ENVIRONMENTAL IMPACT ASSESSMENT REPORT

(EIA)

ESTABLISHMENT OF "CITY OIL SEZ (INDUSTRIAL ESTATE)" SITUATED IN MOUZA MUHAMMADI PUR, TEHSIL CHUNIA, DISTRICT KASUR

Proponent

Muhammad Shahzad Anjum S/o Umer Din

CNIC 35202-4760926-3

R/o House No.55, Mohollah Raza Block,

Allama Iqbal Town, Lahore.

Final Report

(June 2023)

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EXECUTIVE SUMMARY

Title & Location of the Project

It is intention of Mr. Muhammad Shahzad Anjum to get environmental approval for *City Oil SEZ (Industrial Estate), situated at Mouza Muhammadi Pur, Tehsil Chunia, District Kasur* by submitting the Environmental Impact Assessment (EIA) Report as per direction of Environment Protection Agency for compliance of section 12 of PEPA 1997 (Amended 2012).

The project falls under section H, clause 5, schedule II of IEE and EIA Regulations, 2000 (2022).

Location

Project site is located at Mouza Muhammadi Pur, Tehsil Chunia, District Kasur.

Project Proponent

Name: Muhammad Shahzad Anjum s/o Umer Din

Copy of CNIC and other relevant documents are attached.

Brief Outline of the Proposal

The subject proposed project is construction of the Industrial Estate under the name & style ***"City Oil SEZ (Industrial Estate)"*** situated at Mouza Muhammadi Pur, Tehsil Chunia, District Kasur. Total area of the scheme is **75.94 Acres**.

This project will have different sizes of plots for commercial purposes. The project will be facilitated with wide roads, parks, masjid and electricity. For further details, layout map is appended.

Total estimated cost of the project is approximately **Rs.500-Million**. This project is for the betterment and advancement of the region.

Raw Material

Fired bricks and clay blocks Cement composites Concrete Sand Stone Steel Plastic pipes	Varies

Division of Plots	
Commercial:	75-Plots
Storage and Handling of Construction Material	Constructional material will be placed within the vicinity of the scheme. Cement will be covered with polythene sheets to save from raining, however, at the same practice sand will also be covered during transportation as well as placing in scheme. Other material i.e. Bricks, Stone etc. have no need to cover.
Solid Waste	Area is reserved in Industrial Estate for safe disposal of Domestic waste.
Final Destination	Contract with the contractor will be made before commencement of work.
Water Requirement	
Water consumption of the project	Average daily consumption is 10000 to 15000 gallons and 25000 to 30000 gallons per day during construction & operation respectively. 10-Marla is Reserved for Disposal.
Source of Drinking Water	Underground Water
Mode of Treatment	Waste Water will be treated through treatment facility by each Plot. Then this water will treat in wastewater treatment facility at estate level.

Mode of Disposal	Sewerage system is present near the Industrial Estate. Wastewater after treatment in waste water treatment plant will be channeled to nearby local sewerage system. After treatment the wastewater will be discharge into that drain.
MANPOWER	
Labour force during construction	100-150
Labour force during operation that will be sanitary workers Security Guard Watchman	Approx. 80-100
Power Requirements	
Source of Power	WAPDA Grid Station
Fuel for Generator	Diesel

Major Impact

In order to identify all the activities associated with the project both during construction and operation phase with potential to cause adverse environmental impacts and harm, a through review has been conducted. Project will not have any major adverse impacts on the nearby community and environment. Overall the project will have positive impacts on the local population and country as a whole. Moreover, area for plantation is also reserved for air purification within the project vicinity.

Summary of Environmental Impacts and Mitigation Measures

Pollutant	Constructional phase	Operational phase
Particulate matter (PM)/dust	Particulate matter will be generated during the constructional and	During the operational phase dust will only be generated due to transportation and that

	transportation activities at the site. Due to raw material loading / unloading	impact will be outside the building on the unpaved roads or non-concreted roads.
Gaseous emissions	Flue gases will be generated due to site generators and vehicles	Flue gases can be generated due to generators and vehicles
Noise	Noise will be generated due to construction machinery and vehicles transporting materials.	Noise can be generated due to generators and vehicles transportation
Solid waste	Solid waste will be generated due to construction and domestic sources Due to sludge from septic tank	Solid waste will be generated due to domestic sources Due to sludge from septic tank treatment facility
Soil contamination	Soil will be contaminated due to leaching of oil, fuel, any stored oil.	Soil can be contaminated due to leaching of oil, fuel, any stored oil.
Waste Water	Waste water will be generated from constructional and domestic sources	Waste water will be generated from domestic sources
Health & Safety issues	Health & safety issues will be arose due to machinery handling and constructional activities	Health & safety issues can be arose due to short circuit, fire hazards etc.
Socioeconomic	Disturbance to neighbors by constructional activities	Employment opportunities

Recommendations and Mitigation Measures

Pollutant	**Recommendations during constructional phase**	**Recommendations during operational phase**

Particulate matter (PM)/dust	Sprinkling of water All construction raw material should be kept covered	Proper compaction of access roads Avoid off road travel Maintain vehicles speed Monitoring should be conducted as per EPA PEQs Rules 2001, if required
Gaseous emissions	Constructional machinery and vehicles should be tuned and maintained properly All project vehicles should be checked regularly.	Canopies should be built over generators to avoid noise pollution. PPEs should be provided to workers Generators should be maintained properly Generators will be installed in a specially constructed room. Monitoring should be conducted as per EPA PEQs Rules 2001, if required
Noise	Vehicles to carry raw materials should be operated during night time as far as possible. Ear plugs should be provided in case of heavy noise.	Ear plugs should be provided to workers in case of high noise. Monitoring should be conducted as per EPA PEQs Rules 2001, if required
Solid waste	Constructional waste should be utilize for road filling and maintenance. Domestic waste should be disposed off properly, handed over to contractor placed in bins.	Waste bins should be placed at suitable places. Domestic waste should be handed over to local contractors.

		Periodic cleaning of the septic tank should be done.
Soil erosion / Soil contamination	Placed sheet under generators or leaching material to avoid leaching. Less removal of vegetation or cleaning land	Placed sheet under generators or leaching material to avoid leaching. Store any hazardous waste or fuel properly at safe place. Restoration and reclamation of land will be done in case of soil erosion or removal of vegetation.
Waste Water	Waste water treatment facility should be installed to treat the waste water prior to discharge into any drain or used for agriculture purpose. Waste water from construction and domestic sources should be treated in waste water treatment facility before drain out or used in agriculture land.	Wastewater should be treated prior to discharge into any drain or used for agriculture purpose. Wastewater from domestic sources should be treated in septic tank. Waste water after treatment should be used for irrigation purpose or drain out in nearby drain.
Health & Safety issues	PPEs should be provided to workers during constructional activities.	Training of workers should be conducted regarding health and safety. First aid measures should be available. Proper housekeeping should be ensured. Security guard should be present.

Socioeconomic	People should be informed in advance when work is about to start at the site. Job opportunity should be provided to local people of the area.	Community wellbeing should be considered and anticipated measures are recommended to preserve local culture and ecosystem. Job opportunities should be provided to local people of the area.

Proposed Environment Monitoring

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

Ambient Air Monitoring

Regular monitoring for ambient air should be conducted during construction and operation phase as per PEQs rules and report should be submitted to EPA Punjab on annually basis.

Noise

Regular monitoring for noise level should recorded periodically during construction and during operation it should be conducted on annually basis and report should be submitted to EPA Punjab.

Water Quality

Regular monitoring of groundwater should be conducted during construction and operation phase and report should be submitted to EPA Punjab. Record should be maintained regarding.

Schedules of Proposed Monitoring

Sr.	Parameters	Monitoring Schedule
1	Ambient Air Monitoring (NO_x CO_x SO_x VOC_s PM_{10}	Annually
2	Noise Level	Annually
3	Water Quality	Annually

Note: Environment Monitoring data log book should be maintained by the project proponent.

Conclusion

The project is recommended for the issuance of Environmental Approval because the project proponent is willing to run the project in environment friendly way and to adopt the Environmental Enhancement Measures.

(1)

INTRODUCTION

1.1 Purpose of the Report

Environmental Impact Assessment (EIA) report is being submitted to the Environment Protection Agency (EPA), Government of the Punjab for the compliance of Section 12 for the approval of the said project.

Various aspects like environmental social, physical and other aspects of the project both during construction & operation and its regular occupancy are highlighted in this EIA report. Measures necessary to be adopted to mitigates an environmental impact on any part of the environment around are also described. All the important information is also provided as described under the format used to help decision makers, EPA Punjab in the present case, before issuing the desired Environmental Approval.

1.2 Identification of the Project

The Project falls under Clause 5 of Section H, Schedule II of IEE / EIA Regulations, 2000 (Amended 2012).

1.3 Project Proponent

Name: **Muhammad Shahzad Anjum s/o Umer Din**

Copies of CNIC attached.

1.4 Nature, Size and Location of the Proposed Project

The subject proposed project is construction of the industrial estate under the name & style **"City Oil SEZ (Industrial Estate)"** situated at Mouza Muhammadi Pur, Tehsil Chunia, District Kasur. Total area of the scheme is ***75.94 Acres***. Total estimated cost of the project is approx. **500-Million**. The project is for the betterment and advancement for business functionaries.

Currently the proposed site is open area and do not fall in flooding zone (not prone to flood).

