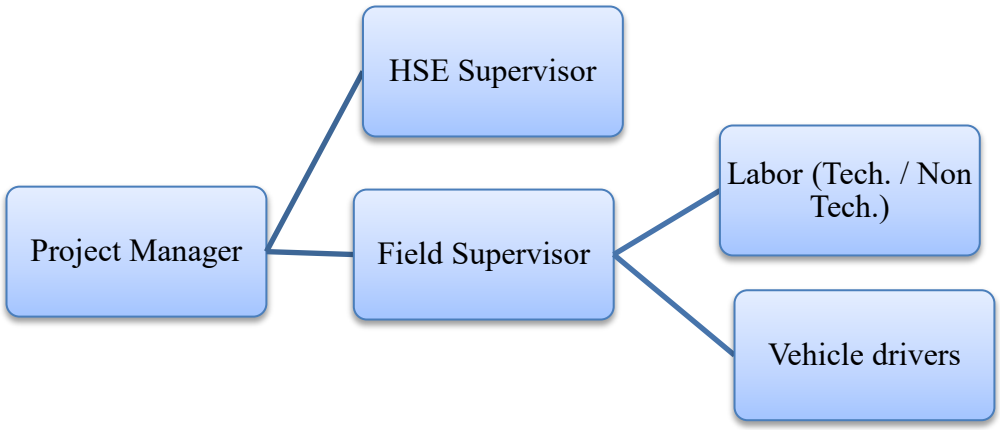
- ✓ Fire extinguishers are installed at different locations of site and staff is trained as well to utilize this in case of fire.
- ✓ All employees are instructed to inform immediately in case of emergency to take necessary action at the spot.
- ✓ WAH is prohibited without using fall arrest system
- ✓ All vehicles are limited to maintain minimum speed within site area and parked only at prescribed parking area.
- ✓ Proper water sanitation in case of heavy rain
- ✓ Marking of smoking and non-smoking area's

5.17 Working Mechanism at Project Site



5.18 Staff Hierarchy at Project Site



5.19 Process flow chart/step

This flowchart illustrates a simplified process flow for chemical formulation in a unit like the one described:

1. **Raw Materials:** The process starts with gathering the necessary raw materials.
2. **Mixing:** The raw materials are combined in specific proportions to create the desired formulation.
3. **Heating/Cooling:** The mixture may undergo heating or cooling processes to facilitate reactions or improve properties.
4. **Filtration/Separation:** The mixture may be filtered or separated to remove impurities or unwanted components.
5. **Quality Control:** The product is tested to ensure it meets quality standards and specifications.
6. **Packaging:** The final product is packaged for storage or distribution.
7. **Storage:** The packaged product is stored in appropriate conditions.

PROPOSED TANK SCHEDULE

SR. NO	Size	Product	Type	Capacity Litres	5% Less Capacity	Flash Point	Net Capacity	
1	9'-3"DIA*24'-10"Long	HEXENE	DP	47,316	2,366	-7.6 c	44,951	Under ground
2	9'-3"DIA*24'-10"Long	XYLENE	DP	47,316	2,366	24 c	44,951	Under ground
3	9'-3"DIA*24'-10"Long	TOULENE	DP	47,316	2,366	4 c	44,951	Under Ground
4	9'-3"DIA*24'-10"Long	SOLVENT OIL	NDP	47,316	2,366	30 c	44,951	Under Ground
5	9'-3"DIA*24'-10"Long	WHITE SPIRIT	DP	47,316	2,366	21 c	44,951	Under Ground
6	9'-3"DIA*24'-10"Long	SODIUM METABISULPHATE	EP	47,316	2,366	Nill	44,951	Under ground
7	9'-3"DIA*24'-10"Long	ETHYL ACETATE	DP	47,316	2,366	-4 c	44,951	Under Ground
TOTAL CAPACITY							**314657**	

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GENERAL NOTES FOR OIL STORAGE TANKS

Steel tanks tested to a pressure 3 LBS.PER tanks installed in masonary pits. Dip/fill pipes down to the bottom of the tanks vent pipe 12-0" high fitted with hood & 28' mesh wire Gauze.

The tanks shall be supported on an approved foundation and shall be surrounded by a wall or embankment substantial construction or shall be partially sunk in an excavation. The

enclosure thus formed shall contain only one of following class of petroleum, shall be of Dimensions sufficient to contain the quantity of petroleum specified under the class be stored and shall be so constructed and mentioned as to prevent the escape there from of any petroleum in the form of liquid whether under the action of fire or otherwise-

a) Dangerous petroleum 10%. more petroleum than the tank or tanks are capable of containing.
b) Non-Dangerous petroleum other than the heavy petroleum-The amount of Petroleum tank or the tank are capable of containing
c) Heavy Petroleum: The amount of petroleum the largest tank in the same enclosure as non-dangerous petroleum other than the heavy petroleum if the dimension under(b) above is observed.

Certified that there is no S.N.G.P line exist within a radius of 50' of the sites.

Certified that adequate arrangement against fire accident shall be made on the premises.

No basement will be constructed at the site.

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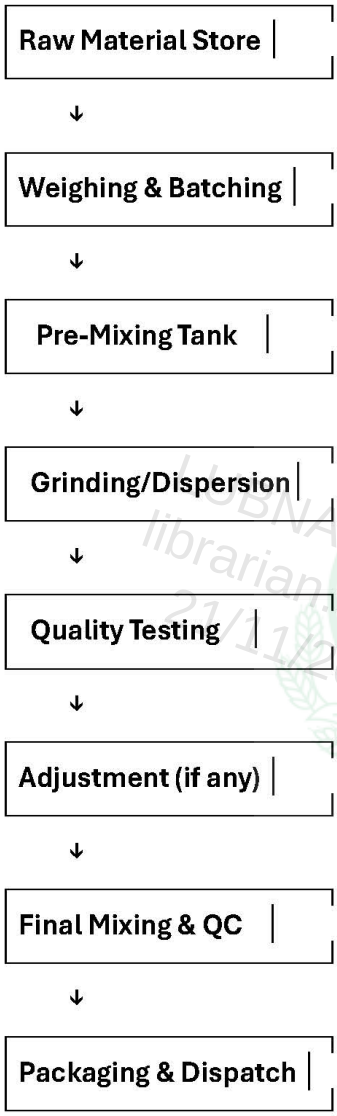
PROCESS FLOW:



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5.20 List of Equipment's:

1. **Mixing Equipment:**

   a. General Mixer
   b. Bead Mill
   c. Roller Mill

2. **Separation Equipment:**

   d. Filters
   e. Centrifuges
   f. Distillation columns

3. **Storage Tanks:**

   g. Stainless steel tanks
   h. Plastic tanks
   i. Glass-lined tanks

4. **Safety Equipment:**

   j. Personal Protective Equipment (PPE)
   k. Fire extinguishers
   l. Emergency showers and eye wash stations
   m. Spill containment kits
   n. Ventilation systems

5. **Additional Equipment:**

   o. Pumps
   p. Valves
   q. Pipelines
   r. Laboratory equipment (for quality control)
   s. Packaging machinery

The specific equipment required will depend on the types of chemicals being formulated and the scale of production.

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CHAPTER 6: POLICY, LEGISLATION, LEGAL AND ADMINISTRATIVE FRAMEWORK

CHAPTER VI: STATUTORY REQUIREMENTS

6.1 General

Sustainable development and green economy are a concept that has emerged over the past decades to describe a new framework aimed at economic and social development while maintaining the long-term integrity of the ecological system and environmental resources. The principal of sustainable development is in the process of being incorporated into the national policy and legislation through various statutory instruments. This chapter describes the current legal responsibilities of the proponent in context of environmental and sustainable development, and the institutions that exist in the country that may influence the environmental management of the project.

This section deals with the current policy as well as legal and administrative framework related to carrying out of Environmental Impact Assessment (EIA) of the project. An efficient and effective organizational structure is essential for successful implementation of the mitigation measures identified for the project. Like other projects, the project, before its implementation, is required to go through an Environmental Assessment, in accordance with the provisions of the Punjab Environmental Protection (Amendment) Act 2012.

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6.2 Existing Legislation and Legal Framework

The Federal Ministry of Environment was responsible authority for policy making on environmental protection in Pakistan but after 18th Amendment in the Constitution, the Provincial Governments have taken over the subject of Environment. This EIA study has been carried out in the light of the policy guidelines of the Preparation of IEE/EIA Reports under the procedures and practices formulated by the Pak EPA and adopted by the Punjab Environmental Protection Agency (EPA).

6.3 Institutional Setup

6.3.1 Environmental Protection Councils

The Punjab Environmental Protection Council (PEPC) is the apex decision-making body of Punjab. It has been developed under the provision of Punjab Environmental Protection (Amendment) Act 2012. It is headed by Chief Minister of Punjab with other members. The purpose of this EIA is basically to obtain Environmental Approval from

the Environmental Protection Agency (EPA), Punjab in compliance with Pakistan Environmental Protection Act (PEPA) - 1997, now having been replaced by Punjab Environment Protection (Amendment) Act 2012.

6.3.2 Environmental Protection Agencies

Pak EPA has been established at the Federal level and EPAs are established at Provincial level also. In Punjab an independent Environmental Protection Agency is constituted headed by the Director General.

6.3.3 Environment Protection Department, Punjab

The Punjab Government has established Environment Protection Department (EPD) administratively controlled by the Secretary, Government of Punjab. The EPD has its independent Minister. According to the provisions of the Punjab Environmental Protection (Amendment) Act, 2012, EPD has a significant role in policy making and implementation of the environmental laws in the Punjab Province.

6.3.4 Relevant Legal / Institutional Framework

The applicable laws for the environmental study of the project are briefly given below. The proponent of the project will abide by the applicable laws and regulations.

A number of laws have been promulgated by the Government of the Pakistan to deal with the environmental and social aspects related to the implementation of various development projects in the country. In 1983, the Government of Pakistan issued an Environmental Protection Ordinance (EPO) that was replaced by the PEPA, 1997, through an Act of Parliament. According to the 18th Amendment in Constitution, the PEPA 1997 has been confined to Federal Area and provinces have been allowed to formulate their own environmental legislation in the subject of environment.

Under the PEP Act, it is mandatory to carry out IEE or EIA for all development projects. The Pak EPA has also framed guidelines for environmental assessment of projects in various developmental sectors, According to PEPA 1997; the National Environmental Quality Standards (NEQS) were established for effluents discharges and gaseous emissions of various Municipal and Industrial sources. The latest revision of NEQS as carried out in year 2000.

