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1 EXECUTIVE SUMMARY

This executive summary presents the main findings of Environmental Impact Assessment (EIA) of Installation of 132/11 KV GIS Consumer Grid Station at Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala. The main objective of this proposed project is to step down higher voltage of 132 KV to 11 KV for consumers of DHA Gujranwala.

1.1 Title & location of project

Installation of 132/11 KV GIS Consumer Grid Station at Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala.

1.2 Name of proponent

Qazi Nisar Ahmed S/o Qazi Riaz Ahmed

R/o House No. 32/A-4, Mohalla P.G.E.C.H.S, Township, Lahore.

CNIC No: 35200-1449141-7

1.3 Name of organization preparing the report

Installation of 132/11 KV GIS Consumer Grid Station has engaged Environtech Consultants (Private) Limited at office no. 11, Second Floor, Centre Point Plaza, Main Boulevard, Gulberg-III, Lahore.

Table 1: Salient features of project

Salient features of project		
1.	Total Area	12.9 Kanals
2.	Cost of the project	Pkr/- 1000 million approx.
3.	Location of project	32.280948, 74.142528
4.	Capacity of the project	48.67 MW
5.	Surroundings of area	North Road + open plot South open plot East Road + open plot West open plot
6.	Details of equipment	Power Transformer, GIS Switchgear (comprising of Air Bushings, 145 KV Voltage Transformer, Isolator, earthing switch, circuit breaker, current

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		transformer), surge arresters, Power cables (15kV, with Copper conductor), Earth fault relay, Distance Relay, Differential Relay, Ammeter, Volt meter, Power factor meter and DPM, 11 KV Switchgear Panels
7.	Description of proposed project	The proposed project is the establishment / installation of 132/11 KV GIS Consumer Grid Station over an area of 12.9 Kanals. The proposed installation of grid station will take load from transmission line and will step down voltage from 132 KV to 11 KV through power transformer for consumers of Defence Housing Authority, Gujranwala. The energy will be supplied through transmission line already passing besides the proposed project site.

1.4 A brief outline of proposal (type, process, technology and land requirements)

As per Punjab Environmental Protection Act 1997 (amended 2012) and Initial Environmental Examination (IEE) & Environmental Impact Assessment (EIA) Regulations, 2000 proposed project falls under ***Category A (3) "Transmission lines (11 KV and above) and grid stations"*** mentioned in Schedule-II. Thus, requires an EIA.

The current project is about installation of grid station. Site selected for proposed project is under the ownership of applicant which has been transferred to GEPCO. It is an environmentally friendly project to supply electricity for residents of DHA Grw. The estimated project cost is **PKR 1000 million approx.,** The project under consideration of this EIA is the Installation of 132/11 KV GIS Consumer Grid Station at Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala. Beyond this scope no other development activities have been covered in this EIA study.

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1.5 The major impacts & recommendations for mitigation measures

The potential impacts associated with the proposed project construction and operation activities Included: increase in water consumption; air pollution from vehicle; vehicle movement, noise and disturbance, soil contamination and waste generation.

Proposed installation of grid station to be laid on concrete foundations, control house building and GIS Hall. The machinery installation does not require water while only water use will be during civil works and domestic activities. Water conservation practices will be utilized to reduce the overall water consumption during proposed project activities.

The ambient air quality of the area can be affected by exhaust emissions of vehicles. The pollutants can seriously impair human health and ecological environment and other materials. The emissions include sulphur dioxide, oxides of nitrogen, carbon monoxide, carbon dioxide, and particulates. Emission levels depend on the type and size of activity, the type and quality of fuel and the manner in which it is burned. A significant impact will be interpreted if the concentration of pollutants in the ambient air exceeds the PEQS or recognized international guidelines for ambient air quality.

The sources of emissions during construction activities will not be significantly enough to alter the ambient air quality at regional level. All vehicles, equipment and machinery will be properly tuned and maintained to minimize emissions. Cleaner fuels if required (less 1% Sulphur content) will be preferred to procure. Monitoring of Ambient air parameters and emissions should be carried out on to ensure compliance with the PEQS.

Noise has the potential to cause an impact to nearby communities and working personnel. To avoid the impact of noise, it will be ensured that, vehicles and other potentially noisy equipment used are in good condition. The noise level monitoring results would be compared with Punjab Environmental Quality Standards (PEQS) for Noise to meet the permissible limits. All on-site personnel will use required personal protective equipment (PPE) in high noise areas that will be clearly marked.