This project will have different size of plots for commercial purpose. The site will be facilitated with wide roads, parks, masjid and electricity. For further details, layout maps are annexed.

1.5 Location

Project site is located at Mouza Muhammadi Pur, Tehsil Chunia, District Kasur.

1.6 Methodology of EIA Report

For the purpose of this report, environmental and social baseline data and conditions at / around the project site has been undertaken. The methodology adopted to conduct the EIA studying includes review of layout plan, orientation session, development of data, acquisition plan, analyzing of data, review of existing data, primary and secondary data, collection survey, screening of potential environmental impact and mitigation measures and also interviews with people near the project area has been conducted to collect their opinion regarding the proposed project and after finding it has been concluded that the project will not have any major adverse impacts on the socioeconomics environmental of the existing community.

Most of the people nearby locality opined as:

Project is good for downtrodden people of the area as well as there are so many job opportunities will be generated.

The present EIA report will contains the following chapters and annexures as:
Executive Summary.
Chapter 1: Introduction of Project.
Chapter 2: Elaborate Project Description.
Chapter 3: Accompanied with Description of the Environment.
Chapter 4: Screening of Potential Environmental Impacts and Mitigation Measures.
Chapter 5: Describes the Environmental Management Plan & Monitoring Program.
Chapter 6: Discussed Stakeholder's Participation.
Chapter 7: Conclusion & Recommendation.

(2)

DESCRIPTION OF THE PROJECT

2.1. Type and Category of the Project

The proposed project is the construction of Industrial Estate. The Project falls under Clause 5 of Section H, Schedule II of IEE / EIA Regulations, 2000 (Amended 2012).

2.2. Objectives of the Project

The main objectives of this project are:

i. To provide best business opportunities for people.
ii. To promote integrated and balanced growth of the urban centers.
iii. To resolve the settlement issue due to the growing industrialization.

2.3. Consideration of Alternative Site

2.3.1 Site Alternatives

Project proponent has considered number of sites for the construction of this project with consultation of Local Government Officials and business men. These site were also located near Kasur but they were rejected due to some conflicts and issues which were arising regarding the construction of the subject project.

Reasons for Rejecting Alternatives Site

The few basic reasons for rejecting the alternative sites are given below;

1. Available area of land was less than proposed project site.
2. The land was not in the possession of the proponent. Lot of conflicts can be generated by this factor.
3. Area is not suitable for development of any Industrial Estate.

Reasons for Selecting Proposed Project Site.

The reasons for selection of proposed site are;

1. Availability of Access Roads both in front and back.

2. Communications Facilities.
3. Availability of Electricity.
4. Basic Infrastructure.
5. Less / Few Vegetation / Plantation.
6. Absence of Fauna species at site.
7. Convenient Plan Layout.
8. Land owned by Proponent.

Obviously, environmentally sound, neat & clean environment are the other considerations for site selection. The project will also facilitate the people of the area with increasing the opportunity of employment and other related facilities. Keeping these requirements and their feasibility and other basic infrastructural requirements at the site, the selected site is ideally suited for construction of an Industrial Estate.

2.3.2 Process Alternatives

Two processes can be adopted by the developer:

1. Allotment / possession of the plot will be given to the buyer / successor who will carry the building plan as per his own will.
2. Planned development by the proponent which is scheduled and strategic development and results in virtuous, long-lasting and aesthetically beautiful design.

Project will be constructed and developed by the developer / proponent, which will be properly planned development. All concerns regarding implementation of local government rules and design will be implemented by the developer / proponent.

2.3.3 Schedule Alternatives

Best schedules have been devised by proper planning and consultation. Proper road structures will be available for traffic movement. Heavy movement related to construction and raw materials will be switched at night, so that it doesn't affect the day time and routine traffic movement.

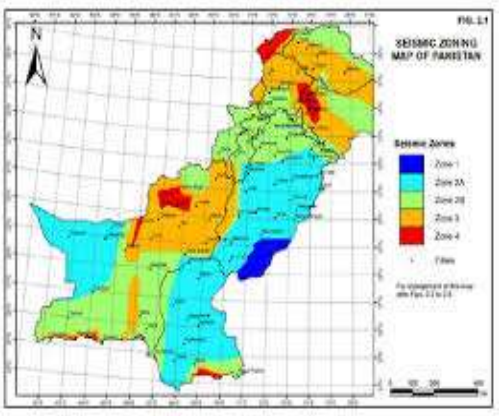
2.4. Location and Site Layout of the Project

Project site is located at Mouza Muhammadi Pur, Tehsil Chunia, District Kasur.

2.5 Land use on Site

Project site is falls in brown area as per master plan of the District Government. Proposed site is an open area with few and scattered vegetation. The area is safe and not situated in the flooding zone.

Map of flooding zone areas is given below:



2.6 Road Access

Muqam Road is access road which is present at the front side of the project site.

2.7 Vegetation Features of the Project

The proposed site has few and scattered amount of vegetation that will help to avoid land clearing, mainly shrubs and grasses are present over there is scattered quality. The land is almost clear and free of dense vegetation.

Some trees are present at the boundary side, which will be preserved and they will not be cleared for the purpose of construction.

2.8 Cost and Magnitude of the Project

Total area of the scheme is **75.94 Acres**. Total estimated cost of the project is approx. **500-Million**.

2.9 Schedule of Implementation

The planning which includes layout plan and board scale design of commercial area, and car parking areas and green spaces has been done for City Oil SEZ (Industrial Estate) Industrial Estate.

Detailed feasibility studies and designing of the project have been completed. Necessary legal, administrative and financial formalities are being finalized. The polluting is expected to be completed within 6-8 months from the date of environmental approval. Subsequently the operational and maintenance aspects of the project will be undertaken by the proponent.

2.10 Description of the Project

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Currently the proposed site is open area and do not fall in flooding zone (not prone to flood).

This scheme will have different size of plots for commercial and commercial purposes. The scheme will be facilitated with wide roads, parks, school, masjid, theme park, county club and electricity.

As the project is in agriculture area so the functioning of the project would not be the reason of nuisance for the nearby community. Moreover, the project will pose the positive impacts in terms of employment opportunities, will creates job during construction and functioning of the project and will improve the living standards of people.

Raw Material

Fired bricks and clay blocks Cement composites Concrete Sand Stone Steel Plastic pipes	Varies

Division of Plots	
Commercial:	75-Plots
Storage and Handling of Construction Material	Constructional material will be placed within the vicinity of the scheme. Cement will be covered with polythene sheets to save from raining, however, at the same practice sand will also be covered during transportation as well as placing in scheme. Other material i.e. Bricks, Stone etc. have no need to cover.
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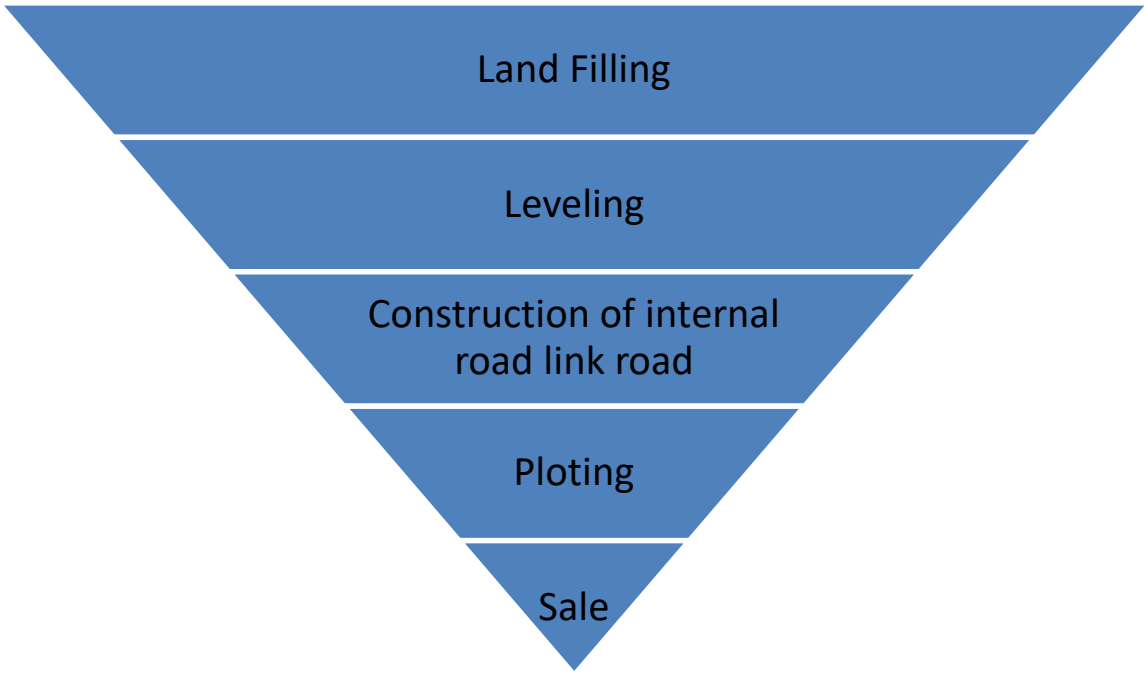
Labour force during construction	100-150
Labour force during operation that will be sanitary workers Security Guard Watchman	Approx. 80-100
Power Requirements	
Source of Power	WAPDA Grid Station
Fuel for Generator	Diesel

2.10.1 Size of Plots

Total commercial plots are 75. These plots having area from 2-Marlas to 10-Marlas.