Provincial Environmental Protection Departments are also working on the formulation and enforcement of environmental statutes and by-laws. The Pak EPA has issued several policies guidelines and adopted measures for streamlining the environmental assessment. Though, the need for environmental screening and assessment has received some weight during the recent past, strict implementation of the NEQS is still a dream to be realized. The applicable laws for the environmental study of the Project are briefly described below:

6.4 Pakistan Environmental Protection Order (PEPO) 1983

In 1983, the Government of Pakistan issued an Environmental Protection Ordinance (EPO) 1983. It was the first legislation promulgated for the protection of environment. According to PEPO, 1983 it was necessary to carry out IEE / EIA for all development projects, but there were no IEE / EIA regulations under that ordinance.

6.5 Punjab Environmental Protection (Amendment) Act 2012

Section 12 of the Punjab Environmental Protection (Amendment) Act 2012 makes it mandatory for the proponent of a project to file with the Environmental Protection Agency either an Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA), as the case may be, in respect of the project.

As per definition given in the Punjab Environmental Protection (Amendment) Act 2012, Environmental Impact Assessment (EIA) means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigatory, and compensatory measures, formulation of environmental management & training plans & monitoring arrangements, and framing of recommendations and such other components as may be prescribed. The provision of Section 12 has been incorporated “as it is” in the new Punjab Environmental Protection (Amendment) Act, 2012.

6.6 National Environmental Policy 2005

Government of Pakistan has notified National Environmental Policy 2005, for different projects/aspects in which guidelines/priorities have been given to undertake/commence the projects having significant environmental impacts.

The National Environmental Policy (2005) provides a framework for addressing the environmental issues (particularly pollution of fresh water bodies and coastal waters, air pollution, lack of proper waste management, deforestation, loss of bio diversity, desertification etc.) confronting Pakistan. It recognizes the goals and objectives of the Pakistan National Conservation Strategy (PNCS, 1992), National Environmental Action Plans, and other existing environment related national policies, strategies, and action plans. It also provides broad guidelines to the Federal Government, Provincial Governments, federally administrated territories and local governments to address their environmental concerns and to ensure effective management of their environmental resources.

6.7 Review of IEE / EIA Regulations 2000

The Pak EPA has issued Review of the Initial Environmental Examination and Environmental Impact Assessment Regulations 2000, to review the Initial Environmental Examination (IEE) / Environment Impact Assessment (EIA) reports. Categorization of the projects for IEE and EIA is one of the main components of the Regulations. Projects have been classified on the basis of expected degree of adverse environmental impacts. Projects type listed in Schedule I are designated as potentially less adverse effect, schedule I projects require an IEE and projects given in schedule II require EIA to be conducted.

Salient features of the Regulations are listed below:

- Categories of project requiring IEE and EIA are issued through two schedules attached with the regulations
- A fee depending on the cost of the project has been imposed for the review of IEE and EIA.
- The submittal is to be accompanied by an application in prescribed format included as Schedule IV of the Regulation.
- The EPA is required to issue conformation of compliance within 15 days of receipt of request and complete documentation.
- The IEE / EIA approval for construction of the project will be valid for three years from date of accord.

6.8 Guidelines for the Preparation of IEE/EIA Reports

The Pak EPA has also framed Guidelines for the Preparation of IEE / EIA of projects in various developmental sectors.

6.9 The Punjab Local Government Ordinance, 2001

Schedules 4 and 8 of this Ordinance pertain to environmental pollution. There are not withstanding any specific provisions, every local government may perform functions conferred by or under the Punjab Local Government Ordinance, 2001, and in performance of such functions may exercise such powers, which are necessary and appropriate. Under the ordinance, the local councils are authorized to restrict projects causing pollution to air, water or land. They may also initiate schemes for improving the environment.

6.10 Pakistan Penal Code, 1860

This defines the penalties for violations concerning pollution of air, water bodies and land. Sections 272 and 273 of this Act deals with the adulteration of food or drink. Noise pollution has been covered in section 268, which defines and recognizes noise as a public nuisance. "A person is guilty of a public nuisance who does any act or is guilty of an illegal omission which causes any common injury, danger of annoyance to the public or the people in general who dwell or occupy property in the vicinity, or which must necessarily cause injury, obstruction, danger or annoyance to persons who may have occasion to use any public right".

6.11 The Land Acquisition Act, 1894

The Land Acquisition Act (1894) deals with the acquisition of private properties for public purposes. There are 55 sections in this Act mainly dealing with area notification, surveys, acquisition, compensation, apportionment awards, disputes resolution, penalties and exemptions.

Although quite old, this act laid out the legal basis for any property affected by a project and for compensating the effected owners of the land.

6.12 Factories Act, 1934

The clauses relevant to the project are those that concern the health, safety, and welfare of workers, disposal of solid waste and effluent and damage to private and public property. The Factories Act also provides regulations for handling and disposal of toxic and hazardous Cardboards. Given that construction activity is classified as 'industry', these regulations will be applicable to the project contractors.

6.13 Labor Laws

Construction and operational activities during the course of construction may affect occupational health of workers. Employers are required to abide by labor laws in respect of their own employees and also to ensure that contractors to follow the relevant labor laws and rules relating to safety of the workforce and creating a healthy working environment. The proponents shall ensure that the labor force engaged at the project site is not exposed to any danger by monitoring the contractor's work frequently.

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Chapter 7: Description of the Environment

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CHAPTER VII: BASELINE DATA & ENVIRONMENTAL PROFILE

7.1 GENERAL

The existing environment around the site of project has been studied with respect to physical, ecological and socio-economic resources. The existing information to establish a database for the EIA of the project was collected from different departments, review of previous studies and through the site visits carried in out in the project area.

7.2 PHYSICAL ENVIRONMENT

This part examines the physical resources such as topography, soil, climate, surface and ground water resources and quality, ambient air quality and geology of not only the Project site but also the city as a whole to assess whether the project under assessment can or does have any impacts on any of these parameters. The description of physical environment of Lahore and the project site is presented in the following sub sections.

7.2.0 LAND ENVIRONMENT

7.2.1 TOPOGRAPHY

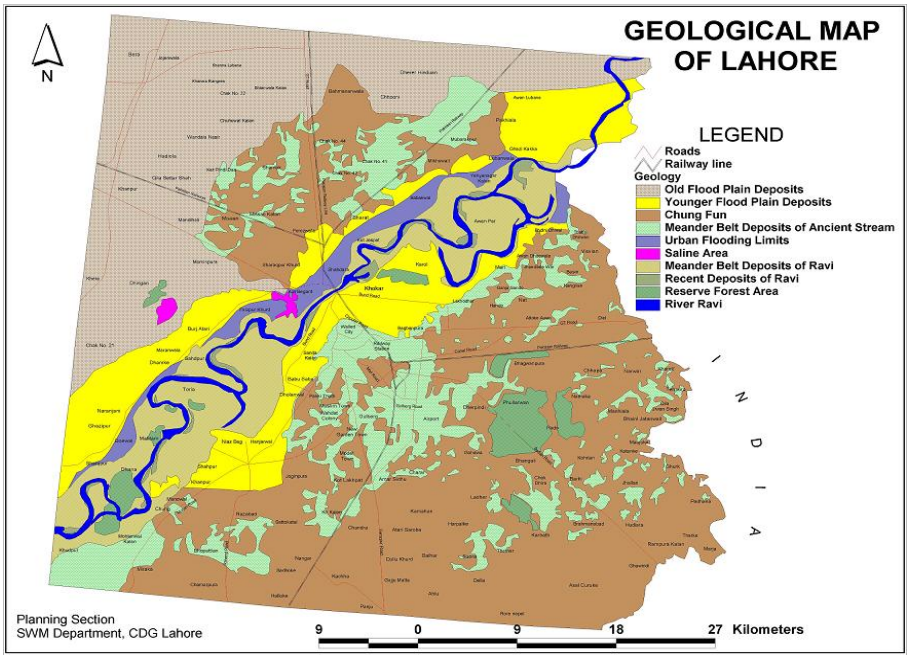
Lahore is situated on relatively flat terrain along the banks of the Ravi River at 31° 36' 33.3" N latitude and 74° 21' 41.508" E longitude. Topography of the city as a whole is uniform and generally common to most of the central Punjab floodplains. Coordinates for the project site are 31° 36' 33.3" north 74° 21' 41.508" E" east. The project site is almost flat. The terrain of the city and the surrounding suburbs is also flat. The average for the city is about seven hundred feet above sea level. The project has not altered the topography of the project area in any manner whatsoever.

7.2.2 SEISMICITY

The area is not located in active seismic zone so no recent tectonic activity has been observed in the area and no fractures and faults are present in the project area but the project area lies in minor earthquake risk region.

7.2.3 GEOLOGY AND SOIL

As the soil of Lahore is mostly alluvial, however, it is normally very fertile and rich in potential plant nutrients but the soil of the Project Site is loamy with a moderate texture. No slides and slumps are present in the area but the project area is stable. Geological map of the Lahore is given in Map 4.1.



Map 4.1: **Geological Map of Lahore**

7.2.4 AIR ENVIRONMENT

7.2.4.1 CLIMATE

The area lies in tropical climate region with considerable range of temperature between winter and summer. Summers are quite hot with moderate humidity and mean summer temperature remains around 37°C with frequent spells crossing 44°C, whilst winters are of extreme cold and mean winter temperature (December/January) ranges between 6.5°C and 10.5°C. The mean of the maximum temperature ranges between 29-3O°C and mean of the minimum ranges from 19 to 20°C. Long-term climate trend data was obtained from the MET office, located at the Jail Road, in Lahore.

Table 4.1: Long-Term Climate Trend of Area

Weather	Months
Autumn	1 Oct – 15 Nov
Winter	15 Nov – 15 Feb
Spring	15 Feb – 1 Apr
Summer	1 Apr – 30 Sep
Monsoon	July – September

Difference in temperature in day is usually within 20°F limits. Generally, the month from May to September are considered hard and disagreeable. However, water months are quite

pleasant for most of the parts except in December and January, which give a feeling of severe cold.

7.2.4.2 TEMPERATURE

The area experiences an extreme climate during the months of May, June and July, when the city witnesses summer season. The temperature ranges between 40°C to 45°C, during the summer months. The temperature during winters (months of December, January and February) varies between 5°C to 8°C.

Table 4.2: Monthly Mean Maximum Temperature (C)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	20	23.3	28.3	33.8	39.3	40.2	36	35.6	35.0	32.9	26.1	22.2
2018	17	22.8	30.9	38.0	39.8	39.2	39.8	33.8				

(Source: Meteorological Department)

Table 4.3: Monthly Mean Minimum Temperature (C)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	10.0	12.5	16.8	21.8	26.5	28.5	27.1	27.7	25.9	20.1	13.6	9.1
2018	7.8	11.9	19.2	24.3	26.8	27.9	26.8	26.9				

(Source: Meteorological Department)

7.2.4.3 RAINFALL

The area has a distinct rainy season, during which the weather is very humid. The rainiest months of the year are July and August, with June and September also gets some rain. During the rest of the year, barely any rain falls in the area.