All the waste generated during construction & installation activities will be disposed-off through implementation of an effective waste management plan to ensure that any impact resulting from waste generation shall be minimal. The recyclable waste will be sold to waste contractors, as per

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waste management plan. No hazardous chemical will be uncontrollably discharged into the Environment.

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Table 2: Impacts and mitigation measures

Aspect	Impact	Mitigation	Monitoring parameters	Location	Monitoring	Frequency monitoring	Responsibility
Construction phase							
Air	Health affects Reduced visibility on roads	Sprinkling of water Tuning of construction vehicles & machines Dust masks for laborers	Particulate Matter Smoke	All Project locations	Vehicular emissions Dust Ambient air quality	Daily for dust	HSE Manager/ Proponent
Noise	Hearing Loss headache	Avoid working at night Lubrication of construction vehicles Provision of Ear Plugs	Noise levels	All Project locations	Noise monitoring device	As required	HSE Manager/ Proponent
Land & Soil	Erosion Formation of pits due to improper backfilling	Proper backfilling and stone pitching around the excavated site if required	Tree Plantation, surface topography	All Project locations	Visual assessment Photographic evidences	From beginning till completion of project	HSE Manager/ Proponent
Vegetation	Cutting of trees	Avoid unnecessary cutting of trees In case of cutting of trees, one plant should be replaced by 6 plants	No trees will be cut down	All Project locations	Visual assessment Photographic evidences	From beginning till operational phase	HSE Manager/ Proponent

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Water	Wastage and misuse of water	Avoid un necessary use of water Prevent leakages	Water Supply and Use	All Project locations	All Project locations	From beginning till the end of project	HSE Manager/ Proponent
Construction debris	Formation of heaps Remaining concrete material results in hardening of ground surface	Avoid wastage of concrete material Reuse remaining construction material	Quantity and quality of construction material	All Project locations	Visual assessment Photographic evidence	Weekly	HSE Manager/ Proponent
Social Environment	Disturbance to routine market and local business	Specify time scale for construction activities Discussion with local people regarding conflicts if any	Maintenance of complaint register	All Project locations	Review of complaint registration Local consultations	Monthly	HSE Manager/ Proponent
Health and safety	Lack of awareness to general public about safety may lead to accidents	Safety symbols and instructions will be boarded at work sites Trained personnel will be appointed for the specific work	Safety precautions Use of PPE's	All Project locations	Tool box talk Visual assessments Record of PPEs	Daily	HSE Manager/ Proponent

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Proposed monitoring

To monitor actual impacts of the project on selected sensitive receptors so that impacts not anticipated in the EIA or impacts which exceed the levels anticipated in the EIA can be identified and appropriate mitigation measures can be adopted in time. This objective will be achieved through effects monitoring.

Considering the environmental conditions of the project area and the assessment of potential impacts of the project made in the EIA, the following environmental parameters will be monitored at identified locations.

Air Quality Monitoring – Air quality monitoring will be done during the construction and operation phase of the project at the representative locations. Ambient air quality parameters will include NO_X, SO_X, CO and PM_{10},

Water Quality Monitoring – Ground water quality monitoring will be done during the construction and operation phase of the project at the representative locations.

Groundwater Quality Parameters: Total Coliforms, Total Colonial Count, E-Coli, pH, TDS, Total Hardness, Nitrate, Chloride, Fluoride, Colour, Manganese, Aluminium, Chromium, Cadmium, Boron, Barium, Antimony, Arsenic, Cyanide, Mercury, Nickel.

Wastewater Quality Parameters: pH, DO, TSS, Alkalinity, BOD_5, COD, Turbidity.

Noise Monitoring - The monitoring will be carried out at key locations covering all receptors

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2 INTRODUCTION

This chapter of the report provides a brief description of nature, size and location of the project. A defined scope of study, the magnitude of efforts and concise description of project proponent is also included in this chapter. The project is being proposed with the objectives to meet the DHA consumers' electricity demands, keeping in view the business sustainability and to maintain workplace safety.

The study has been carried out to estimate the potential environmental impacts, both positive and negative, on the environment as well as socio-economic fabric of the surrounding environment during construction as well as operational phase. This report intends to provide satisfactory mitigation measures to avoid/eliminate any chance of adverse environmental impact on the socio-cultural, economic and environmental components. This report also intends to fulfill the regulatory requirements set under Punjab Environmental Protection Act, 1997 (Amended 2012) and its consequent legislative framework for IEE/EIA Regulations 2000 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 and/or Schedule II.