2.10.2 Project Process



2.10.3 Pictorial view of the project

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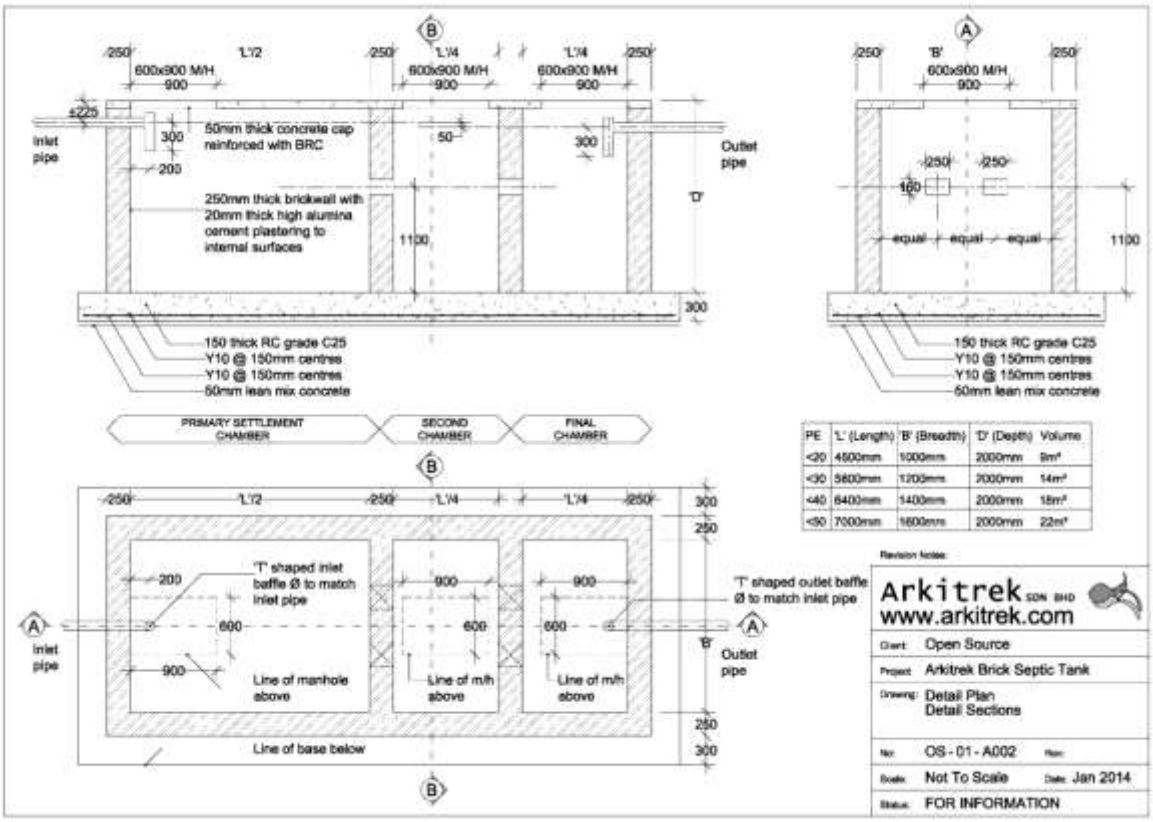
2.10.4 Water Requirement

During the construction phase, 10000 gallons per day of water will be used. There are total 75 commercial plots in the proposed society with an average of 5-persons per home. After the construction of all plots, approximately 30000 gallons water per day will be required for total population of about 1500-persons of the City Oil SEZ (Industrial Estate).

2.10.5 Sanitary Sewerage System

Waste water facility WWTP is constructed by the Management. After treatment waste water will be discharge into that drain.



2.10.6 Solid Waste Management

During the construction phase, solid waste will be generated from construction activity, which will be used for refilling purposes. During the operation phase, all the units / industry holders will manage solid waste at their own level. All the

allottees will be duty bound to obtained environmental approvals for their factories / industries.

2.10.7 Electrical Works

The design criterion for the electrical works will be in compliance with the requirements of WAPDA. Street lights will be provided and their maintenance will also be carried out by the management of the City Oil SEZ (Industrial Estate) Industrial Estate.

2.10.10 Other Facilities

There will be Masjid and parks at the City Oil SEZ (Industrial Estate) Industrial Estate.

2.10.11 Plantation

Plantation will be done within and outside of the proposed project. A proper plantation plan has been designated for the proposed scheme.

2.11 Restoration / Rehabilitation Plan

All possible precautions will be taken to prevent an untoward incident in terms of life and property losses. The demolition materials will possibly be reused and recycled. All excavated surfaces will be termite proofed.

On completion of the project, all measures will be taken for ensuring occupational safety, security and clean environment in the project area. Ornamental trees and flower plants will be planted on inside peripheral of the unit premises to restore the land.

2.12 Government Approvals required by the Project

Relevant Government Approvals / NOCs from Municipality, District Government etc. has been obtained and are attached.

(3)

DESCRIPTION OF ENVIRONMENT

It is presents information on existing environmental and socioeconomic conditions of the proposed project area. It discusses aspects pertaining to geology and soils, climatic conditions, hydrology, ambient air quality and noise levels as well as land use. Further, the chapter presents details related to flora and fauna as well as socio-economic environment.

3.1 Physical Environment / Resources

Environmental Impact Assessment (EIA) report provides details of physical environment.

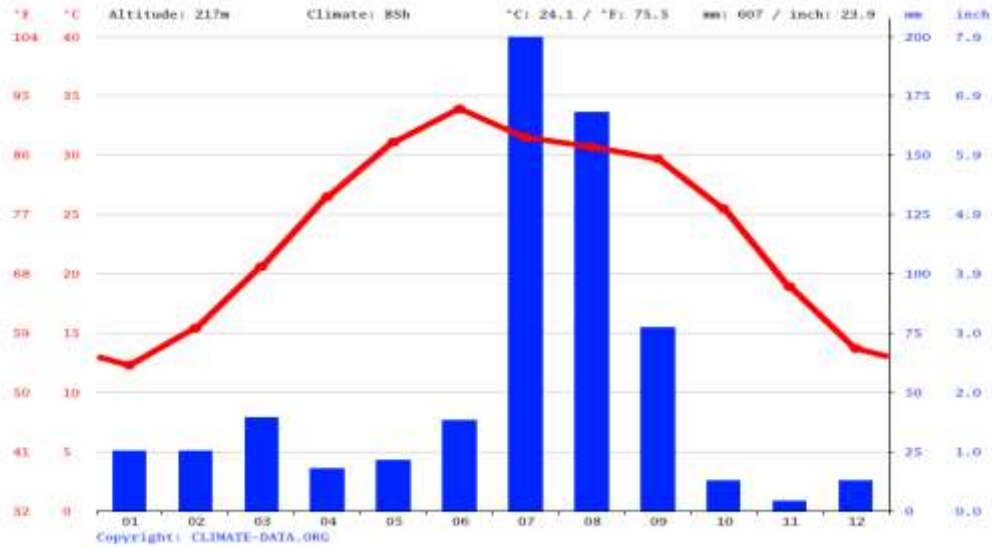
3.1.1 Topography

The topography of the project area is flat. The general height of the area is approximately 220 meters above the Mean Sea Level (MSL). The district Lahore is divided into two parts. The low-lying alluvial soil is along the Ravi River, and the upland in the east. Upland is a plain slope from north-east to south-west. The lowlands are generally inundated during the monsoon season by Ravi River, flowing in the west of district along its boundary with district Sheikhupura. Below figure is showing the topography of the area.

Topographically speaking, Kasur District lies between the river Sutlej which flows along its boundaries with India and river Ravi which flows its boundary with Sheikhupura District. The district may be divided into two parts, a low lying or riverine area along the two bordering rivers and upland, away from the rivers. The riverine area is generally inundates during monsoon season. The water level in this area is higher than in the upland. The soil is sandy. The upland is flat plains sloping from north-west to south-west. The general height of the area is from 150 to 200 meters above the sea level.

3.1.2 Climate

The soil in the Project Area is cohesion less and is of alluvial type. Various soil layers below the ground level includes: silt, silty clay, silty sand, poorly graded sand with silt, lean clay etc. The soil is different in character and generally inclined to be dry. However, it is rich in potential plant nutrients.



3.1.3 Climate and metrology:

Seasonal climatic conditions must be considered for the design and execution of Project. The climate including air, temperature, precipitation, humidity and evaporation is an influencing factor, affecting

the structures. However, to determine the overall effect of the climatic stresses, daily and seasonal temperature changes, site altitude, direct solar radiation, and precipitation must be considered. The Project Area has extreme climate: it has hot summer and cold winters. The summer starts from April and lasts till September. May, June, and July are the hottest months. The mean maximum and minimum temperature ranges from 40.4 ºC and 27.3 ºC respectively for these months.

The winter seasons lasts from November to March. December, January and February are the coldest months. The mean maximum and mean minimum temperature ranges from 19.8ºC to 5.9ºC in January. Temperatures in the Project Area vary from 5.9 ºC to 40.4 ºC.

The project area receives rains in all the seasons but monsoon rain is pronounced and constitutes a definite rainy season between the month of July and September. The average rainfall is about 629 millimeters per year. Below figure is showing the temperature, precipitation, and relative humidity trends in the study area.

3.1.4 Temperature

Over the course of a year, the temperature typically varies from 5ºC to 30ºC and is rarely below 2ºCor above 42ºC. At an average temperature of 30.4ºC, June is the hottest month of the year. The lowest average temperatures in the year occur in January, when it is around 12.5ºC.