Table 4.4: Monthly Total Rain (mm) [-1=Trace]

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	19.8	26.9	52.3	19.9	6.1	20.2	110.9	92.0	20.4	2.6	1.1	-1.0
2018	0.3	9.4	5.4	2.6	7.6	4.8	287.7	119.4				

(Source: Meteorological Department)

7.2.4.4 WIND DIRECTION

The area experiences westerly and north westerly winds during the winter and spring seasons, known usually as the dry stable times of year and southerly and south easterly winds during summer and monsoons. Wind speeds are low during winter picking up during spring season and peaking during the summer months.

Table 4.5: Wind Direction at 08:00 am

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	N45 W	N35 W	N36 W	N39 W	N66E	N64 W	N70 E	S10 W	S35 W	S45E	S45 W	N45W

(Source: Meteorological Department)

Table 4.6: Wind Direction at 05:00 pm

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	N45 W	N50 W	N43 W	N51 W	N57E	N81 W	N04 E	S36 W	S17 W	S56E	S52W	N60 W

(Source: Meteorological Department)

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7.2.4.5 WIND SPEED

As can be seen in table 4.7 and table 4.8 the wind speed is generally light during the post monsoon and winter months but during the summer and monsoon months the wind speed increases. Except the monsoon months (July, August, and September), the predominant wind is from the West and North West directions. During the monsoon months the wind blows from the East and South East. Calms are reported at an annual average of 9%.

Table 4.7: Wind Speed at 08:00 am (Knots)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	0.4	0.9	1.1	2.5	2.6	2.4	2.0	1.5	1.2	0.5	0.1	0.1
2018	0.5	1.1	0.7	2.0	3.0	2.5	1.3	1.9				

(Source: Meteorological Department)

Table 4.8: Wind Speed at 05:00 Pm (Knots)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

2017	2.3	3.9	3.8	4.1	3.5	3.7	2.7	2.5	2.5	1.9	0.5	0.9
2018	1.2	2.8	3.6	3.6	3.9	2.6	3.1	1.5				

(Source: Meteorological Department)

7.2.4.6 HUMIDITY

The Relative humidity in project area varies from 17 to 70%. From July to September humidity in the area increases and goes to its highest in the range of 60 - 70 %, while in the rest of year it is in range of 30 - 40 % as given as follow;

Table 4.9: Humidity at 08:00 Am (%)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	85	73	65	46	38	40	70	74	71	66	78	79
2018	92	75	69	40	39	46	76	83				

(Source: Meteorological Department)

Table 4.10: Humidity at 05:00 pm (%)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2009	58	44	40	26	22	23	52	59	49	36	48	48
2010	68	48	40	20	23	31	60	67				

(Source: Meteorological Department)

7.2.4.7 AIR QUALITY

The overall air quality in the study area is of moderate nature. Dust particles along with oxides of nitrogen, Sulphur and carbon are the major causes of air pollution in the ambient air quality. It was observed during the visit that Petrol and Diesel operated vehicles are emitting smoke and exhaust gasses in excessive quantity which is source of environmental pollution and responsible for the air quality deterioration. These vehicles are not maintained properly and they exit harmful particles in the air due to incomplete combustion.

7.2.3 NOISE ENVIRONMENT

7.2.3.1 NOISE QUALITY

Lahore is industrial area of the Pakistan having population around seven an. There are many a large, medium and small industries which are still working within city premises. Industrial activity and vehicular emissions are causing excessive noise in the city.

The affluent areas of Lahore are quieter than rest of the city the noise level in these areas is still far higher than the standards set by the World Health Organization and the EPA. Noise

pollution in the city is on the rise with most residents complaining that the noise is becoming a public nuisance.

7.2.4 WATER ENVIRONMENT

There are no surface water resources like canal or ponds, near the project area. The city of Lahore is underlain by the deep permeable aquifer formed within the alluvial plane of the Ravi River and Chenab, which is the part of Greater Indus Plain.

Ground water is the principal source of municipal water supply in Lahore. This is also the case in the immediate vicinity of the site. The City's drinking water is obtained from groundwater aquifer by means of tube wells located throughout the area. Groundwater is pumped from 400-800 feet and is generally good for direct consumption. About 83% of the city's population is consuming groundwater for drinking purposes.

7.3 BIOLOGICAL AND ECOLOGICAL ENVIRONMENT

It includes all the information about the life i.e., plants and animals etc.

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7.3.1 FLORA

As the project site is in industrial zone, so no particular flora is present. Only some bushes are present at the project site.

7.3.2 FAUNA

Most of the domestic fauna are in the vicinity of the Project Site.

7.3.3 WILDLIFE

There is no wildlife in the Project area at present and likely to exist in future.

7.3.4 RARE AND ENDANGERED SPECIES

There is no rare and endangered species at the moment in the Project area.

7.3.5 PARKS, RESERVES AND ARCHEOLOGICAL SITES

The project site does not have any natural parks, wildlife reserves and archaeological sites near the project area.

7.4 SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT

Any development intervention would have better chance to measure its outcome, if it first conducts a small socio-economic survey among those people expected to effect from its

program and activities. In light of this the socio-economic survey was conducted among selected stakeholders so as to have adequate baseline information about various features characterizing its beneficiaries.

7.4.1 METHODOLOGY

In order to assess the present socio-economic and socio-cultural conditions of local population of the project site, a social survey was conducted from the people, which may get direct positive or negative impacts due to the project. The methodology of the survey was based on filling specially designed questionnaires (**See Annexure II**) and general observations to assess and set criteria for baseline study related to socio economic conditions.

7.4.2 SURVEY FINDINGS

7.4.2.1 GENDER RATIO

Female population of the City of Lahore was 240,200 with an annual growth rate of 3.46% (1998 census). The literacy rate among females is 60%. It is found that most of the females are housewives and only 2% of total female population belongs to working class, although it is a small number but still it is comparatively higher than other areas of the country.

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7.4.2.2 LIVELIHOOD

Here the people are hardworking and their source of income is through industrial activities business.

7.4.2.3 RELIGION RATIO IN PROJECT AREA

In project area majority of the population is Muslim. Main religious minorities in Lahore include Christians and Ahmadis. The major casts of the city residents include Sayyed, Rajpoot, Moghuls, Kashmiris, Kakkay Zai, Arain, Jatt, Gujjar, and Sheikh. (Sources: City District Government Lahore website & District Census Report, Lahore).

7.4.2.4 CULTURAL VALUES

The local residents generally belong to the upper, middle and lower middle classes and follow a blend of old and modern cultural values.

7.4.2.5 TRANSPORTATION & COMMUNICATION

Many private transporters have launched bus services for these areas.

7.4.2.6 EDUCATION

Lahore is famous for its reputable educational institutions both in the government and private sectors. The literacy level of the project area is low. Educational institutes are integrated at a distance from this area.

7.4.2.7 HEALTH

In the project area private clinics, dispensaries and health workers are present.

7.4.2.8 SETTLEMENT AND RESETTLEMENT ISSUE

There is no resettlement issue as the land belongs to the owners. No previously existing settlements are present at the project site. Also, there is no need of relocation of any human or non-human entity from the project area.

7.4.2.9 ARCHAEOLOGICAL AND HISTORICAL SITES

No archaeological or historical site has been identified within the project area.

7.4.2.10 PROTECTED AREAS

No protected areas are present in or near the project area.

7.4.2.11 HUNTING/PICNICING

No hunting and picnic activities take place in the project area.

7.4.2.12 SCENIC VIEWS

No scenic views are present in the project area.

7.4.2.13 STRUCTURES

The land is predominantly industrial. Many structures are present in the vicinity of project area.

7.4.2.14 ELECTRICITY

The area will receive electric supply from LESCO.

7.4.3 CONCLUSION

Form the survey conducted it is concluded that the project will not have major adverse impacts on the existing environment and community. As mentioned earlier the project land is in industrial area and owned by the proponent so there will be no issues arising like relocation

or resettlement of people or other infrastructure. Moreover, the project will have positive impacts in terms of employment opportunities in case of future extension of the project.

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Chapter 8: Potential Environment Impacts and Mitigation Measures

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CHAPTER VIII: SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

8.1 General

The potential environmental impacts related to the Construction of Import, Storage, Sale and Distribution of Hazardous And Non-Hazardous Petroleum Products/Chemical Mixing

Unit/Chemical Storage & Formulation Unit By M/S Falcon Enterprises Limited, Located At Roshan Steel, Karol Ghatti, Bund Road, Lahore. Environmental protection measures are recommended to eliminate adverse impacts on environment or to reduce them to an acceptable level within the prevailing legislative and regulatory framework. These Impacts are evaluated on the basis of magnitude, immediacy and sustainability. During operation of project, every worker will be well aware by SOPs of project.

8.2 Environmental Problems Due to Project Location

The potential impacts assessed due to project location are change in land use pattern, pressure on the existing natural resources, natural hazards like floods, earth quake, changes in the socio-cultural patterns of the local community, local community displacement issues, and obstruction of accessibility to the community already residing in the locality.

8.3 Impact Assessment Methodology

Once potential impacts have been identified, the assessment of these potential impacts will follow these steps:

- **Definition of criteria for determining the significance**

The consequences with their likelihood of the project activity are evaluated by weighing them against recognized significance criteria. The criteria are of following types:

- Institutional recognition- law, standards, government policies and plans.
- Technical recognition- guidelines, scientific or technical knowledge.
  - Public recognition- social and cultural values and opinions of a segment of the public; especially the community directly affected by the project.
  - Professional interpretation of evaluator.
  - Prediction of magnitude of the potential impacts.

This step refers to the description, quantitatively (where possible) or qualitatively, of the anticipated impacts of the project.

- **Identification of mitigation measures**

Depending on the significance score allotted to the identified impacts (qualitative or quantitative) during the last step, suitable mitigation measures are identified for all of them. These measures can be classified into following categories:

- Avoiding the impacts altogether by not undertaking certain project activity or part of an activity or by changing the way the activity is to be performed or by modifying the equipment to be used for the purpose. For example, using CFC free equipment to avoid the impacts on the ozone layer and employing locals to avoid employment conflicts.
- Minimizing impacts by limiting the degree or magnitude of the activities or by exchanging the process, Raw products, other accessories or equipment with one that can reduce the impact. For example, minimizing dust emission by reducing the vehicular traffic and controlling sprinkling frequency, and minimizing noise by operating noisy machinery in sound-proof rooms.
- Rectifying the impacts by repairing, rehabilitating, or restoring the affected environment. For example, restoring the dismantled road and pavements, etc. and the temporary construction sites.
- Compensating for the impacts by replacing or providing the substitute resources or environment of at least similar value. For example, shifting the trees to similar ecosystem instead of cutting them down and giving similar shelters and job opportunities for inhabitants to be displaced.