2.1 Purpose of report

As per Punjab Environmental Protection Act, 1997 (Amended 2012) and the IEE/EIA Regulations, 2000 it is mandatory for the proponent of any development project to obtain Environmental Approval before commencing construction from EPA Punjab by filing an IEE or EIA as the case may be before the Agency. This EIA Study presents the findings of this proposed unit. For this purpose, the proponent has engaged environmental consultants, M/s Environtech Consultants (Private) Limited. The purpose of this study is to identify the environmental baseline i.e. physical, biological and socio- economic/cultural conditions and assess all possible impacts arising during the construction and operation phase of the project with the aim to find out appropriate measures for their mitigation, to either eliminate those impacts or to bring them to acceptable level and formulate Environmental Management and Monitoring Plan (EMMP) for implementation of the project in environment-friendly manner. This EIA Report provides relevant

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information, as required under the officially approved format, to facilitate the decision makers i.e. EPA Punjab for the issuance of Environmental Approval/NOC.

2.2 Identification of project and proponent

2.2.1 Project

The proposed project to which this Environmental Impact Assessment (EIA) relates is entitled as "***Installation of 132/11 KV GIS Consumer Grid Station*** at Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala.

2.2.2 Proponent

Qazi Nisar Ahmed S/o Qazi Riaz Ahmed

R/o House No. 32/A-4, Mohalla P.G.EC.S, Township, Lahore

CNIC No: 35200-1449141-7

2.3 Details of consultant

The EIA study was carried out by team of Environtech Consultant Private Limited comprising of environment scientists and engineers, sociologist, environmental chemist and environmental auditors with diversified experience on local and international assignments. The detail of the project team deputed on this assignment is attached to this report.

2.4 Brief description of nature, size and location of project

The proposed project to which this Environmental Impact Assessment (EIA) relates is entitled as Installation of 132/11 KV GIS Consumer Grid Station at Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala. Proposed project will transform higher voltage to lower voltage for household electricity consumption. The total area of proposed project is **12.9 Kanals** with total cost of Pkr 1000 million approx. The project under consideration of this EIA is the installation of 132 / 11 KV GIS Consumer Grid Station which is located at Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala. Beyond this scope no other development activities have been covered under this EIA study.

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3 SCREENING

According to the Section 12 of Punjab Environmental Protection Act, 1997 (amended 2012) which states;

"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 effects an Environmental Impact Assessment (IEE) and has obtained from the Government Agency approval in respect thereof."

As per Punjab Environmental Protection Act 1997 (amended 2012) and Initial Environmental Examination (IEE) & Environmental Impact Assessment (EIA) Regulations, 2000 proposed project falls under ***Category A (3) "Transmission lines (11 KV and above) and grid stations"*** mentioned in Schedule-II. Thus, requires an EIA Report is being prepared for duly submission in EPA, Punjab.

3.1 EIA process

3.1.1 Overview of EIA

EIA is a systematic process to identify, predict and evaluate the environmental impacts of proposed actions and projects. The process is applied prior to major decisions and commitments being made. Wherever appropriate, social, cultural and health effects are considered as an integral part of EIA. Particular attention is given to practical implementation of EIA to prevent and mitigate significant adverse effects of proposed undertakings.

3.1.2 Objectives of EIA

The overall objective of the EIA is as follows:

- Description of the proposed project, including an estimate of emissions, effluent and waste and consideration of the project alternatives;
- Identify and investigate all impacts of the proposed project on the physical, biological, and socio- economic environment;
- Evaluation of the baseline environmental conditions in the impact zone to provide a basis for assessing the incremental impacts of the proposed project, including existing pollution levels

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and nuisance conditions;

- Identification and assessment of the potential impacts on the environment during each of the project phases;
- To propose mitigation measures that would help the Project Proponent in conducting the operation in an environmental sustainable manner; and
- To develop an Environmental Management Plan that would assist the Project Proponent in the effective implementation of the recommendations of the EIA.

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4 SCOPING

Project land is owned by GEPCO. Impacts have been assessed for the immediate and direct area of influence of the project defined as:

- Immediate Area of Influence: Within the proposed project site boundary.
- Direct Area of Influence: Within 5 Km from the proposed project site boundary.

Effects on socioeconomic receptors and resources have been assessed for the construction and operational phases of the proposed project. The proposed project activities are predicted to last for a period of 12 months within which the potential impacts have been assessed. The operational impacts have been assessed for the entire lifespan of the facility. The impacts related to the decommissioning of the proposed project will be assessed at the time of decommissioning which will involve carrying out site assessment study at the proposed project location.