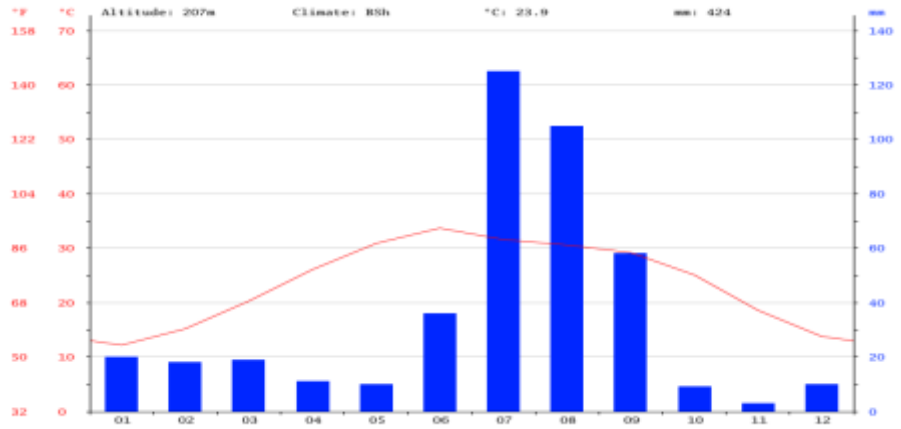


Figure 3-3: Graphical representation of climate of Kasur

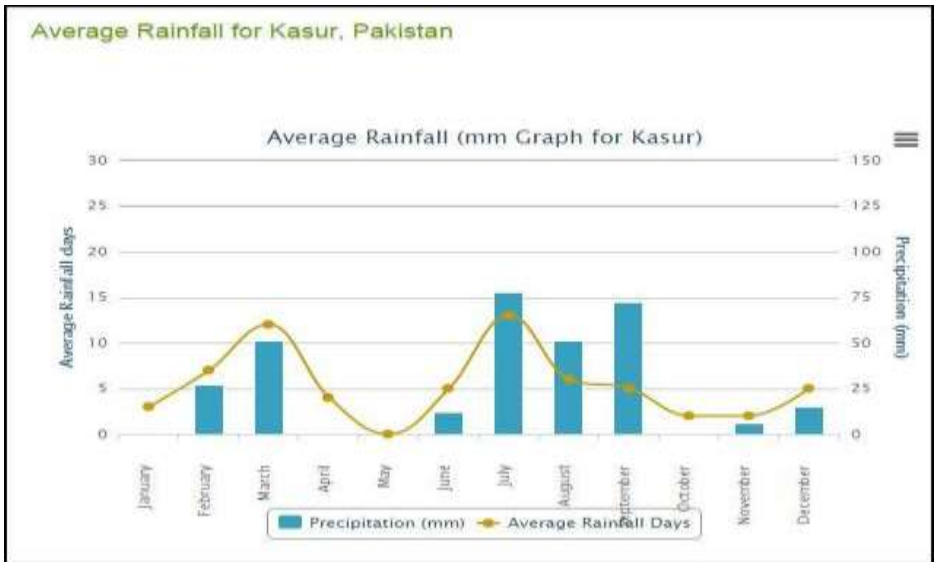


Figure 3-4: precipitation at project site

3.1.5 Wind:

Wind speed in the project area:

Over the course of the year typical wind speeds vary from 0 m/s to 6 m/s (calm to moderate breeze), rarely exceeding 11 m/s (strong breeze).

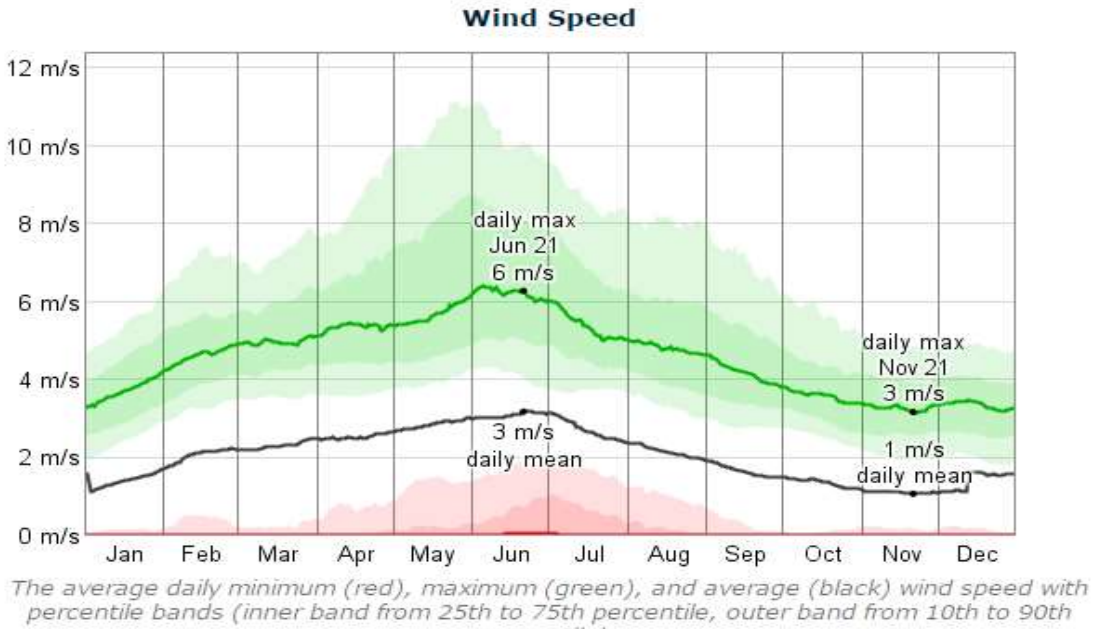


Figure 3-5: Wind speed in the project area

The highest average wind speed of 3 m/s (light breeze) occurs around June 21, at which time the average daily maximum wind speed is 6 m/s (moderate breeze). The lowest average wind speed of 1 m/s (light

air) occurs around November 21, at which time the average daily maximum wind speed is 3 m/s (light breeze).

Reference: https://weatherspark.com/averages/32865/Lahore-Punjab-Pakistan

3.1.6 Wind direction in the project area:

The wind direction is highly variable and is not predominantly from any single direction. The wind is least often out of the south (4% of the time) and south west (5% of the time).

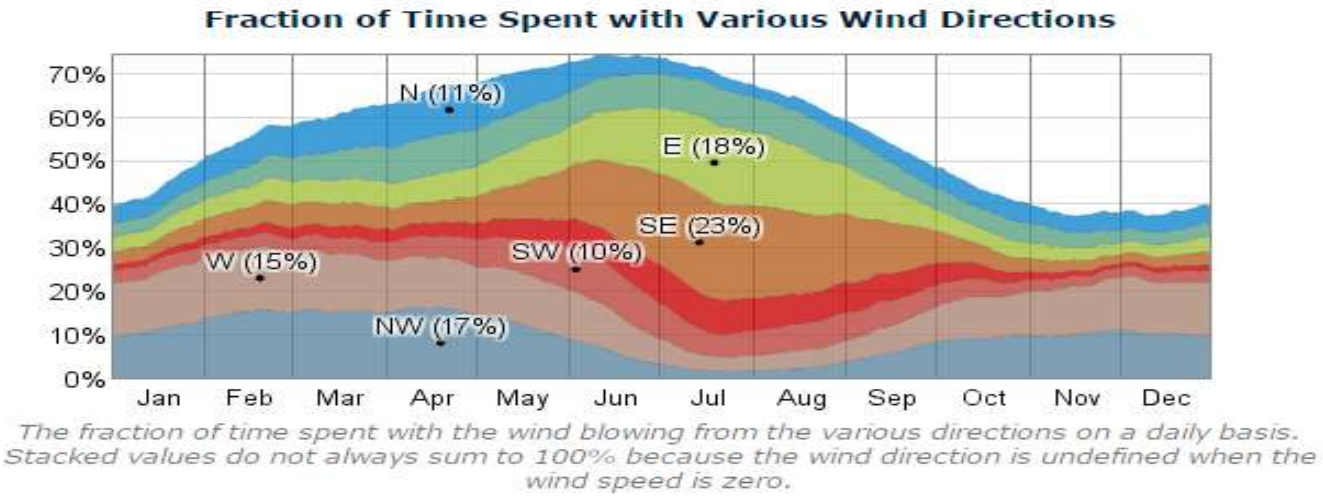


Figure 3-6: Wind direction in the project area

Reference: https://weatherspark.com/averages/32865/Lahore-Punjab-Pakistan

3.1.7 Ambient Air Quality:

Atmospheric pollution, particularly in industrial areas like Lahore- Kasur region has a strong impact on daily life. Project site is located at Lahore-Multan Road. Motor vehicles and the industrial activities are a major source of air pollution in the project area. Ambient Air monitoring was conducted at the project site by using Fine Dust Sampler IPM-FDS 2.5/10µ and Ambient Air Analyzer.

To record the baseline ambient air quality of the project area, monitoring was conducted at advised locations to assess the concentration of priority pollutants (Carbon monoxide, Nitrogen dioxide, Sulphur dioxide and

PM10) in the air. Lab reports of Ambient Air Monitoring are attached as Annexure-D with the EIA report.