➢ **Evaluation of the residual impacts**

Even though incorporation of suggested mitigation measures reduces the environmental impacts of the project and brings them within the acceptable limits, this step refers to the identification of the anticipated remaining impacts after mitigation measures have been applied.

➢ **Identification of monitoring requirements**

The last step in the assessment process is the identification of minimum monitoring requirements for the residual impacts, if likely. The scope and frequency of monitoring depends on the residual impacts. The purpose of the monitoring is to confirm that the impact is within the prescribed limits and to provide timely information, if there is breach of the standards, so that any large-scale damage can be avoided.

8.4 Impacts Associated with the Construction Phase

This project being intended for the up-gradation of the lifestyle of the communities, most of the project-related impacts will be encountered by the communities during the

construction phase, but will be of temporary nature; provided adequately mitigated following the mitigation methods specified in this section. Likely impacts associated with the construction activities of the project are discussed in this section. The impacts that are discussed are as following:

- **Environmental Impacts**
  - Construction Noise
  - Emission of Air Pollutants during Construction
  - Ecological impacts
  - Water Resources
  - Soil Contamination

- **Socio-economic Impact**
  - Community and Workers' Safety
  - Traffic Congestion
  - Employment Conflicts

8.4.1 Construction Noise

Depending upon the formation of the area, the equipment used and its distance from the receptor, the community may typically be exposed to intermittent and variable noise level. During the day, such noise results in general annoyance and can interfere with the sleeping during night.

Potential Issues

The potential noise related issues during the construction may cause disturbance to the surrounding communities of the project and can cause cardiac or nervous disorders due to construction machinery and vehicles operation on or near the project site.

Impact Analysis

The potential sources of significant noise during the construction period include the construction machinery and construction related traffic. Precise prediction of noise due to construction activities at given location at given time requires the list of all equipment that is operational at the time and the following information regarding each piece of equipment:

- The maximum and minimum noise level, measured at reference distance from the equipment, during a work cycle.
- Fraction of time it operates at maximum level during a work cycle.
- The usage factor, i.e., the number of hours during the day when the equipment is operational
- Distance of equipment from the receptor
- Potential noise barrier and other topographical features that attenuate the sound
- Atmospheric conditions; the wind speed and direction, humidity and barometric pressure, also affect the propagation of sound. However, for short distances, the effect of these is ignorable as compared to other variables.

Mitigation

Construction noise is unavoidable. The strategy to minimize the noise in the community within acceptable limits should be based on the following:

- Reduce equipment noise at source
- Minimize vehicular noise
- Make sure the movement of transportation vehicles should be confined only to the day.

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The proposed strategy should be implemented through the following specific measures:

- **Reduce Equipment Noise at source**

  Based on the survey, equipment emitting excessive noise in comparison with other similar equipment should not be allowed to operate. Equipment under use should be regularly maintained, tuned and provided with mufflers in good running order to effectively minimize noise level. Equipment in poor state of maintenance; particularly without noise control devices, should be checked to determine if it can be improved or replaced with less noisy equipment as soon as practicable.

- **Traffic noise**

- Either the vehicles will use paved access roads or will drive at speed around 20 km/h on unpaved roads.
- Blowing of horns will be prohibited on the access road to the construction sites.
- Drivers will follow traffic regulations, protocols and road courtesies
- It will be ensured that all construction vehicles are properly tuned, are in good working conditions and have quality mufflers installed in order to reduce vehicular noise

➢ **Use of PPEs by Workers**

- Contractor will provide the workers deployed in noisy operations with PPEs such as ear plugs, ear muffs, etc. and will ensure they use them, so that any damage to their hearing can be avoided.

Residual Impacts

No irreversible noise impact is expected from the construction activities at the sites; construction noise impacts are all temporary in nature. It is possible that occasionally, there will be accidences of the significance criteria during the construction. This may happen if for example, a huge number of construction machineries deployed close to community. This will cause a nuisance to the community, although it is likely to last for short period.

Monitoring Requirements

To assure mitigation of the impacts that can arise due to noise, a complete monitoring plan will be developed. Monitoring of sound levels will be carried out regularly to see if the Construction Contractors observe the suggested mitigation measures to limit noise to the extent practicable.

8.4.2 Emission of Air Pollutants during Construction

Different exhaust gases may release from construction equipment and vehicles depending upon the fuel used and the maintenance and tuning condition. Dust emission from construction sites is however a major concern with regards to air quality; particularly for the settlement that is found near the construction site(s). Dust generated during the construction activities can be substantial. Dust or the equivalent technical term particulate matter (PM) is generally

defined as any airborne finely divided solid and liquid Cardboard up to the size of about 100 microns. Large particles tend to settle rapidly and often do not reach the receptor. In case where they reach the receptor, the dust is considered as nuisance as it may disturb soil property and affect the visibility besides causing breathing difficulties.

Potential Issues

Particulate matter emitted during construction activities can result in deterioration of ambient air quality in the vicinity, and be the nuisance for the community and workers.

Impact Analysis

Potential sources of particulate matter emission during construction activities include earthwork, exposed surfaces, exposed storage piles, truck dumping, halting vehicle movement on unpaved road, combination of liquid fuel in equipment and vehicles, land concrete mixing and batching. Other exhaust gases are emitted only by machinery and vehicles not maintained and tuned regularly or running on sulfur-rich fuels; which will be ensured not to be operated at the proposed sites by the Construction Contractor.

The quality of dust that will be generated on a particular day will depend on the magnitude and nature of activity and the atmospheric conditions prevailing on the day.

Mitigation

A wide variety of options exist to control emissions from the construction site. The most effective means of reducing the dust emission is wet suppression. Water exposed surface and the soil with adequate watering frequency to keep soil moist at all times can reduce the total dust emission from the project by as much as 75 %.

The following mitigation measures will be implemented at the proposed project construction sites during construction to control the emission of particulate matter and other exhaust gases:

- **PM Control**
  - Water will be sprinkled daily or when there is obvious dust problem on all exposed surfaces to suppress emission of dust. Frequency of

sprinkling will be kept such that the dust remains under control; particularly when wind is blowing towards the community.

- Dust emission from soil piles and aggregate storage stockpiles will be reduced by covering the piles, for example with tarpaulin or thick plastic sheet.
- Project traffic will maintain at the maximum speed limit of 20 km/h on all unsealed roads.
- Construction Cardboard that is susceptible to dust formation will be transported only in securely covered trucks to prevent dust emission.

➢ **Exhaust Control**

- Construction machinery and vehicles will be provided with good quality mufflers.
- Preventive maintenance and regular tuning of the vehicles and machinery will be conducted.
- Low-sulfur fuels will be used by the Construction Contractors for all construction machines and vehicles.
- Inefficient machinery will immediately be repaired or replaced.

Residual Impacts

The dust emission during the construction activities will affect the ambient air quality. Dust is likely to be nuisance to the community. This problem of PM or gaseous accidences in comparison with current conditions or the prescribed limits will remain limited only to the construction phase.

Monitoring Requirement

In the view of the residual impacts, the following monitoring measures will be undertaken:

- Dust emission from the construction activities will be visually monitored to prevent visible dust.
- The community in the residential area will be actively consulted. Their feedback will form a key mean for monitoring the impacts of dust emissions.

- Exhaust of the construction machinery and vehicles will be monitored for the level of exhaust gases.

8.4.3 Ecological Impacts

This project is intended to be carried out on roads adjacent to the residential settlements; ecological life of the areas comprising of a few local trees, grasses and crops (flora) and a small number of pet animals (dogs, cats, cows, goats, etc.) is likely to get affected by the dust, noise and other construction-related environmental issues. Controlling/mitigating those issues will protect ecological life. Further, no trees/plants are to be cut during this project, and fencing will keep the animals away from the construction sites.

8.4.4 Water Resources

Water is to be used during construction for operations like footing excavations for peer formation, dredging and dewatering, concrete pouring and washout and some other construction activities as well as for municipal purposes by the workers. This water after use may be discharged directly or may reach fresh water surface and ground reservoirs; thereby polluting them.

Potential Issues

The extraction of water for the construction activities and municipal works can affect the groundwater availability for the project area communities. Moreover, the wastewater of these operations can potentially contaminate the water resources.

Impact Analysis

Common aquifer yield in the area is quite good. The extraction of water during construction period will not affect the availability of the underground water for community. Moreover, there is no fresh surface water body in the vicinity of the project site. However, little impact on the groundwater quality is likely.

Mitigation

Based on discussion above, the following measures are proposed:

- **Conservation**

- Project management will bore deep groundwater well designated for its requirements
- Efforts will be made to ensure that water is conserved and that environment friendly techniques will be adopted too.

➢ **Pollution Control**

- Overflow of construction wastewater will be avoided and reused techniques will be adopted.
- A plan for responding to accidental spills will be in place duly practiced.

Residual Impacts

No residual impact will envisage due to extraction of water and sufficient recharging of the aquifer in planted region of the project area will take place. Moreover, the implementation of the proposed mitigation measures for water pollution control will ensure that there is no residual impact on the water quality.

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8.4.5 Soil Contamination

Spills during refueling, discharges during vehicle and equipment maintenance, traffic accidents and leakage from equipment and vehicles often results in the contamination of soil at the construction site.

Impact Analysis

During the construction of the project, spills of fuels and lubricants can take place:

- During transfer from one container to another
- During maintenance of equipment and vehicles
- Due to leakage from containers and equipment
- As a result of traffic accidents

Mitigation

The following control measures are proposed to mitigate the impact on the soil resources:

- Spills prevention trays should be provided and used at refueling locations
- During on-site maintenance of vehicles and equipment, tarpaulin or other impermeable be spread on the ground to prevent the contamination of soil.
- Regular inspection should be carried out to detect the leakage from construction vehicles and equipment
- Fuels, lubricants should not be stored at site.
- Contaminated soil should be collected and disposed off safely.

Residual Impacts

Implementation of proposed mitigation measures is not likely to leave any long-term residual impacts on the soil.

Monitoring Requirements

To ensure compliance:

- Visual inspection for leakages should be daily carried out.
- Regular inspection of soil of the project area should be undertaken
- Incident record of all moderate and major spills should be maintained

8.4.6 Safety

Safety is always an issue in any occupational work (construction being one) and needs to be given due consideration in EIA when mitigation measures of other adverse impacts are being proposed. Both workers at site and the surrounding community are at stake of safety issues in construction work provided the construction activities are not performed as per set procedures or the workers owe careless attitude at work site.

Potential Impacts

The construction activity can potentially be a safety hazard for the workers at construction site and the nearby community; particularly owing to the increase in the construction related traffic on the narrow and unpaved project access roads and dug land adjacent to the residences.

Impact Analysis

Project related traffic; particularly on the unpaved, narrow roads leading to the project sites, will be major source of concern for the community. The construction activities near the industrial areas will also create several potential

safety hazards. Moreover, workers will themselves be creating safety issues for themselves if they do not follow safe work practices or owe careless attitudes.