Project location is given in below figure:

4.1 Scope of EIA

This consolidated EIA report covers the examination of physical, biological, environmental and socioeconomic impacts of the proposed project

The spatial and temporal scope of the project is described below:

4.1.1 Spatial scope

Impacts have been assessed for the immediate and direct area of influence of the project defined as:

- Immediate Area of Influence: Within the proposed project site boundary.
- Direct Area of Influence: Within 5 Km from the proposed project site boundary.

4.1.2 Temporal scope

Effects on socioeconomic receptors and resources have been assessed for the construction and operational phases of the proposed project. The proposed project activities are predicted to last for a period of 12 months within which the potential impacts have been assessed. The operational impacts have been assessed for the entire lifespan of the facility. The impacts related to the decommissioning of the proposed project will be assessed at the time of decommissioning which will involve carrying out site assessment study at the proposed project location.

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4.1.3 EIA methodology

The EIA project passes through series of stages prior to attaining approval from relevant environmental protection agency. The EIA process and the approach followed for the proposed project is defined below:

4.1.4 Scoping

Scoping is an early stage in the process and is designed to ensure that the environmental studies provide all the relevant information on:

- The impacts of the project, in particular focusing on the most important impacts;
- The alternatives to the project;
- Other environmental sensitivities to be addressed at early stage.

The EIA process started with the scoping study. The purpose of scoping was to identify:

- Important issues to be considered in an EIA;
- Appropriate time and space boundaries of the EIA study;
- Information necessary for decision-making;
- Significant effects and factors to be studied in detail.

The scoping was followed by data collection describes in subsequent section.

4.1.5 Data collection

Following literature reviews and data collection was carried out for EIA:

- A generic description of the proposed project and its related activities was collected from the proponent.
- Legislative review of the applicable laws, regulations, guidelines and standards from literature search.
- Baseline of the area's environmental and socio-economic settings was collected through literature search and field surveys.

4.1.6 Baseline

The environmental impact is measured through a change in the environment, resulting from a designated action or activity. In order to identify such a change, it is essential to have as complete as practicable understanding of the nature of the existing environment, prior to its interaction with the proposed activity. This translates into the need to characterize the existing baseline

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environmental conditions, including establishing prevailing conditions for a range of environmental media, particularly air, water, soil and groundwater, flora and fauna and the human environment. This was achieved through a detailed review of all secondary resources (i.e. existing documentation and literature); and the undertaking of project specific baseline studies and surveys to collect supplementary data in the following areas:

- Geology;
- Flora and fauna;
- Water quality characteristics;
- Traffic;
- Ambient air quality;
- Noise conditions;
- Socio-economic conditions;
- Archaeology.

Both the existing secondary sources and literature studies were conducted and integrated into one coherent description of baseline characteristics.

4.1.7 Evaluation of alternatives

To establish an environmentally sound preferred option for achieving the objectives of the proposed project, different alternatives including site selection, and technology alternatives were studied in collaboration with the project proponent. Technology selection was made taking in to consideration environmentally, economically and socially suitable as well as technically feasible options.

4.1.8 Stakeholder consultation

Stakeholder consultation was carried out for the proposed project with primary and secondary stakeholders of the project. Following steps were involved to attain stakeholder consent:

- Providing information on the proposed project activities;
- Identifying the stakeholders concerns, expectations and apprehensions about the proposed project;
- Summarizing the process outcome.

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4.1.9 *Impact assessment and mitigation*

The information collected in the previous phases was used to assess the potential environmental impacts of the proposed project activities. The impact assessment approach is provided in below table**.** Impacts of project activities on environment. The issues studied during impact assessment include potential impacts on:

- Physical environment of the area
- Biological environment of the area
- Socio-economic environment of the area

Impact Characteristics	Categorise
Nature of the Impact	**Direct:** The environmental parameter is directly changed by the project. **Indirect:** the environmental parameter changes as a result of change in another parameter.
Duration of the impact	**Short term:** Lasting only till the duration of the project such as noise from the construction activities. **Medium term**: Lasting for a period of few months to a year after the project before naturally reverting to the original condition. **Long term:** Lasting for a period much greater than medium term impacts before naturally reverting to the original condition.
Geographical Location of the impact	**Local:** Within the area of project i.e. operation site and access road. Regional: Within the boundaries of the project area. **National:** Within the boundaries of the country. **Global:** Trans-boundary impacts
Timing	Construction Operation
Likelihood of the impact	**High:** High likelihood of occurrence during lifetime of operation, Regular/continuous part of operations.

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	Moderate: Moderate possibility of occurrence during lifetime of operation, Periodic/occasional part of operations. **Low:** Unlikely to occur during lifetime of operation.