3.1.8 Noise Level Monitoring:

Basic Environmental conditions:

During the measurement following conditions were prevailed on workplace:

Figure 3-7: Noise Monitoring Equipment

3.1.9 Metrological Conditions:

During the noise level monitoring weather was dry and sky was clear. Air was blowing at normal speed.

3.1.10 Monitoring Instrument:

The description of the instrument used for the noise level monitoring is given below:

Name:	Digital sound level meter
Model:	AR824
Company:	Intel Instruments plus
Frequency Range:	31.5 Hz to 8 kHz

3.1.11 Methodology adopted:

Noise level was monitored at four points; lab results are attached as Annexure-D.

3.1.12 Ground water:

The underground water will be used as a source of water at the project site. Tap water was taken as a sample to test its parameters. Lab results are attached as Annexure-D

3.2 Ecological Resources

As climate of Lahore is semi-arid and subtropical, the vegetation of the district falls under scrub, dry, tropical thorn forest type as per Phyto-geographical classification of the area but this vegetation is confined to the graveyards in the Lahore – Kasur area and the project site is free from such type of vegetation.

3.2.1 Flora:

There are small grasses and shrubs present at the project site. Some native trees were observed in the surrounding areas. Native trees and plants of 6 feet height will be planted within the premises of the project by the project proponent with the consultation of PHA.

3.2.2 Fauna:

Different birds like sparrow and crow etc. were observed at the project site during the site visit. Other than that, no fauna was observed at the site during the site visit.

3.2.3 Socioeconomic Environment:

Socioeconomic environment of district Kasur has been studied through secondary sources and a brief introduction has been given below:

3.2.4 Demographic Characteristics of the Project Area

The total population of Lahore District has crossed 11.13 million. The population of Kasur is 382,000 people.

3.2.5 Religion

The population of the district is predominantly Muslims i.e., approx. 95 percent, other minorities like Christians, Sikhs and Hindus etc. are approx. 5 percent.

3.2.6 Education

Basic health & education facilities are available in the rural area of the project site but these health and educational facilities are not sufficient.

People have to visit the city Lahore, Chunian and Kasur for the proper health and educational facilities.

3.2.7 Health Facilities

Small clinics and private health centers are available in Kasur along with a couple of Government Hospitals. Majority of people visit Lahore for proper health care. DHQ Hospital is available for district Kasur.

3.3 Quality of Life Values

The project site lies in an industrial corridor with a number of industries in operation. Most of the people living in this area are associated with these industries as factory workers. Some of the people have developed small business such as grocery shops and mechanic shops.

People lead simple life and activities of women are mostly restricted to home. Beside this people have access of all basic life necessities like clean drinking water, electricity, health facilities and educational institutes.

This project will further increase the living standards of the people living in this area with development of infrastructure such roads, water, power, drainage, street lightening and green belt parks, clubs and other leisure facilities etc. This project will provide job opportunities to approximately 10,000-12,000 people which will further improve the living standards of the local.

3.4 Civic Amenities

Civic amenities like potable drinking water, dispensary and rest area are available near the project site.

3.2.8 Games:

Cricket, Football, Badminton, Hockey, Volleyball, Kabaddi and Wrestling are major sports of Lahore and Kasur District.

3.2.9 Welfare of Employees

Management of project is mindful of the fact that the satisfied employees will deliver better output.

3.2.10 Aesthetic Values:

Like the general trend among the citizens of area, most of the people have low awareness about environment. Even then, some people take cleanliness and neatness of the environment lightly. Some people throw municipal solid wastes (MSWs) on the streets. Sense of personal responsibility to keep the environment clean as good citizens is even now lacking among a few people.

3.2.11 Archaeological and Historical Treasures:

No Archaeological and Historical Treasures were observed in the proposed Project area. Therefore, the development of this project does not threaten the sanctity of any archeological site during construction and the later operation phase.

3.5 Suitability of the site

The proposed site for the construction of the Project currently comprise of empty, unutilized land plots. The Project site lies within this zone earmarked for industrial activity as Chunian Industrial Estate along with Multan Road. Several industrial units are operating in the neighborhood. The project does not fall in any environmentally sensitive area.

3.6 Lab reports of environmental analysis

Validated Lab reports of ambient air, drinking water and noise level monitoring of project area are annexed.

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SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

The following chapter describes the overall possible impacts of said project on the physical, biological and socioeconomic environment due to the location, Design, during construction phase, during operation phase of the project and mitigation measures to minimize the significance of the possible impacts. The anticipated impacts related to propose project have been assessed and mitigation measures are provided accordingly.

4.1 Assessment Criteria for Potential Impacts

The impacts were assessed in the light of criteria given as under:-

- Magnitude or degree of impact
- Time and duration of impact
- Likelihood of impact occurrence
- Sensitivity of impact
- Risk related to impact

4.2 Environmental Impact due to Project Location

The subject proposed project is construction of the Industrial Estate under the name & style of "City Oil SEZ (Industrial Estate)" situated at Mouza Muhammadi Pur, Tehsil Chunia, District Kasur.

4.2.1 Impacts

Area is suitable for the development of subject scheme. So, if the proponent / Developer fulfills all the HSE conditions and Society development laws and rules than this scheme will not cause any adverse environment impacts on the society. Development of this society will increase the living standards and employments for the local people of the District. Overall the impacts of this development due to the location are positive on the local community of District Kasur and country.

Impact significance: Very Low or may be positive

Nature of impact: Direct

Duration: Long-Term

Timing: Operation Phase

Reversibility: NA

Likelihood: Low (unlikely),

Consequences: Very low or may be positive

4.2.2 Mitigation Measures and Recommendations:

- Proponent/Developer should firstly build the boundary wall all around the project site.
- Proponent/developers should enhance the road infrastructure within the scheme and main link road.
- Proponent/Developers should place all the safety and location signs and maps at the specific indemnified place.
- Proper parking arrangements should be maintained during the construction and operational phase of the development.
- Location can be considered as positive impact on the community due to the facilities provided to the community.

4.3 Environmental Impact due to Project Design

Total area for the scheme as per site is 75.94 Acres, which will comprise commercial plots, commercial plots, parks and roads. Health & safety plan, Tree Plantation Plan, and emergency response plan will be incorporated during the design phase of the project. The main buildings are;

- Houses
- Commercial shops/Market
- Parks
- Solid waste
- Main office

Following are the major Environmental impacts due to the development related to the design:

4.3.1 Impacts

- Structural stability of the proposed houses and whole society

- Soil structure and soil bearing capacity
- Road infrastructure design
- Emergency exit in the houses as well as society for the emergency situations
- Wastewater disposal system design
- Rain water harvesting capacity of the drainage system
- Electricity hazardous

Impact significance: Moderate to High or may be negative
Nature of impact: direct
Duration: Long-term
Timing: Constructional phase & Operation phase
Reversibility: NA
Likelihood: moderate to high
Consequences: moderate to high or may be negative

4.3.2 Mitigation Measures and Recommendations:

Following are the mitigation measures and recommendations to minimize the anticipated impacts due to the project design:

- Road infrastructure should be properly designed and three should be strict application of the laws and regulations, so that traffic congestion problems may not arise.
- Emergency exist points should be designed during the designing phase and should be kept in proper working condition to use in caser of any emergency.
- Wastewater disposal system should be designed and managed properly and wastewater treatment facility should be installed within the design of the Industrial Estate.
- Waste water drainage should be designed vast to bear the rain water capacity of the society.
- Electricity system should be designed safe and sound; electricity wires should be covered by thick plastic/electricity resistant covers.
- All the design should be approved from the local authority to minimize the impacts due to the design of the project.

4.4 Environmental Impact due to Construction Phase

Project site is surrounded by open land and road. So the construction of the proposed project will not have harmful impacts on the surrounding areas.

4.4.1 Impacts on Physical Environment

Impacts related to the construction phase of the subject project are discussed below:

- **Grubbing and Stripping**

  Grubbing and stripping may be a minor and short-term impact on the physical environment during the construction phase. It may also be a health and safety hazard for the workers.

- **Leveling and Compaction of the Land**

  Leveling and compaction of the land is also a short term and minor impact on the physical environment and it may also be a health and safety hazard for the workers.

- **Demarcation of project Building and Other Facilities**

  It may also be a minor impact on the physical environment due to the subject project.

- **Generation of Dust During Loading and Unloading of construction Materials**

  It is also a minor and short term impact on the physical environment and also for health and safety, which may arise during the construction phase.

- **Generation of Noise on Account of Vehicular Use and Construction Activities**

  It is also a minor and short term impact on the physical environment and also for health and safety, which may arise during the construction phase.

- **Gaseous Emission due to the Vehicles and Stand by Generator (if any)**

  It may also be a minor impact on the physical environment during the construction phase, if vehicles and generators are not properly tuned.

- **Local Flooding due to Over-use of Water and Leakage of Pipes**

It may be a minor and short-term impact on the physical environment if precautionary measures have not been taken.

- **Safety to Construction Workers, People in the Surrounding and Passersby**
  Health and safety issues may arise during the construction phase if proper precautionary measures will not be taken.

- **Any Outbreak of Fire due to Electrical and Other Failures**
  This issue may arise due to carelessness or improper management, and it may be a serious hazard which may affect the environment or may also cause the loss of property or life.

- **Solid Waste Generation due to Domestic and Construction activities**
  Solid waste generation due to domestic and construction activities may be a negative impact on environment if not managed properly.

- **Wastewater Generation from the Domestic and Constructional Activities**
  Wastewater generation due to domestic and construction activities may be a negative impact on environment if proper wastewater treatment and management system will not be implemented.