Mitigation

Following are the mitigation measures for safety issues:

- **Community Safety**
  - A public safety plan should be developed
  - Community complaints register and other mean should be adopted for the community to complain.
  - Fences surrounding the sites should be put in on during the construction to prevent access to construction sites.
  - No machinery should be left unattended, particularly in the running condition.
  - Road signage relevant to the project should be posted, where necessary.
  - Drivers will be trained and encouraged to follow traffic rules.
- **Workers' Safety**
  - Safe Operation Procedures (SOPs) for all construction works will be established and displayed at sites and contractors will ensure all the workers follow them.
  - Contractors will ensure no careless attitude is shown by any worker at site.
  - Contractors will either hire skilled labor or will train them before deploying them into construction work.
  - It should be ensured that no unsafe act or condition prolongs at site.
  - Workers should be provided with PPEs whenever and wherever necessary.

Residual Impacts

With the implementation of mitigation measures proposed above, the residual impact on the safety of the workers and community due to construction will be insignificant.

Monitoring Requirement

Although the implementation of the above-cited mitigation measures is not expected to leave any significant long-term adverse impact on workers' and community safety to be monitored, a Specific monitoring requirement should be part of community safety plan and may include visual inspection for:

- Road signage
- Safety marks
- Fencing
- SOPs and their implementation
- Provision of PPEs, and
- Observation of other measures.

Besides this inspection, registers must maintain if any complaints are received or if any injury is caused to any worker or resident.

8.4.7 Employment Conflicts

Potential Issues

Potential employment related issues include dissatisfaction among the local communities over the number of jobs offered to them.

Impact Analysis

The project is likely to create the significant job opportunity. Even unskilled and semi-skilled employment opportunities likely to be created, will be for a significant period. For these jobs, locals will be given a preference.

The key issue is related to provision of job. This issue particularly becomes problematic if it is perceived by the local community that a significant number of construction-related job opportunities are not given to people from the local community. This could result in friction between local residents and construction workers.

Mitigation

The following mitigation measures will be implemented:

- Maximum number of unskilled and semiskilled jobs should be provided to the locals
- A local labor selection criterion should be developed in consultation with the surrounding.

Residual Impacts

Due to its economic implementation, it is possible that employment may remain a contentious issue throughout the project.

Monitoring Requirements

The following data should be recorded and maintained on the employment:

- Total number of unskilled, semiskilled and skilled jobs offered during construction.
- Name and place of residence of the employed staff.

8.5 Environmental Impacts Associated with Operational Activities

Since the project aims at site is storage of Raw Materials for Industrial use and Finishing Products. The impacts that are discussed are related to:

- Wastewater
- Air Emissions
- Solid Waste
- Maintenance Related Issues
- Safety Hazards, Public Health & Nuisances
- Failure to Restore
- Emergency Response

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8.5.1 Wastewater

- The entire process is a complete Dry process and water usage for industrial purpose is not envisaged.
- -Water will be used only for domestic purpose (drinking, office use & green belt)
- -Domestic waste water will be treated through septic tank followed by soak pit

5.5.2 Air Emissions

- -No stack or chimney
- -The dust generated due to the movement of vehicles is being controlled by frequent sprinkling of water
- -The dust generated from the dismantling and crushing is being collected through a set of cyclones followed by high efficiency bag filter.
- -High efficiency bag house provided for manual dismantling area will be provided.
- -The dust particles collected in the cyclones/Bag filters will be disposed.

8.5.3 Noise Pollution

- -No noise generating equipment's
- -All the employees working at mechanical and manual separation of metal equipped with appropriate PPE's.
- -CRT cutting done within closed chamber to minimize noise generation.
- -Feeding hopper at shredder is enclosed for noise reduction.
- -Regular maintenance of shredding and cutting systems is carried out to reduce noise generation.

8.6 Potential Environmental Enhancement Measures

In order to enhance the environment, the following measures will be adopted:

1. Trees will be planted within the premises to beauty the surrounding area.
2. A special budget of 0.01 million PKR will be designated for the environmental improvement of the environment on annual basis. The administration will be responsible for spending of this budget. The team leader will prepare the inventory of environmental improvement activities and communicate it with the rest of the team for implementation.

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8.7 Occupancy

Adequate number of staff (approximately ten) will be employed to work at Construction of Chemical Formulation Unit & Storage/Mixing of Hazardous Chemical Unit by M/S Falcon Enterprises Limited in healthy environment.

8.8 Additional Considerations

It is very importance to plan a project after evaluating its cumulative socio-environment and cultural impacts. The current project is a unique venture in the identified locality as it will address the environmental, social and safety issues through its already established norms of operating within the area. The proposed project is planned after keeping all the parameters of environment, health and safety for site identification, design, construction phase and operational phase. That's why the cumulative impacts of the project are negligible.

A waste management hierarchy for electronics and processing residuals, in order of preference, is listed below:

1. Reuse of electronics equipment, components, or remanufactured items.
2. Recycling equipment or components for recovery.

3. Management of components for energy recovery.
4. Disposal of components via incineration or landfill (least preferable).

Chapter 9: Environmental Management and Training Plan

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CHAPTER IX: ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

9.0 Background:

The purpose of developing this Environmental Management and Monitoring Plan (EMMP) is to provide a dynamic guideline to the concerned stakeholders to define details of factors which are most importantly considered like who, what, where and when environmental management and mitigation measures are to be implemented besides providing the contractors and proponents better on-site environmental management control over the life of the project. However, to ensure the compatibility of the Environmental Management and Monitoring plan in accordance with the changing socio-cultural, economic and environmental factors, it would be used as a dynamic tool which means that the EMMP would undergo necessary modifications to keep catering to the changing environmental needs of the proposed project.

Table 9.1: Users of this EMMP would include but not be restricted to the following:

Sr.	EMMP Elements	End Users
1	Background	All stakeholders – internal and external Community groups Approval or consent authority e.g., EPA Punjab
2	Environmental Management	The management and supervisory staff of Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore and EPA Punjab
3	Implementation	The management and supervisory staff of Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore and EPA Punjab
4	Monitor and review	The management and supervisory staff of Construction of Import, Storage, Sale and Distribution of Hazardous and Non-

		Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore and EPA Punjab

9.1 EMMP Context:

Being an environment conscious and law-abiding entity, Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore, has decided to identify, develop and implement an EMMP that identifies the environmental aspects of their project besides providing them a guideline to tackle any environmental issues that may arise in the future. Under the Punjab Environmental Protection Act, 1997 (Amended, 2012), conducting an IEE/EIA prior to commencement of a project is obligatory. This is further reinforced through the IEE/EIA Rules 2022. A more elaborated guideline for Environmental Report Writing further provides a step-by-step procedure for drafting of an IEE/EIA report. An Environmental Management and Monitoring Plan has been made a compulsory part of the IEE/EIA report under the same guidelines. It is for this reason that construction of import, storage, sale and distribution of hazardous and non-hazardous petroleum products/chemical mixing unit/chemical storage & formulation unit by m/s falcon enterprises limited, planned to meet pre-requisite of the Environmental Approval by drafting a meticulously planned EMMP.

9.2 EMMP Objective:

The objectives underlying the EMMP for Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore are:

1. To provide guideline to the management and supervisory staff for conducting their activities in an environmentally responsible manner
2. To mitigate potential risks during operational phase of the project
3. To coordinate with the responsible approval authorities regarding the environmental efforts

4. To identify roles and responsibilities for the implementation of EMMP
5. To meet the regulatory obligation put forth by Punjab Environmental Protection Act, 1997 (Amended 2012)

9.3 Environmental Policy

Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore, strives for environmental reverence which is why it has devised its environmental policy stating vision of the company towards environmental conservation. Our policy is:

1. to provide a modern yet sustainable and environmentally friendly working condition to its employees
2. conserve natural resources through adopting less waste policy
3. energy conservation through promoting environment friendly unit designs
4. to provide trainings to all employees to meet our environmental objectives

9.4 Environmental Management and Monitoring Plan Structure and Responsibility

Table 9.2: Roles and Responsibilities

Sr.	Positions	Significance	Stage	Environmental Responsibilities
1	Proponent / Owner	Critical	Construction / Operations	• Oversee Environmental Policy and EMMP • Serve as primary contact to the regulatory authorities • Commit resources to achieve environmental objectives
2	All Employees	Critical	Construction / Operation	• Attend training and understand their roles in the implementation of EMMP • Understand the Environmental Policy / Objectives and act accordingly • Participate in the review of EMMP

				• Coordinate with the responsible authorities within the project to report any noncompliance to their Environmental Policy
3	Construction Supervisor	Critical	Construction	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing solid waste generation • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of the workers during construction phase • Ensure safe transportation of good/Cardboards to and from the proposed project site
4	Maintenance Manager	Critical	Construction / Operation	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing the chances of increased solid waste • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions

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				• Ensure health and safety of the workers during construction / operational phase • Provides health, safety and environmental awareness trainings to the staff
5	Administrative Person Deal with Environment Issues	Critical	Operational	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing the chances of increased solid waste • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of workers during operational phase • Receive health, safety and environmental awareness trainings • Prepare and maintain accidents/environmental risk records • Timely coordination with the responsible authority

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9.5 Environmental Management Plan for Proposed project Unit

The proponent believes in sustainable resource management which is why it has developed a comprehensive Environmental Management and Monitoring Plan for its construction as well as operational phase.

Table 9.3: Environmental Management Plan

Sr.	Environmental Element	Mitigation Measures to be taken during	
		Construction Phase	Operational Phase
1	Sewage	There will be no wastewater during construction phase. Wastewater of construction will be reused in construction practices like making construction of the unit or sprinkling on dust etc. There would be no wastewater regarding domestic because workers will use surrounding washrooms like of masjid etc.	There would be no wastewater during operational because in process water will not be used. Domestic wastewater will be managed by constructing septic tank.
2	Civil water supply	It shall be ensured that no activity tempers with the civil water supply system in the area, if any.	• It shall be ensured that no activity tempers with the civil water supply system in the area, if any.
3	Solid waste	Solid waste from construction phase will be reused in construction making of the project area. Domestic solid waste will be dump at that point from where sanitary workers will collect it.	• During the operational phase, the Unit will primarily store goods. No hazardous solid waste will be generated or stored on-site. Non-hazardous waste, such as packaging materials, will be sold to local informal recyclers.
5	Noise	In order to avoid the nuisance of noise the project maintenance manager shall ensure the all vehicles, equipment, machineries used during construction phase are in good working condition. The working hours of the project construction activities shall be	-No noise generating equipment's -All the employees working at mechanical and manual separation of metal equipped with appropriate PPE's. -CRT cutting done within closed chamber to minimize noise generation.

		limited to day time only i.e., 08 in the morning till 05 in the evening.	-Feeding hopper at shredder is enclosed for noise reduction. -Regular maintenance of shredding and cutting systems is carried out to reduce noise generation.
6	Gaseous emissions and particulate matters / dust generation	The electricity generator to run various construction machineries and equipment will produce gaseous emissions and particulate matters. Therefore, the generators will only during shutdown of power supply from WAPDA grid.	• During operational phase, no activity is envisaged to take place which may generate dust of particulate matter of any significance. Under the control of the management all care will be taken to keep the activities environmentally sound and sustainable.
7	Traffic related problems	Traffic management will be done to avoid traffic stampede/congestion. Parking on the main roads and/or blocking public accessibility will be discouraged.	• Enough space for car parking will be provided to avoid random vehicle parking on roads.
8	Floor sweepings	Floor sweepings will be disposed into the municipal bins allocated along the proposed project site.	• Floor sweepings will be collected in bags and disposed of with solid waste which will be ultimately collected by sanitary workers of that area.
9	Trash burning	No trash burning will be allowed in or outside the buildings.	• Trash burning will be discouraged within the premises of the project.