Impact Characteristics	Categorise
Reversibility of the impact	**Reversible:** When a receptor resumes its pre-project condition. **Irreversible**: When a receptor does not or cannot resume its pre-project condition.
Significance of the impact	**Major, Moderate, Minor, Negligible and Beneficial** Based on the consequence, likelihood, reversibility, geographical extent, duration, level of public concern and conformance with legislative or statutory requirements.
Consequence severity of impact	**High:** ▪ Serious/catastrophic damage to environment ▪ Direct legislative requirement ▪ Corporate requirement ▪ Serious threat to corporate reputation/profitability/ability to do business. **Medium:** ▪ Measurable damage to the environment ▪ Subject to potential future legislation ▪ Potential to affect reputation/cost ▪ Implication/reduced efficiency **Low:** ▪ Negligible damage to the environment No risk to business

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4.2 Important issues and concerns 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 10**.

- During survey following concerns of the local community, Government Departments and Environmental Practitioners and experts were noted:
- Nuisance must be controlled.
- Latest/State of the art technology must be adopted.
- Locals should be preferred for the job opportunities.
- Monitoring should be done regularly to 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.

4.3 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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5 CONSIDERATION OF ALTERNATIVES

This chapter will discuss alterative and their selection and rejection criteria.

5.1 Site alternatives (selection and rejection criteria)

For installation of Grid Station it is important that site must be selected at suitable location where residential area is present and there is requirement of electricity.

- Transportation infrastructure (road network) is available.
- Transmission Line is passing besides the project site.
- The selected site is under the ownership of the GEPCO.

5.2 Design/technology alternatives (selection and rejection criteria)

The project technology will be up to date and will also environment and eco-friendly. So, no other technology will be taken under consideration.

5.3 Environmental alternatives (selection and rejection criteria)

Environmental considerations are of utmost importance in selecting site. The project land is owned by GEPCO and it is not situated and environmental sensitive area. Thus, there is no ecologically sensitive or declared protected.

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6 DESCRIPTION OF PROJECT

This chapter provides the description of "**Installation of 132/11 KV GIS Consumer Grid Station**, type and category of project, location and layout, vegetation features of site, project schedule of implementation and complete description of proposed project related to its process and steps.

6.1 Type & category of project

As per Punjab Environmental Protection Act 1997 (amended 2012) and Initial Environmental Examination (IEE) & Environmental Impact Assessment (EIA) Regulations, 2000 proposed project falls under Category A (3) "Transmission lines (11 KV and above) and grid stations" mentioned in Schedule-II. Thus, requires an EIA Report is being prepared for duly submission in EPA, Punjab.

6.2 Objectives of project

The objective of this project is to provide DHA residents with electricity supply.

- Assess the existing environmental conditions in the project area, including the identification of environmentally sensitive areas and receptors;
- Assess the various activities (such as construction, process, operational etc.) to identify their potential impacts on environment, evaluate these impacts, and determine their significance;
- Propose appropriate mitigation measures that can be incorporated into the design of the proposed activities to minimize damaging effects or lasting negative consequences identified by the environmental assessment;
- Assess the proposed activities and determine whether they comply with the relevant environmental regulations in Pakistan;
- Prepare an EIA report for submittal to the Environmental Protection Agency (EPA), Punjab.

6.3 Location and site layout of project

The project site is at Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala. Google Earth map of site is given in **Fig-1** and layout map of the project is given in **Fig-2.**