- **Ground Water Quality**
  Ground water quality may be affected by the development if proper mitigation measures will not be implemented.

4.4.2 Impacts on Biological Environment

Impacts on Fauna and Flora

Construction will impact flora / vegetation cover and fauna present at the project site.

4.4.3 Impacts on Socio-Economics Environment

- **Security Threat**
  Security threat is a major socioeconomics impact which may arise during the construction phase.

- **Impact on Land Value**

  Construction of the subject project may cause positive or negative impact on the land value.

- **Loss of Public and Private Infrastructure**

  Construction of the subject project may cause loss of public and private infrastructure if any, which is also a negative impacts on the socioeconomic environment.

Impact significance: Moderate to High or may be negative
Nature of impact: direct
Duration: Short-term
Timing: Construction phase
Reversibility: NA
Likelihood: moderate
Consequences: moderate

4.4.4 Mitigation Measures & Recommendations

- Precautionary measures should be adopted to save the environment from the impacts of grubbing, stripping, levelling and compaction and Health & Safety of workers should be ensured during these construction phases.
- Demarcation of project building and other facilities should be according to the laws and regulations.
- Sprinkling of water on dusty tracks is recommended to avoid the generation of dust on dusty tracks.
- Vehicles should be properly tuned to reduce the impacts of dust and noise.
- Mitigation measures should be taken to meet the PEQs at the stack of generators.
- Proper mitigation measures should be taken to reduce the noise generation during the construction activities.
- PPEs i.e. ear muffs, helmets and masks etc. should be provided to workers to ensure their health and safety during the construction activities.

- Precautionary measures should be taken to reduce the local flooding due to over-use or leakage of pipes.
- Health & Safety of construction workers, people in the surroundings and nearby must be ensured.
- Constructional waste should be used for landfilling purpose.
- Domestic solid waste should be used for landfilling purpose.
- Domestic solid waste should be kept in dust bins and should be handed over to local contractors.
- Wastewater treatment facility should be incorporated in the design of the project to treat the waste water produced due to constructional and domestic activities before the final disposal.
- Add more vegetation to restore the land by more plantations.
- Essential services like water supply, sewerage disposal and solid waste management must be in working conditions.
- Construction timings should be schedule to cause minimum disturbance to neighbors.
- Because of presence of security guards round the clock the security at the projects site will improve as well as in its vicinity. Impact will be moderate positive.
- Land value in the surrounding area will be increased due to completion of the present project. Impact will be moderate positive.
- The project does not involve dislocation of the people. There is no requirement of resettling a single person. Impact is nil.
- No moveable or immoveable property and infrastructure of public and private sectors will be lost or damage during construction and operation stages. Impact will be nil.

4.5 Environmental Impact due to Operational Phase

There will not be any significant environmental problems relating to gaseous emissions, particulate matter or noise during operation of the scheme. Environmental issues associated with operation of the proposed project could include soil contamination caused by inappropriate waste disposal, surface and ground water contamination, water consumption, safety hazards, public health and nuisances, damage to infrastructure, and increase in noise and vehicular activity. However, the magnitude of these impacts shall be much less than those

related to impacts during the construction. These impacts and the mitigation measures are discussed briefly.

4.5.1 Impacts on Physical Environment

Impacts related to the operation phase of the subject project are discussed below:

- **Groundwater quality and level**

  The proposed project would not affect the quality and level of groundwater. Projected impact is nil.

- **Land utility**

  It will increase significantly since the project has been planned to be constructed on the existing unused area.

- **Solid waste generation due to domestic activities**

  Solid waste generation due to domestic activities is a long term and major of the subject project.

- **Waste water due to domestic activities**

  Production of waste water due to domestic activities is a long term and major impact of the subject project.

- **Vehicular emissions**

  It is also a major impact on the environment caused by the subject project.

4.5.2 Impacts on Biological Environment

- **Flora**

  The project site is devoid of any significant vegetative cover. Only few plants are present. Nil impact is envisaged.

- **Fauna**

  The fauna including wildlife species do not exist at the project site. The impact will be nil.

4.5.3 Impacts on Socio-Economic Environment

- **Security**

  Because of presence of security guards round the clock the security at the project site will improve as well as in its vicinity. Impact will be moderate positive.

- **Land Value**

  Land value in the surrounding area will increase due to completion of the present project. Impact will be moderate positive.

4.5.4 Resettlement Issues

- **Dislocation of Population**

  The project does not involve dislocation of the people. There is no requirement of resettling a single person. Impact is nil.

- **Loss of Property / Infrastructure**

  No moveable or immoveable property and infrastructure of public and private sectors will be lost or damaged during construction and operation stages. Impact will be nil.

Impact significance: Moderate to High or may be negative
Nature of impact: direct
Duration: Short-term
Timing: Operational phase
Reversibility: NA
Likelihood: moderate to high
Consequences: moderate to high or may be negative

4.5.5 Mitigation Measures & Recommendations

- Solid waste bins should be regularly cleaned and solid waste must be handed over to the local contractors.
- There should be different bins for different types of solid wastes for proper segregation of solid waste.
- Wastewater treatment facility should be constructed on the reserved place to treat the domestic waste water.

- Proper plan for waste water collection should be devised.
- Proper mitigation measures should be devised to cope with the emissions generating from kitchen area.
- Properly tuned vehicles should be used and non-tuned vehicles should be banned.
- Traffic management system should be ensured.

4.6 Potential Environmental Enhancement Measures

The proposed project will be installed with all precautionary measures to enhance and safe the environment. Following necessary measures will be adopted during construction and operation.

- Sprinkling of water will be done on dusty road and tracks.
- PPEs will be provided during construction and operational activities.
- Constructional waste and domestic solid waste will be disposed-off or utilized properly.
- Local people will be informed in advance when work is about to start in an area.
- Machinery will never be left unattended.
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- Safety signs and boards will be placed during construction.
- Waste water will be treated through waste treatment plant that will be installed within the industry.
- Proper SOPs will be followed with proper schedule along with the HSE conditions.
- Area will be restored with native plants. A proper tree plantation plan will be formulated to save the environment.
- Solid waste will be handed over to contractors and agreement will be made.
- Noise will be controlled by adopting proper measures.
- Safety signs will be placed at all locations where required.
- Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.
- First aid facilities will be made available.

- Any possible measure will be adopted to make the project safe and environmental friendly.

4.7 Purpose of Mitigation Measures

Purpose of mitigation measures should include:

- What is the problem i.e. in terms of "Major Environmental Impacts" which may arise by the subject project activity?
- When the problem will occur and when it should be addressed?
- Where the problem should be addressed?
- And how the problem should be addressed?

The major impacts may arise by the subject project are solid waste generation due to domestic activities, waste water due to domestic activities, fire due to short circuits and other activities, health hazards. Other impacts are of minor importance. These impacts will arise during construction and operation but precautionary measures will be adopted prior to start the activity, during the activity and post activity.

Any impact that would arise due to the subject project activity will be addressed on site. Trainings will be conducted on site prior to start work while other precautionary measures will also be adopted to make the project safe and environmental friendly.

HSE manager / environmental manager along with site manager will be appointed to access any impact that could be arisen during the both phases. He would responsible to address the problem and to mitigate it.

4.8 Ways of Achieving Mitigation Measures

By adopting proper mitigation measures, any anticipated major or minor environmental impacts could be controlled or mitigated. The details of impacts and mitigation measures have been discussed in previous chapters.

Management shall take appropriate measures to provide pollution free and safe environment during the proposed project activity by implementing improved management practices and monitoring techniques suggested in EMP.

City OIl (Industrial Estate) will adopt such plan that will assure the minimum impact on the environment and health by implementing proper mitigation measures. Design of the project will assure the structure stability and project life in a long run.

City Oil SEZ (Industrial Estate) Restoration / Reclamation or tree plantation plan to restore the project area. Maximum plantation will be done with native species within the unit, along the boundary wall and along the road side if directed by EPA. Also, in-front of main area, horticulture plan will be formulated and area for this will be kept reserved.

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ENVIRONMENTAL MANAGEMENT PLAN & MONITORING PROGRAM

5.1 Purpose & Objective of EMP

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA.
- Define the responsibilities of the project proponent.
- Define a monitoring mechanism and identify monitoring parameters in order to:
- Ensure the complete implementation of all mitigation measures
- Ensure the effectiveness of the mitigation measures
- Provide a mechanism for taking timely action in the face of unanticipated environmental situations
- Identify training requirements at various levels.

5.2 Management Approach

The overall responsibility for compliance with the environmental management plan rests with the project proponent.

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

5.3 Institutional Capacity

Following functionaries will be involved in the implementation of EMP:

- Project Proponent
- HSE/Project Manager
- In-Charge Administration
- Supervisor of project

5.4 Training Schedule

Training for the management/contractors/engineers and workers on environmental aspects of the project will be arranged. It will be imparted by a team of experienced trainers.

5.4.1. Training of Building Contractor

Training of building contractor & workers will be the part of the TORs regarding the construction of the scheme. TORs will be including the training and submission of reports in the following area:

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

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

5.4.2. Environmental Technical Assistance & Training Plan

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

HSE/Project Manager will provide training to staff and workers about the best environmental management practices at the construction site and affective implementation of the EMP.

The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality

Standards (PEQS), Usage of personal protection equipment's and health and safety related issues on the construction site.