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10	Dust	The construction Cardboards with potential to create dust issues will be kept under cover. Sprinkling of water will be conducted to avoid dust generation.	• The proposed project is planned in such a way to minimize generation of dust. The roads will be kept clean and floor sweeping will disposed of in the disposed. Green belts will be watered to avoid the issues of desertification and soil erosion.
11	Environment quality enhancement measures		• Environment quality enhancement measures like flower pots, green belts, planting of trees will be provided around the go down. Vegetation on the green belts and decoration lights will be installed to improve the aesthetic quality of the area. The proponent also intends to plants trees within the area to give the area a natural look.
12	Staff for environmental management plan	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	• Special staff will be recruited to implement this Environmental Management Plan on regular basis. Administration will be responsible for establishment of successful implementation of EMMP.

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9.6 Environmental Monitoring Plan

Environmental monitoring will be undertaken in accordance with the requirements of the environmental authority (EPA, Punjab) to ensure compliance to the National Environmental

Quality Standards (NEQS) as and when required. Proponent has decided to spend 0.01 million PKR annually for sake of Environmental Budget.

Environmental monitoring will include parameters that will be mentioned in the Environmental Approval accorded by the Environmental Protection Agency, Punjab for its construction phase.

9.7 Institutional Arrangement

Administration under the supervision of the maintenance manager will report directly to the proponent. The administration will consist of skilled personnel with expertise in health, environment and safety issues. Roles and responsibilities for the implementation of EMMP are further explained earlier under the head Roles and Responsibilities.

9.7.1 Reporting

The proponent aims to provide timely, relevant and appropriately presented information to the concerned government authorities, local community surrounding the proposed project site on the environmental, health and safety performance of the project. The commitment would be met by record keeping and presenting it to the concerned authorities as and when required.

9.7.2 Staff Training

Staff training is important parameter that needs to be fulfilled adequately in order to ensure the successful implementation of environmental objectives. Keeping this fact under consideration, Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore, will ensure that the employees, contractors and workers receive appropriate environmental awareness training. This will be obtained through a variety of methods including training sessions, formal/informal meetings and discussion and formal presentations. Environmental awareness training would take place at various stages of the persons concerned with the proposed project. This would occur at the induction of any new employee/contractor/workers and will be made a regular on-site feature. Records of training content and attendance will be maintained.

Constructed Unit would require the persons involved during construction as well operational phase to be aware of following responsibilities and equipment, maintenance detail:

1. Their roles and responsibilities (including environmental incident reporting)

2. The environmental impacts (potential and actual) of their activities during construction and operation
3. Natural hazards such as earth quake and floods etc.
4. The potential consequence of poor environmental performance
5. Site emergency plans and their execution procedures

Sr#	Description	Responsibility	Who will be involved	Outcomes
1	Air Quality	Administration	All employees	• Better understanding of the health impacts associated with air pollution • Develop a monitoring and reporting system for air pollution • Third party involvement especially EPA approved labs will be decided under potentially harmful circumstances
2	SWM	Administration	Staff	• The staff will be trained to follow the principles of recycle, reuse, reduce and will be taught to follow solid waste Repairing at source • Improved understating regarding health impacts associated with unplanned waste management • A monitoring and reporting system that would enable the

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				supervisor to keep control of all unnecessary scattering
3	Wastewater	Administration	Employees but specific attention to the staff	• Improved understanding of the conservation techniques • Quality assurance through lab analysis, if need be, found • Overflow control in the drains through continuous cleaning
4	Noise	Administration	All employee	• Monitoring and reporting system for noise related issues if detected • Appropriate measures would be identified and implemented • Guidance to the employee on adopting good practices for noise and any other practice that otherwise could lead to environmental nuisance.
5	Firefighting	Administration	All employee	• Improved understanding of keeping a tab on all potential threats that could lead to fire hazards • Understanding on how to use the firefighting equipment

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				• Understanding regarding emergency exits and use of fire point
6	Landscaping	Administration	Staff	• Improved efforts for maintaining the green belts and tree plantations
7	Accidental Spills	Administration	All staff	• Improved understanding regarding how to react during minor and major spills according to the measures identified

9.8 Environmental Audits and Reviews

The proponent will ensure conducting environmental audits to assess compliance with the conditions set under the environmental legislation and those mentioned by the EPA, Punjab during grant of Environmental Approvals. The objective of the environmental audit and review is to monitor and report both compliance and non-compliance with the statutes, EMMP and the conditions set under Environmental Approval. This would be done for both the construction as well as operational phase of the proposed project under the supervision of the administration.

9.9 Public Consultation

Social survey was held with the surroundings from the project area. They are pro project. They were of the view that the project will bring new income opportunities for the surrounding community ultimately helping in the reduction of poverty in the area to a greater extent.

Emphasis was placed on community awareness and perception about the proposed project. This was an important component of the entire study as social assessments are complementary part of environmental assessment. By and large, the people of the proposed project area are well aware of the project and can well anticipate the activities that would entail once the project enters its construction and operational phase. All of the respondents who participated in the public consultation process welcomed the proposed project considering it beneficial both economically and socially. According to their point of view that the proposed project would give a boost to their income by providing small income generating opportunities.

People foresee this project as a positive precursor that would give rise to employment opportunities and small vendor's activities. No opposition from the public was confronted for the project.

9.10 Compensation in Money Terms

The said project is lies within the industrial area cum commercial area and there is no population in the radius of 2-3 kilometer. There will be no cutting of flora and no harm to fauna by this proposed project. There is no any structure or residence which will be damaged by proposed project so there will be no need for money compensation. Proposed project is environment friendly.

9.11 Replacement, Relocation and Rehabilitation

Proposed project will be done on the open plot where there is neither any population nor any structure. So, there will be no need for replacement, relocation and rehabilitation of said project. This will come in operation here and will work here in environment friendly manners.

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Chapter 10: Health Safety and Environment

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CHAPTER X: HEALTH SAFETY & ENVIRONMENT (HSE)

An HSE (Health, Safety, and Environment) Plan for a grid station project outlines the measures and protocols to ensure the safety of workers, the protection of the environment, and compliance with regulatory standards. The plan begins with a clear purpose statement, which emphasizes safeguarding personnel and preventing accidents. It includes a comprehensive risk assessment, identifying potential hazards like electrical shocks, arc flashes, fire risks, heavy machinery, and environmental hazards. The plan should detail control measures such as PPE (Personal Protective Equipment), safety barriers, fire suppression systems, and regular equipment inspections. It also covers emergency response procedures, including firefighting, first aid, and evacuation protocols. Training and awareness are integral, ensuring all workers are knowledgeable about safe practices and hazard recognition. Environmental considerations, like noise control, waste management, and pollution prevention, should also be included. Additionally, the HSE plan must align with local regulations and international standards (e.g., OSHA, IEC), incorporating regular audits, incident reporting, and continuous improvement practices.

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Health and Safety Rules of this Site

All site personnel shall adhere to General Safety Rules, during site operations. In addition, the housekeeping and personal hygiene requirements will also be observed.

Housekeeping

During site activities, work areas will be continuously regulated for identification of excess trash and unnecessary debris. Excess debris and trash will be collected and stored in an appropriate container (e.g., plastic trash bags, garbage can, roll-off bin) prior to disposal. At no time will debris or trash be intermingled with waste PPE or contaminated materials. Smoking, Eating or Drinking

Smoking, eating, and drinking will not be permitted inside any controlled work area at any time. The workers will first wash hands and face immediately after leaving controlled work areas (and always prior to eating or drinking). The following personal hygiene requirements will be observed:

Water Supply

A water supply meeting the following requirements will be utilized:

Potable Water-

An adequate supply of potable water will be available for personal consumption. Potable water can be provided in the form of water bottles, water coolers, or drinking fountains. Where drinking fountains are not available, individual-use cups will be provided as well as adequate

disposal containers. Potable water containers will be properly identified in order to distinguish them from non-potable water sources.

Non-Potable Water

Non-potable water may be used for hand washing and cleaning activities. All containers of non-potable water will be marked with a label stating: -

Toilet Facilities

A minimum of one toilet will be provided, with separate toilets maintained for each sex except where there is less than 8 total personnel on site. For mobile crews where work activities and locations permit transportation to nearby toilet facilities, on-site facilities are not required.

Washing Facilities

Employees will be provided washing facilities (e.g., buckets with water etc.) at each work location. The use of water and hand soap will require by all employees following exit from the Exclusion Zone, prior to breaks, and at the end of daily work activities.

Stop Work Authority

All employees have the right and duty to stop work when conditions are unsafe and to assist in correcting these conditions. Whenever the site person determines that workplace conditions present an uncontrolled risk of injury or illness to employees, immediate resolution with the appropriate supervisor shall be sought. Upon issuing the stop work order, the site person shall implement corrective actions so that operations may be safely resumed. Resumption of safe operations is the primary objective; however, operations shall not resume until the Safety Professional has concurred that workplace conditions meet acceptable safety standards.

Personal Protective Equipment

The purpose of personal protective equipment (PPE) is to provide a barrier, which will shield or isolate individuals from the chemical and/or physical hazards that may be encountered during work activities. The PPEs to be provided are as follow:

Safety Helmets

- Face Masks
- Ear Plugs
- Gloves
- Boots etc.

First Aid Facility

Adequate first aid facility will be available at the site.

1. Electrical Hazards

- **Electrocution Risk**: High-voltage equipment poses serious risks of electrocution. Proper insulation, safety barriers, and personal protective equipment (PPE) are essential.
- **Arc Flash/Arc Blast**: Sudden electric discharges can cause burns, injuries, or death. Appropriate maintenance, safety gear, and training can mitigate this risk.