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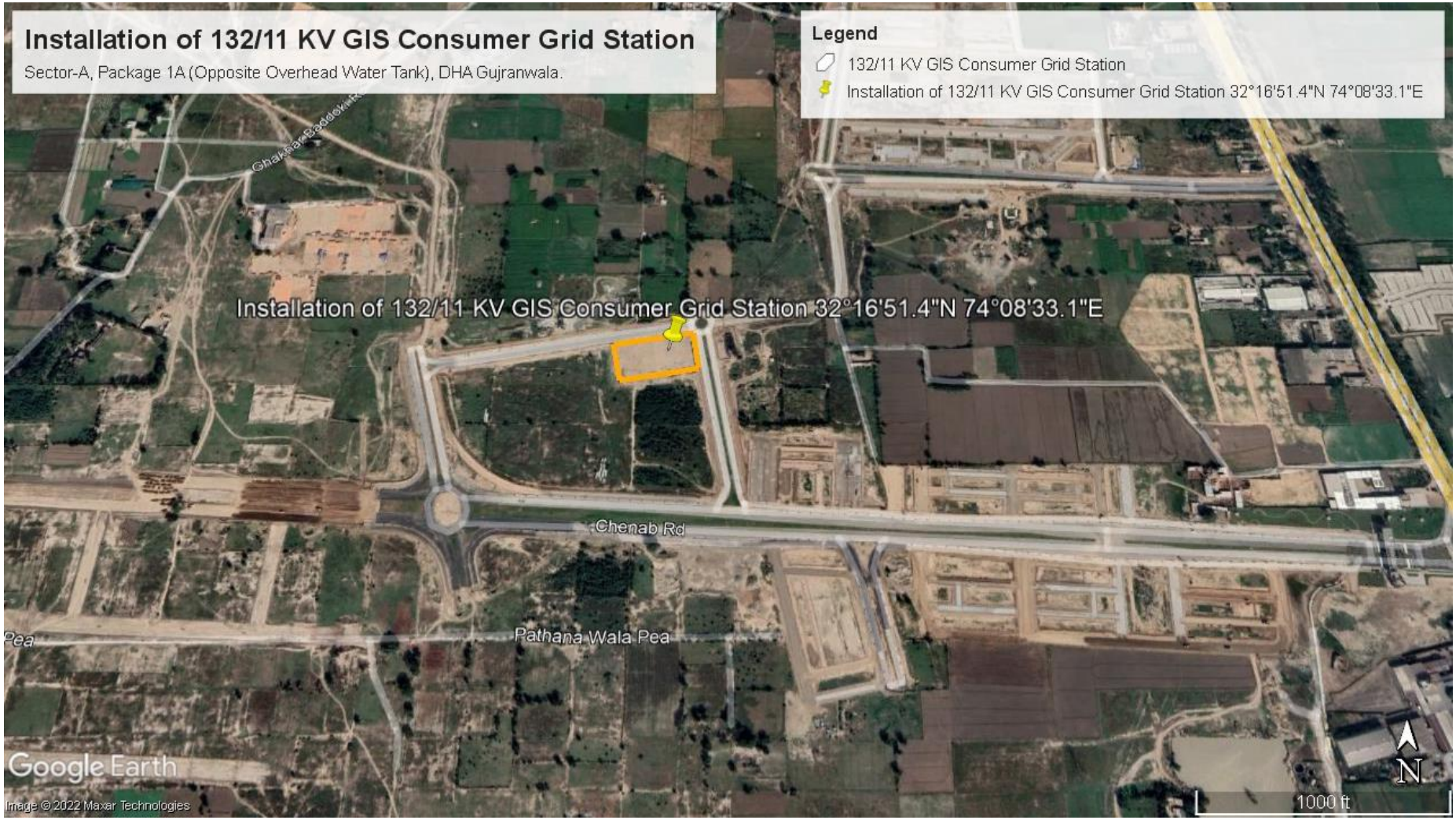