The HSE/Project Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually Transmitted Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work.

5.5. Responsibility of EMP

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

5.6. Summary of Impacts & Their Mitigation Measures

Summary of Environmental Impacts and Mitigation measures is present in following table:

Sr.#	ENVIRONMENTAL ISSUES/IMPACTS	MITIGATION MEASURES
PLANING, SITE SELECTION AND DESIGN STAGE		
1	Acquisition of land	Project site is the property of the proponent and there is no land ownership issue.
2	Loss of environmentally sensitive areas	Avoid utilization such patches of land.
3	Changes in traffic pattern	Prepare suitable in / out traffic plan.
4	Potential conflicts with stakeholders	Settle the issues through scoping and specific group discussions.
5	Resettlement issues	No resettlement issues.
SITE DEVELOPMENT STAGE		

1	Erosion due to stripping and site clearance	Sprinkling of water on road side
2	Generation of Dust	Careful loading and unloading of construction material is recommended. Sprinkling of water on construction site and surrounding areas is recommended.
3	Generation of Noise	Avoid suing forbidden horns at the site. Do not throw heavy equipment and construction materials in haphazard manner.
4	Local flooding / ponding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.
5	Safety	Safety of the workers and others must be ensured. Privacy of the neighbors must not be disturbed.
6	Labor issues	Employ the local labor as far as possible.
CONSTRUCTION STAGE		
1	Minor erosion of land	Add more vegetation; restore the land by more plantations. Sprinkling of water on dusty tracks is recommended. Clearing of land should be step wise; vegetation should be removed only from the area where main building will be developed.
2	Contamination of land and water	Essential services like water supply, sewerage disposal and solid waste management must be in working condition.
3	Air Pollution (PM)	Sprinkling of water on dusty tracks is recommended. Do not throw heavy equipment and construction materials in haphazard manner.

		Prohibit idling of vehicles Workers on the site should be issued with dust masks during dry and windy conditions
4	Noise pollution	Construction should be carried out only during daytime Workers to wear ear muffs if working in noisy section
5	Traffic density	Proper signage put in place to notify neighbors of the activity and presence of heavy vehicles and to direct traffic. Presence of boards directing patrons to the site strict adherence to traffic rules. Provide adequate parking and driveways control and management of traffic through enforcement of speed limits. Provide bill boards at the site / entrance to notify motorists about the development.
6	Ecological consideration (flora & fauna)	The flora and fauna should be restored after construction by landscaping and maintenance the introduced plants.
7	Solid Waste	Excavation waste should be re-used or back filled. Waste generated should be collected by a privately constructed waste collection company. The site should have waste receptacles with bulk storage facilities at convenient point to prevent littering. Unusable construction waste, such as damaged pipes, formwork and other construction material is handed over to the local contractor.

		For wastewater treatment facility 05 Marla is reserve in Industrial Estate.
8	First Aid	A well-stocked first aid kit shall be maintained by qualified personnel
9	Occupational Health and Safety	Train workers on personal safety and how to handle equipment and machines Report any accidents / incidences and treat and compensate affected sanitary workers To reduce health and safety risks, effective emergency response plans will be observed during construction. Proper personal protective equipment i.e. safety shoes, helmet, goggles, respiratory equipment and gloves shall be used at all times on site. Provide first aid kits and contact points in case of injury and accidents. From a safety and health committee to coordinate safety and health issues at workplace. Provide regular safety awareness talks and trainings.
10	Material Transportation	All fine earth materials must be enclosed during transportation to the site to prevent spillage and dusting. Trucks used for that purpose should be close properly and with tarpaulins to cover the materials. The transportation of lubricants and fuel to the construction site should only be done in the appropriate vehicles and containers, ie. Fuel tankers and sealed drums. As far as possible, transport of construction materials should be scheduled for off-peak traffic

		hours. This will reduce the risk of traffic congestion and of road accidents on the access roads to the site.
OPERATION STAGE		
1	Safety / Security concerns	Safety of the workers and others must be ensured. Privacy of the neighbors must not be disturbed.
2	Malfunction of Utilities	It is proposed to appoint maintenance engineer technicians like plumber and electrician for smooth operation of utility services.
3	Occupational Health, Safety and Environment	Regular medical check-ups are recommended to improve the working conditions and efficiency of workers. Safety of management, workers and visitors must be ensured. Observance of construction and safety codes must be ensured.
4	Noise Pollution	Workers to wear muffs if working in noisy section. Management to ensure that noise from the residents kept within reasonable levels. There should not be unnecessary horning of the involved machinery.
5	Solid Waste Management	Area for solid waste must be reserved within the subject project. The solid waste must be managed on regular basis. The domestic waste will be disposed-off in environment friendly way. Project related waste should be handed over to contractor for sale disposal / recycling.

		Waste bins should be placed at suitable places. Domestic waste should be handed over to contractors on regular basis. Proper segregation in collection of waste.
6	Ecological considerations (flora & fauna)	The flora and fauna should be restored after construction by landscaping and maintaining the introduced plants.
7	Water consumption	Avoid unnecessary toilet flushing. Promptly detect leaking taps and repair them. Turn off taps when not in use. Install water conserving taps that turn of immediately when water is not in use. Install a discharge water meter in the premises to check on total water use and for billing purpose. Install water meter for control of water use.
8	Sewage treatment and disposal	In every home there is a septic tank for the treatment of water. After treatment the treated water from septic tank of individual home will be collected in wastewater treatment facility for the further treatment from where it is discharge in sewerage system. The detail and specification of the project is given. Design of sewage system should be sound in terms of adequacy, gradient materials and standards and should connect to the proposed wastewater treatment system and should be monitored regularly to avoid leakages and spills. Regular emptying of the septic tank.

5.7. Equipment Maintenance Detail

The proponent of the subject project will maintain records for Health Safety & Environment and will hire Environment / HSE manager to check and deal with the HSE issues. The subject project will maintain medical facilities, waste water treatment facility, solid waste management facility and records for their periodic replacement and will ensure proper housekeeping and essentials facilities.

5.8. Environmental Budget

The cost required to effectively implement the mitigation measures is important for the sustainability of the Project both in the construction and operation stages of the Project. Project proponent will allocate the Environmental Budget for the Training, maintenance and management of Environment is **280-Thousand** annually that will include filling and maintenance of equipment's restoration, plantation, and strategic planning to cope with any emergency situation and formulate the disaster management plan to cope with natural disaster. Any equipment or devices failure or replacement will not be included in this budget.

ENVIRONMENTAL BUDGET	
Ambient Air Monitoring	35,000
Noise Monitoring	35,000
Water Quality Monitoring	35,000
Health & Safety	65,000
Tree Plantation / Green Belts	25,000
Solid Waste Management	30,000
Wastewater Treatment	55,000
Total	**280,000**

5.9. ENVIRONMENTAL MANAGEMENT PLAN FOR CITY OIL (INDUSTRIAL ESTATE)

Sr. #	Environmental Parameter / Element	Mitigation Measures to be taken during		
		Construction	**Regular Operation**	**Responsibility**
Physical Environment				
1	Waste Water	The sewage to be generated shall be discharged into the septic tank for its primary treatment and then it will drain out into sewer. Domestic / construction waste water after Treatment in septic tank will be drained into nearby local sewage drain.	The sewage to be generated shall be discharged into the household level septic tank for treatment at PEQs levels. As there will be no chemical contamination, therefore, simple oxidation may reduce its pollution lead. Sewage and other waste effluents will be handled to avoid contaminating surface and groundwater. No contaminated effluents will be released into the environment without having been treated. Monitoring will be conducted by EPA certified LAB if required.	Environmental / Project Manager

2	Health & Safety	Local people will be informed in advance when work is about to start in an area. This may result in people keeping young children away from work areas. Safe driving practices will be adopted, particularly while passing through settlements. Job opportunity will be provided to local people of the area. Basic health facilities will be provided to employees. Open fires will not be allowed anywhere outside the proposed site.	Basic health facilities will be provided to employees Security guards will be present round the clock. Job opportunity will be provided to the local people of the area.	Environmental / Project Manager
3	Water Supply	It shall be ensured that no activity tempers with the water supply system.	It shall be ensured that no activity tempers with the water supply system. Project proponent committed to provide safe drinking water to all workers and staff.	Environmental / Project Manager

4	Solid Wastes	Limited solids wastes from the construction activities shall be segregated and duly disposed-off. The solid redundant materials will be disposed off away from the city adequately. None of these wastes shall be accumulated on site. It shall be ensured that none of the wastes or materials of construction spread on the public roads or on the foot path or else. Construction Solid Waste will be stored in solid waste bins and will be handed over to local contractors for further treatment or final disposal and also construction waste will be used for road repairing and maintenance purpose.	Solid waste will be handed over to the local contractors after collection from houses. Solid waste bins will be placed at suitable places. Area for solid waste bins will be placed at suitable places. Area for solid waste disposal will be allocated within the subject project. Proper solid waste management system will be adopted.	Environmental / Project Manager