2. Fire Safety

- **Overheating Equipment**: Faulty transformers or switchgear may overheat, leading to fires. Regular inspections, fire-resistant materials, and automatic fire suppression systems are vital.
- **Emergency Planning**: Having fire extinguishers, alarms, and evacuation plans in place ensures preparedness.

3. Mechanical Hazards

- **Heavy Lifting and Equipment**: Workers are often exposed to injuries from lifting heavy equipment. Use of cranes, lifts, and proper training is necessary.
- **Machinery Safety**: Moving parts in equipment can cause crushing or other injuries. Guards and safety protocols help reduce risk.

4. Environmental Hazards

- **Noise Exposure**: Prolonged exposure to high noise levels can cause hearing loss. Ear protection is crucial.
- **Exposure to Hazardous Substances**: Workers may encounter hazardous chemicals (like transformer oils or cleaning agents), so proper handling and storage are necessary.

5. Working at Height

- **Falls**: Grid station projects often require working at heights on towers or structures. Use of harnesses, guardrails, and fall-arrest systems are key safety measures.

6. Confined Spaces

- **Limited Access Areas**: Working in confined spaces like underground vaults poses risks of suffocation, heat stress, or difficulty in rescue operations. Ventilation and monitoring are essential.

7. Thermal Stress

- **Heat and Cold Exposure**: Workers might be exposed to extreme temperatures, which can lead to heatstroke, hypothermia, or dehydration. Ensuring hydration, breaks, and appropriate clothing helps mitigate these risks.

8. Ergonomics and Manual Handling

- **Repetitive Strain Injuries (RSIs)**: Improper lifting techniques or repetitive movements can lead to injuries. Proper ergonomics and training help reduce these risks.

9. Safety Standards and Regulations

- **OSHA/IEC Standards**: Compliance with safety regulations like those from OSHA (Occupational Safety and Health Administration) or IEC (International Electrotechnical Commission) ensures the project follows established safety protocols.
- **Risk Assessments**: Regular assessments should be conducted to identify hazards and take appropriate mitigation measures.

Risk Assessment Matrix				
	Severity			
	Catastrophic - 4	Critical - 3	Marginal - 2	Negligible - 1
Probability: Frequent - 4	High (16)	High (12)	Serious (8)	Medium (4)
Probable - 3	High (12)	Serious (9)	Serious (6)	Medium (3)
Remote - 2	Serious (8)	Serious (6)	Medium (4)	Low (2)
Improbable - 1	Medium (4)	Medium (3)	Low (2)	Low (1)

10. Training and Awareness

- **Employee Safety Training**: Regular safety drills, training programs, and certifications for handling electrical and mechanical systems help in creating a safer work environment.
- **Safety Signage**: Clear signage indicating potential risks (high voltage, hazardous chemicals, etc.) should be placed at appropriate locations.

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CHAPTER 11: STAKEHOLDER CONSULTATION

CHAPTER 11: STAKEHOLDERS CONSULTATION

General

Public consultation refers to the process by which the concerns of local affected persons and others who have plausible stake in impacts assessment of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. According to the IEE and EIA Review Regulations, 2022 public consultation is mandatory for any socio-environmental study. For this purpose, assessment survey and public consultation sessions held with different stakeholder groups that may be impacted. The consultation process was carried out in accordance with the guidelines laid by EPA, Punjab. The objectives of this process were to:

- Share information with stakeholders on proposed project installation and operation.
- To access the impacts on the physical, biological, and socio-economic environment.
- Understand stakeholder concerns regarding various aspects of the project.
- Understand the perceptions, assessment of social impacts and concerns of the communities of the project area.
- Find out the awareness level and situation of acceptability to identify any issues for the implementation of said project.
- To invite people to express their views about the positive/negative impacts on their life styles and environment.

This report including all the comments, which were taken into account in preparing the definitive development concept for the construction of proposed project.

Consultation mechanism

Primary stakeholders were consulted during informal and formal meeting. The consultation process was carried out in the Urdu language. During these meetings a simple, non-technical, description of the project was given, with an overview of the project's likely human and environmental impact. This was followed by an open discussion allowing participants to voice their concerns and opinions. In addition to providing communities with information on the proposed project, their feedback was documented during the primary stakeholder consultation. The issues and suggestions raised were recorded in field notes for analysis, and interpretation.

By reaching out to a wider segment of the population and using various communication tools such as participatory needs assessment, community consultation meetings, focus group discussions, in-depth interviews, and participatory rural appraisal EIA involved the community in active decision-making. This process will continue even after this EIA has been submitted, as well as during future EIA in which similar tools will be used to create consensus among stakeholders on specific environmental and social issues.

Secondary stakeholder consultations were more forma as they involved government representatives and local organizations, consulted during face-to-face meetings. They were briefed on the EIA process, the project design, and the potential negative and positive impact of the project on the area's environment and communities. It was important not to raise community expectations unnecessarily or unrealistically during the stakeholder consultation meetings in order to avoid undue conflict with community's leathers or local administrators. The issues recorded in the consultation process were examined, validated, and addressed in the EIA report.

This section involves communication of possible impacts and concerns with

- ✓ Proponents Environmental Management Team
- ✓ The responsible authority
- ✓ Other departments and agencies
- ✓ Environmental Practitioners and experts
- ✓ Affected and wider community

Proponents Environmental Management Team

Consultation regarding "Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore, was done with Proponent's Environmental management Team and anticipated impacts were discussed. Concerns of locals, Environmental Practitioners & experts and Government departments were discussed and asked to consider them while construction of above-said project. Locals will be preferred for employment after providing proper training. Mitigations measures mentioned in EMP will be truly implemented.

The responsible authority

Overall responsibility for implementation of EMP will be that of project proponent. He will appoint an HSE/Project Manager of relevant qualification. HSE/Project Manager will act as Environmental Manager and will manage the all HSE condition at the PEQS.

Other Departments and Agencies

Different Government departments were consulted regarding Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore, to treat wastewater generated from proposed unit.

Consultation with Government Departments

Various government departments were consulted by the socio-environmental team of the consultants and concerned details about the project were noted down through personal interviews, group meetings, etc., in their offices.

Environmental Practitioners and experts

Consultation with Environmental Practitioners and experts was done and following comments and suggestions were observed.

Table: Consultation with Environmental Practitioners and Experts

SR.NO.	NAME	QUALIFICATION	COMMENTS/SUGGESTIONS
1.	Ms. Areej Tahir	Ph.D. (scholar) Environmental Sciences	Following comments are summarized: • WWTP of ASP technology must be installed with maximum efficiency • Regular monitoring should be conducted
2.	Ms. Leenah Maqbool	Ph.D. (scholar) Environmental Sciences	She said that current project must be installed as: • it will improve sanitary conditions of the area • it is an environmentally friendly operation of sugar industry

3.	Mr. Danial Zaib	BS Environmental Sciences	He said that: • Locals should be preferred for employment • In case of outsider's residence must be provided Proper mitigation measures must be adopted while construction and operation of this project
4.	Ms. Zahra Anwar	M.Phil. Environmental Sciences	She said that: • In case of removal of vegetation, trees must be planted after construction at designated green areas • More water conservation strategies must be adopted Solid waste must be collected and disposed off properly
5.	Engr. Noor Fatima	B.Sc. Environmental Engineer	She suggested to install WWTP of adequate capacity • to treat wastewater from sugar processing before discharge/reuse • Proper leveling and commissioning must be done after completion of construction environmental manager must be specified to check compliance.

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Affected and Wider Community

Social survey was conducted to consult with local community. Their concerns were noticed and discussed with proponent and their team. Majority was in favor of project their details are given below in **Table.**

Table: Community Survey

SR.#	RESPONDENTS	CNIC/CONTACT NOS.	CONCERNS
1	M. Ishfaq	0323-4454355	During the survey in the study area following concerns of the local community were noted: • Wastewater should be properly treated prior to final disposal in nearby drain.
2	Liaqat	0321-4746400	
3	Zia-Ul-Haq	0300-7234963	
4	M. Imtiaz	0302-1642952	
5	Rashid	0301-4978901	

6	Saleem	0304-97677810	• Solid waste should be managed effectively by adopting the standard practices of the area. • Cleanliness of the area should be ensured. • An effective EMMP should be designed and enforced with true spirit. • Health of the workers should be ensured. • Plantation should be carried out at extensive scale. • Construction activity should be carried out during day hours. • Noisy activities should be confined. • Workers should be hired from local community. • PPE's must be provided to workers • Proper disposal of solid waste should be practiced. • Indigenous trees around the facility should be planted to control air pollution. • Sufaida can be planted in the project area as the area in known to be affected by the logging and salinity. • Removal of shrubs and bushes should be avoided to the extent possible.
7	Hamid	0300-1568911	
8	Bashir Ali	0300-1959861	
9	Khalil	0313-3700129	
10	Sohaib	0300-1012191	
11	Israr	0370-0289009	
12	M. Awais	0305-9316234	
13	Asif Ali	0300-1198651	
14	Irfan	0311-4535880	
15	Zahid	0302-4486501	
16	M. Faraz	0300-1297500	
17	M. Aslam	0321-4295295	
18	Sohrab	0312-0186912	
19	Junaid	0316-4534484	
20	Umar	0307-4463063	
21	Waheed	0303-5615189	
22	Waqar	0302-2727903	
23	M. Aslam	0308-2958056	
24	Shamoon	0300-4150286	

Chapter 12: Conclusion and Recommendation

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CHAPTER XII: CONCLUSIONS AND RECOMMENDATIONS

The proponent of Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore, in tends to construct a unit which will be involved for purchasing, Temporary storage of different type of Raw Materials and Finishing Products. The project requires an Environmental Impact Assessment (EIA), In order to ensure compliance with the lawful provision of section 12 of PEPA 1997 (Amended 2012) read with IEE/EIA Regulations 2022, the Initial Environmental Examination Report has been prepared and is being filed to the Environmental Protection Agency, Lahore for issuance of environmental approval.

Accordingly, this EIA Report describes social, environmental, physical and other relevant aspects of the project during pre-construction, construction and post construction stage and at its regular occupancy. The report also specifies necessary measures to be adopted for mitigation of environmental impact on the environment. It also provides information as desired under the format used for the preparation of this EIA Report.

However, the environmental aspects and impacts associated with Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore, have been considered.

A detailed impact assessment associated with the Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore, under the head of "Impact Assessment and mitigation Measures". All infrastructure e.g., road, sewerage, water supply, electric supply, gas etc. already exist in the proposed project area. The proposed project will be an environmentally friendly site after its completion. Septic tank will be provided in the site premises for the treatment of domestic wastewater. Total solid waste generated from the project will comprise mainly of paper, plastics organic matter and food waste. The municipal waste will be ultimately collected by sanitary workers of that area from that point where it will be dumped. The project will have its own administration set up for environmental monitoring and maintenance of site both during construction and operation stage. In order to handle fire hazards, fire hydrants and sprinklers will be provided at many locations within the premises.