Figure 1: Location map of site

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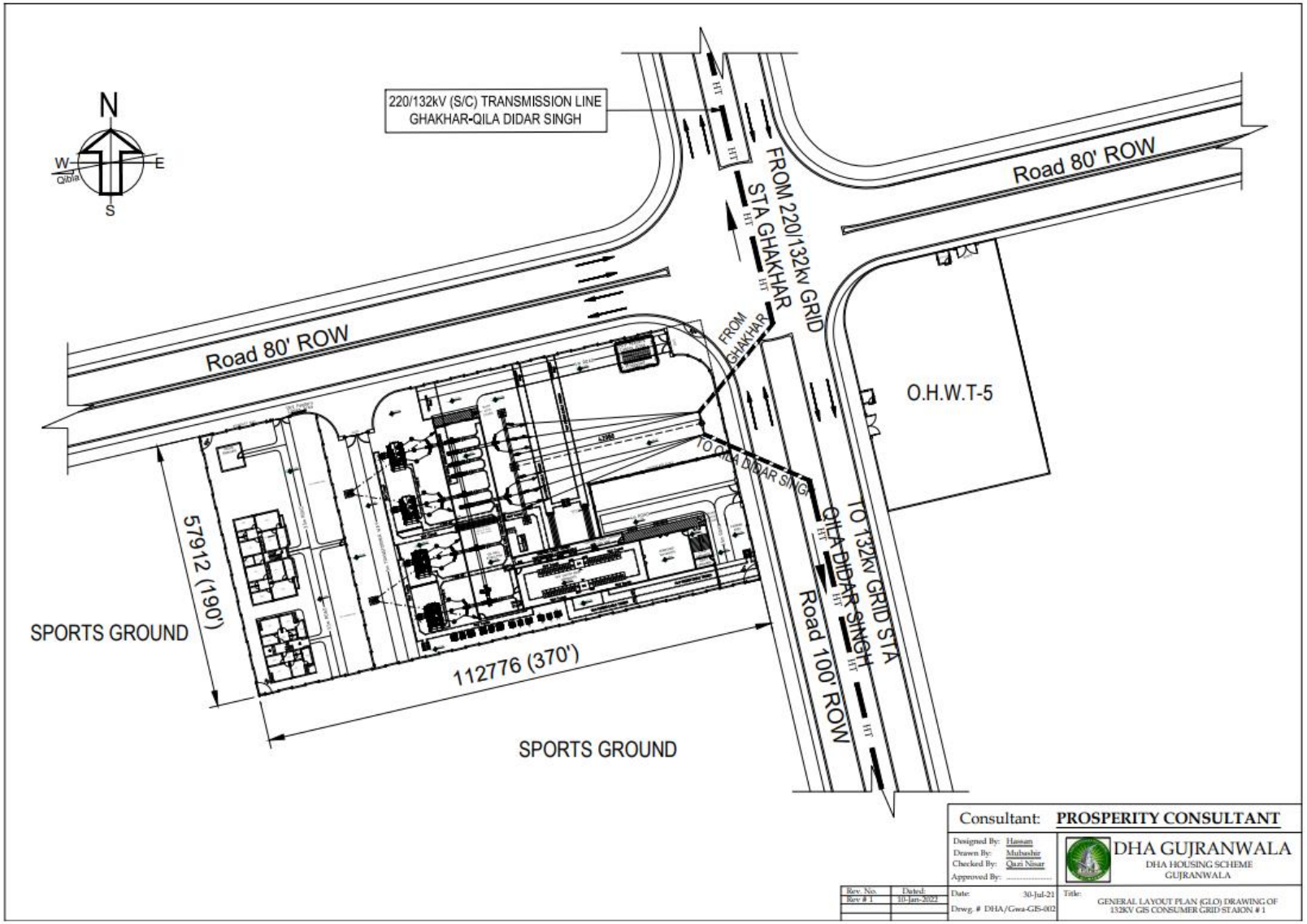

Figure 2: Layout map of project

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6.4 Land use on the site

The site is duly approved by GEPCO and land is transferred to GEPCO. Approved layout map is attached with report.

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6.5 Road access

The site is accessible through GT Road Gujranwala.