5	Noise	In order to noise in the project area, vehicles to carry raw materials, shall be operated during night time as far as possible. The project construction activities don't involve any activity which may create high noise levels. Ear plugs will be provided & implemented.	In order to avoid noise in the project area, vehicles to carry domestic and commercial materials, shall be operated during night time as far as possible. No activity producing extra ordinary levels of noise will be allowed as a policy matter. Generators will be installed in a specially constructed room where its noise will be curtailed within the limiting values of the Punjab Environmental Quality Standards. Monitoring will be conducted by EPA certified LAB as per PEQs if required.	Environmental / Project Manager
6	Gaseous emissions and particulate matter / dust emission	Construction materials i.e. sand, clay and like shall be transported to the project site during night time and will be stored away from the road or foot path. They will be kept under cover to avoid any fugitive dust.	Generators should be maintained properly. Generators will be installed in a specially constructed room. Avoid off roads travels. Maintain vehicles speeds. Monitoring should be conducted as per instruction of Environment Project Agency.	Environmental / Project Manager

		Dust may generate during unloading of raw materials. All equipment, generators, and vehicles used during the project will be properly tuned and maintained in good working condition in order to minimize exhaust emissions. All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke. Ambient air quality has been monitored by EPA certified LAB and results are incorporated within the report.	Speed for traffic movement in the scheme should be limited to avoid noise. Canopies should be built over generators to avoid noise pollution.	
7	Soil disturbance / erosion	The clearing vegetation along proposed site will be minimized as far as possible.	Maximum plantation is recommended within at outside the land subdivision and for this area is reserved. Tarpaulin sheets will be placed under generator (s), and other leaching substances.	Environmental / Project Manager

		Minor & scattered vegetation is present that include shrubs and grasses only. Control earthworks and compact loose soils. Install drainage structure properly. Landscaping on project completion. Control activities during rainy conditions. Provide soil erosion control and conservation structures / means where necessary. To the greatest extent possible, phase site clearance so as to minimize the area of exposed soil at any given time.	Land will be restored by planting indigenous plants. Landscaping on project completion.	
8	Traffic related problems	The vehicles number will be regulated in a way that no stampedes occur on the site.	The project site has additional area reserved exclusively for parking cars and motor cycles.	Environmental / Project Manager

		As far as possible, large size vehicles in very limited number may visit the project site during night time.		
9	Trash Burning	No trash burning will be allowed on the roads and streets.	No trash burning will be allowed on the roads and streets.	Environmental / Project Manager
10	Dust	The open place will be duly cleaned after sprinkling of water to avoid any dust to spread around.	Plantation will be ensured in open space to avoid dust.	Environmental / Project Manager
BIOLOGICAL ENVIRONMENT				
11	Flora & Fauna	Proposed site is devoid – off any protected species of both flora n fauna.	Awareness programs will be planned regarding the protection of flora n fauna. Species of indigenous plants will be planted at site.	Environmental / HSE Manager
SOCIOECONOMICS IMPACTS				
12	Resettlement issues	There is not any issue of resettlement due to the construction of the subject project.	There will not be any issue of resettlement due to the operation of the subject project.	Environmental / HSE Manager

13	Change in cultural language	Maximum employment of local people is recommended to preserve the local culture language. It will help in communication with the local people to resolve any emerging issue near the project area.	Maximum employment of local people is recommended to preserve the local cultural language. It will help in communication with the local people to resolve any emerging issue near the project area.	Proponent
14	Education	Schools and colleges exists in the area. The project proponent will initiate an educational awareness program.	Schools and colleges are exists in the area. The project proponent is committed to initiate an educational awareness program.	Proponent
15	Health	Health facility already exists in the project site. The project proponent should provide first aid facilities at site and also social security and medical checkups of the workers.	Health facility already exists in the project site. The project proponent should provide first aid facilities at site and also social security and medical checkups of the workers.	Proponent
16	Culture, norms of the Area	Maximum local employment should be ensured to preserve the culture of the area.	Maximum local employment should be ensured to preserve the culture of the area.	Proponent

17	Gender inequality	Women involvement in decision making process should be ensured.	Women involvement in decision making process should be ensured.	Proponent
OTHERS				
18	Environment quality enhancement measures; flowers and plants and decoration lights.	-	Flowers pot containing flowers and plants will be planted in front of the buildings to add to the improvement of the environment around. Street lights will be provided in the roads and streets.	Environmental / Project Manger
19	Staff for catering the Environmental Management Plan	-	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	
20	Enhancement of aesthetic beauty of the Building and the Area.	-	All other necessary measures shall also be taken to maintain standards of cleanliness so that the building may add to the scenic / aesthetic beauty of the area around.	

(6)

STAKEHOLDERS PARTICIPATION

The project proponent engaged an Environmental Expert Team who conducted a survey of the project site and had discussions with stakeholders and consult with the local people to evaluate the project socioeconomic impacts. People provide the massive information about the project and have positive remarks regarding the project development.

6.1 Methodology of Consultation

The team carried out public consultation at various locations around the Project Site. The stakeholder's consultation during this phase of the work targeted the project area, administrative and private offices, Govt. offices, shops, etc. near the Project Area:

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring factory workers, residents, shopkeepers, drivers etc.
- Environmental consultations and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

Consultation was held with following:

6.1.1 Proponent

Possible impacts and mitigation measures related to the subject project were discussed with the project proponent and management. They assured to take all suggested mitigation measures to control any discrepancy arose by the project and to make the project environmental friendly.

6.1.2 The Responsible Authority

Management of the subject project is the responsible authority to take all measures prior to the activity.

6.1.3 Some other Departments & Agencies

For the impact analysis details meetings were held with the management of the subject project, local community, education institutes, health institutes, hospital and NGOs. issues were discussed that may affect the environment and also the

implementation of proposed project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders in the area. The purpose of such consultations is to obtain the feedback from the relevant persons. Socioeconomic survey forms are annexed.

6.2 Affected & Wider Community

There is no affected community present in the radius of our study area. Team has consulted with the inhabitants of the different villages. They provided positive remarks regarding the subject project and in the favor of the subject activities for the proposed Industrial Estate. Stakeholders participation performer's and socioeconomic questionnaire were get filled by the inhabitants to evaluate the project socioeconomic impact.

(7)

CONCLUSION & RECOMMENDATIONS

7.1 Conclusions.

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- On completion of the project City Oil (Industrial Estate) will provide facility to local and general public.
- It will generate additional jobs during construction and operation phases.
- Project is environmental friendly and pollution free.
- The proponent has committed to implement the project in the environment friendly manner.
- Project proponent has ensured to install the Septic Tank to treat the domestic waste water prior to discharge into drain or use for irrigation purposes.
- Project proponent has ensured to adopt the proper solid waste management system.
- Proponent has ensured to adopt all the necessary measures to control any impact if resulting from the project.
- Project proponent has ensured to provide the safe drinking water to all workers and staff as well as in the scheme.
- Proponent of City Oil SEZ (Industrial Estate) intends to register the project with local government.
- Project proponent has prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures.

7.2 Recommendations

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Tree plantation inside and near the society is recommended.
- Septic Tank will be installed for primary treatment of waste water.

- Proper Solid Waste Management System should be followed according to direction of the Local Government.
- The untreated wastewater should not be reused for irrigating the vegetation, lawns and green belts.
- High Standard of Bio-Security and safety should be enforced during operation phase.
- Safety of the workers should be top priority for the management.
- City Oil SEZ (Industrial Estate) will continue to assist the local communities as a corporate / social responsibility.

The present EIA report is enough to meet the administrative and legal framework. Therefore, the Environmental Approval may be accorded for the present project.

LIST OF GLOSSARY

Mitigation	The action of Lessing in severity or intensity
Evaluated	Estimated or determine the nature, value, quality, ability, extent
Legislation	Law entitled by a legislative body
Discrepancies	A difference between conflicting facts, claims or opinion
Aspects	A distinct feature or element in a problem
Compliance	Acting according to certain accepted standards
Flora	All the plants life in a specific region
Fauna	All the animal life in a specific region
Demarcated	Separate clearly, as if a boundaries
Screening	The display of a motion picture
Substitutions	An event in which one thing is substituted for another
Regulation	An authoritative rule
Stakeholder	A person or organization with a interest
Vulnerable	Susceptible to attack
Annunciation	A formal public statement

Abbreviations

Acronym	***Full Text***
BHU	*Basic Health Unit*
BOD	*Biochemical Oxygen Demand*
COD	*Chemical Oxygen Demand*
dB	*Decibel*
DHQH	*District Headquarters Hospital*
ESRMP	*Environmental, Social & Risk Management Plan*
EIA	*Environmental Impact Assessment*
EIAR	*Environmental Impact Assessment Report*
EMP	*Environmental Management Plan*
EPA-Pb	*Environmental Protection Agency, Punjab*
EPD	*Environment Protection Department*
ERS	*Emergency Response System*
ESH	*Environmental Safety and Health*
ESHU	*Environmental Safety and Health Unit*
GoPb	*Government of the Punjab*
GoPk	*Government of Pakistan*
EIA	*Environmental Impact Assessment*
IEE	*Initial Environmental Examination*
IWT	*Indus Water Treaty*
JICA	*Japan International Cooperation Agency*
MCH	*Mother and Child Healthcare Centre*
NEQS	*National Environmental Quality Standards*
NOC	*No Objection Certificate*
Pak EPA	*Pakistan Environmental Protection Agency*
PEPA	*Punjab Environmental Protection Act*
PM	*Particulate Matter*
PSDP	*Public Sector Development Programme*
RHC	*Rural Health Centre*
SHC	*Sub Health Centre*
SPM	*Suspended Particulate Matter*
SW	*Solid Waste(s)*
TDS	*Total Dissolved Solids*
TSS	*Total Suspended Solids*
UBC	*Uniform Building Code*
WAPDA	*Water and Power Development Authority*
WHO	*World Health Organization*