The baseline study has been conducted reviewing the available literature. The overall impact of the proposed project can be considered positive. However, it may pose some minor and

moderate negative social which will be temporary and environmental impacts which will require proper mitigation measures.

Handling and disposal of construction waste, increase in noise level, air quality, traffic disruption and disturbance to people, workers safety, sanitation and solid waste disposal and effects on social life are vital factors during the construction stage that will require necessary mitigation measures which have been proposed in the report of this report. Responsibility for each of the mitigation has also been given in the report.

Construction of the proposed unit will be a labor-intensive process and will create employment opportunities for the local people. At the operational stage, traffic management, wastewater and solid waste generation, and emergency response are the significant impacts that need to be managed. Mitigation measures and their responsibility for each of the mitigation have been given in the report. The proposed mitigation measures will be strictly implemented to save the environment.

For the effective implementation and management of the proposed mitigation measures, an outline Environmental Management and Monitoring Plan (EMMP) has been developed.

Construction of the Unit will also be based on the principles of sustainable development. The aim of constructing such go down is to create an environment friendly design which should be kind to nature, healthy and sympathetic to the life style of its occupants.

12.1 Conclusion

In view of the above it has been concluded that Construction of Import, Storage, Sale and Distribution of Hazardous and Non-Hazardous Petroleum Products/Chemical Mixing Unit/Chemical Storage & Formulation Unit by M/S Falcon Enterprises Limited at Roshan Steel, Karol Ghatti, Bund Road, Lahore, is environmentally friendly with sustainable design and has no adverse effects on environment. It is therefore requested to issue the environmental approval under section 12 of PEPA 1997 (Amended 2012) for the construction and operation of the said project.

Annexure I: LAB REPPOTRS

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Annexure II: Property Documents

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Annexure III: Proponent CNIC (Copy)

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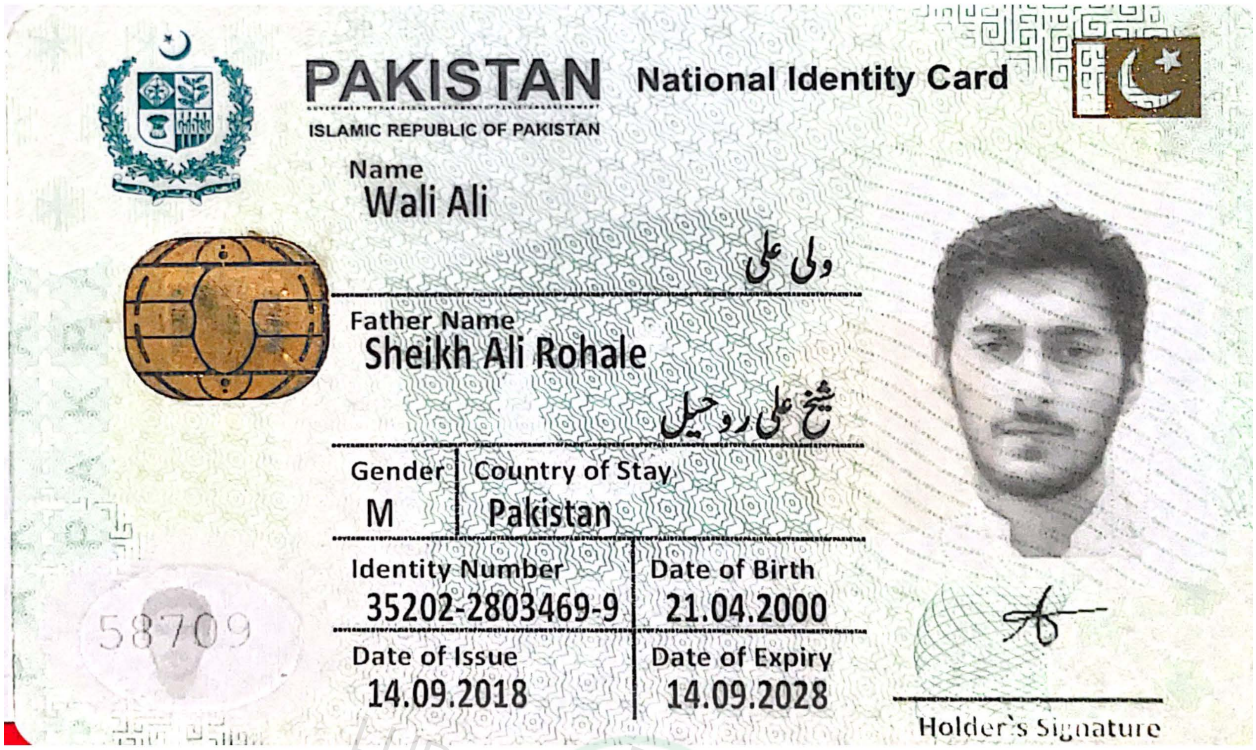
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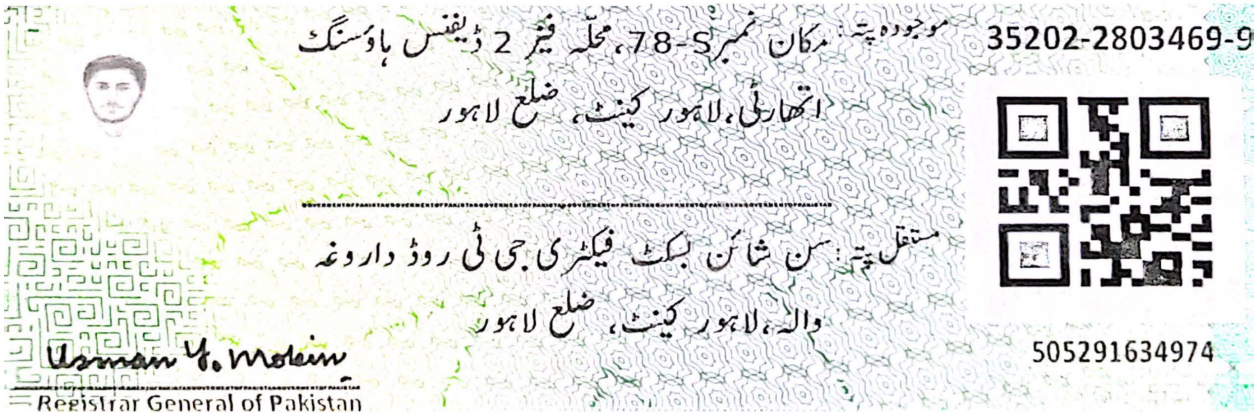
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Annexure IV: Terms of Reference

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TERMS OF REFERENCE

Scope of Work for Consultant

Activities of the consultant will strictly follow the Guidelines given in PEPA Act 2000. An extract is narrated below:

- Complete baseline information about the environmental, social, and ecological characteristics of the project area will be collected via field surveys by keeping in view the following but not limited to location; water bodies, villages/towns/sensitive areas; accessibility, security, vegetation, flora, fauna, physical structures, livelihood, social amenities and Physical Cultural Resources (PCR's).

- Relevant information will also be collected on potential impacts of the project and the characteristics of temporary and permanent impacts.

- Various stakeholder consultations will be conducted as part of EIA study. The details of consultations including venue, date, participants, feedback, their concerns/views, etc. will be recorded and reported.

- The specific and effective mitigation measures will be suggested to minimize the adverse socio-environmental impacts and related mitigation costs.

- An Environmental Management and Monitoring Plan (EMMP) will also be developed to be implemented by the relevant authorities during the pre-construction, construction and operational phases.

- Environmental Testing / Sampling by EPA Approved Laboratory.

- Timely preparation and submission of all deliverables.

- After the completion of a comprehensive EIA report, the Proponent will also be assisted by the Consultants to receive Environmental Approval from Environmental Protection Authority (EPA), subject to the agreement of the Proponent.

Key Deliverables

- Submission of 05 hard copies and 02 soft copies of EIA Report to EPA Punjab, Lahore. EIA Report will be accompanied by:
- An Application Form set out in Schedule IV of Review of EIA/ IEE Regulations, 2000

- An Undertaking as per Schedule VII of Review of EIA/ IEE Regulations, 2000
- Review Fee in form of bank draft
- Replies of Queries raised by EPA if they require some additional information

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Annexure V: Glossary

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GLOSSARY

EIA (Environmental Impact Assessment): It is the process of identifying, predicting, evaluating and mitigating of effects of biophysical, social and other relevant proposed projects and physical activities prior to major decisions and commitments being made.

EMP (Environmental Management Plan): An EMP is a site-specific plan developed to ensure that all necessary measures are identified and implemented in order to protect the environment and comply with environmental legislation.

ESIA (Environmental Social Impact Assessment): It is to identify the impacts of the project on social and environmental conditions.

FAUNA: Word used for combination of all the species of animals.

FLORA: Word used for combination of all the species of plants.

IEE (Initial Environment Examination): Initial examination of projects for identification of hazards of project.

NCS (National Conservation Strategy): Three objectives of the National Conservation Strategy (NCS) are: (i) conservation of natural resources; (ii) sustainable development; and (iii) improved efficiency in the use and management of resources.

NOC (No Objection Certificate): It is a kind of clearance issued by EPA necessary for any project to be constructed.

PEPA (Pakistan Environmental Protection Act 1997): An act to provide the protection, conservation, rehabilitation and improvement of environment, for the prevention and control of pollution and promotion of sustainable development.

Topography: Physical features of any area including soil, water and air are called topography.

Annexure VI: List of Abbreviations

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LIST OFABBREVIATIONS

BDL	Below Detectable Limit
CSR	Corporate Social Responsibility
DW	Drinking Water
GW	Ground Water
SW	Surface Water
EIA	Environmental Impact Assessment
IEE	Initial Environmental Examination
EMP	Environmental Management Plan
NEQS **PEQS** **EPA**	National Environmental Quality Standards Punjab Environmental Quality Standards Environmental Protection Agency

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Annexure VII: Sources of Data

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SOURCES OF DATA

- Punjab Environmental Protection (Amendment) Act 2012 (PEPA)
- Guidelines for the preparation and review of Environmental Reports, October 1997
- Review of IEE/ EIA Regulation, 2000
- The 2004 Baseline Survey on Millennium Development Goals in AACs, Pakistan
- World Weather Online.com
- Water and Sanitation Agency (WASA)
- Lyallpur Museum
- RED Data Book of IUCN

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Annexure VIII: Project Team

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PROJECT TEAM

PERSON NAME	DESIGNATION
Mr. M Sami Ullah	Director
Mr. Basharat	Environmentalist (Author of the report)
Mr. Awais Saleem	Environment Officer
Mr. Bilal Ahmad	Environmentalist
Mr. Nadeem Akhtar	Environmentalist
Mr. Abdul Haseeb	Field Officer

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