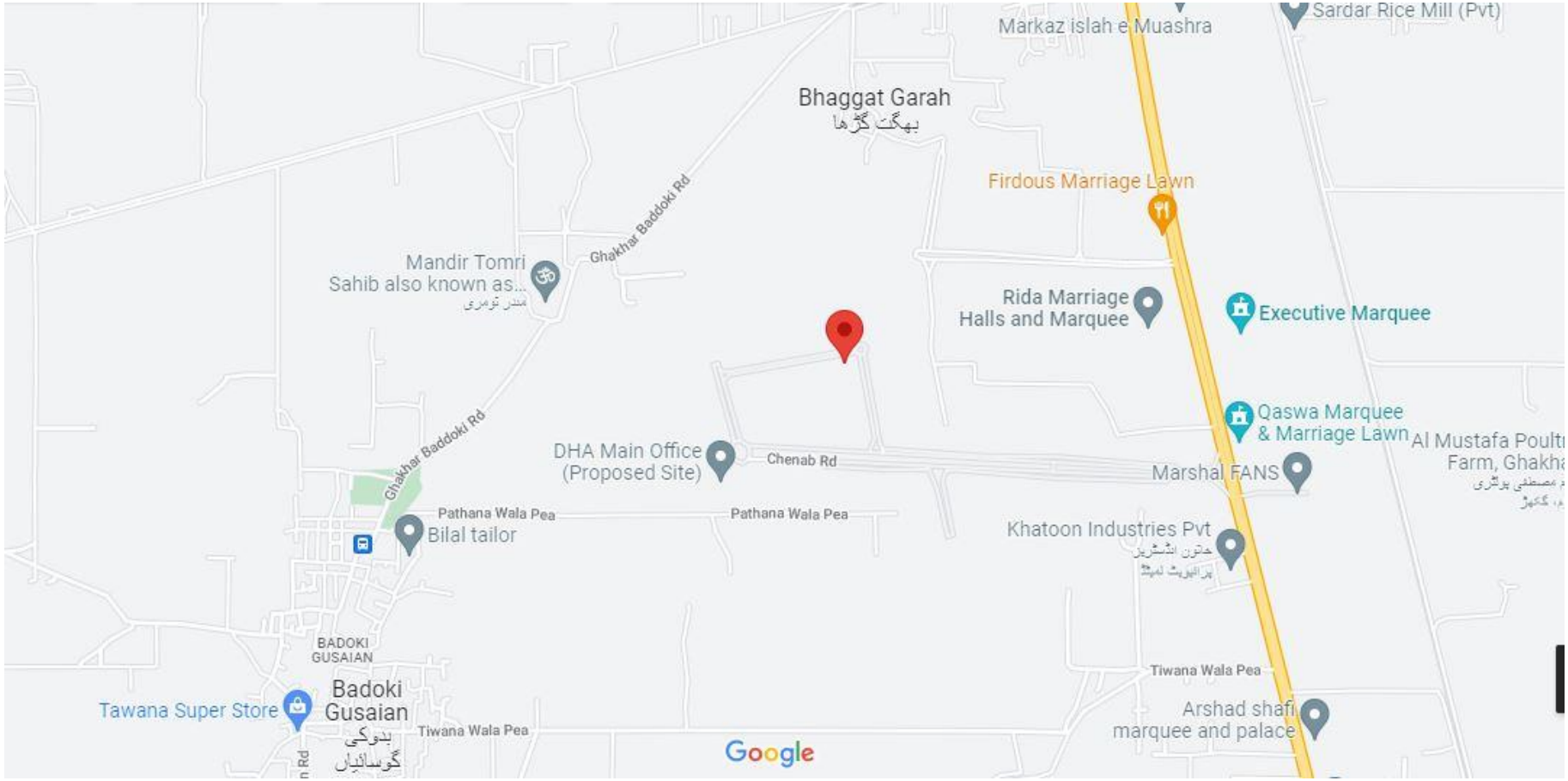

Figure 3: Road access map

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6.6 Vegetation features of the site

There is no vegetation, as the current project site is a vacant plot. However, proponent will make arrangements to plant trees, building green belts, and garden and plant ornamental plants.

6.7 Cost and magnitude of operation

Total cost of the proposed project is estimated to be around **1000 million PKR** which includes the provision of installation, associated amenities and cost for utilities and equipment/machinery. Thus, falls under Schedule II for which Environmental Impact Assessment (EIA) report is required.

6.8 Schedule of implementation

It is projected that the construction phase of entire project will be started after getting environmental approval from EPA Punjab and complete in the period of 12 months. Activities involved are:

- Assessment of environmental impacts and its mitigation measures
- EIA approval, other local issues
- Implementation of recommended alteration in system, if required
- Commencement of operation

6.9 Description of the project (process flow chart/steps, technology, raw material and products, by-products)

6.9.1 Project Scope

Project scope includes to take the power (48.67 MW) from 132 KV Ghakhar to Qila Didar Singh Transmission Line and Step down the voltage level to 11 KV for the purpose of load distribution to sector 1A & 1B of DHA Gujranwala.

Line Bays = 2 No. (In and out arrangement from 132 KV Ghakhar to QD Singh Transmission Line)

Power Transformers = 2 x 26 MVA

11 KV Feeders = 14 No.

6.9.2 The Grid Station

A Grid station is an important element of the electricity generation, transmission and distribution system. Its function is to transform voltages from high to low or the reverse, using transformers and other heavy duty electrical switchgear. GIS (Gas Insulated Switchgear) Grid Station consists of bays and

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it is pre-fabricated stations and require very small space and GIS is installed in GIS Hall, while commissioning and installation of compact machinery would be time efficient

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Figure 4: The Grid Station

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6.9.3 Gas Insulated substation (GIS)

GIS are much more reliable, compact and maintenance free. Because of compactness of equipment, a very small area of land and civil work is required resulting in substantial saving of space. They are at present mostly used in space constraint areas. Each individual item of switchgear is metal enclosed which is at earth potential.

1. **Low area requirement** Extra High Voltage (EHV) models, for example, take only fraction of the space required as compared to conventional.
2. **Environmental adaptability** GIS is suitable for installation almost anywhere: in or out of doors, even underground; near the sea, in mountainous areas, in regions with heavy snowfall, etc.
3. **High margin safety** The high voltage conductors are securely enclosed in grounded metal.
4. **High reliability:** The chemically inert enveloping the conductors and insulators preserves them for years of trouble free operation.
5. **Long maintenance intervals** Insulation arc-quenching properties reduce contact wear. Technological advancements over the years have seen GIS continues to grow smaller and lighter.
6. **Low Maintenance Cost GIS** are highly reliable and maintenance free. No inspection is required before ten years.
7. **Long Life** The operating life of GIS is 40 to 50 years compared to 25 to 30 years of conventional outdoor grid stations.
8. **Personnel Safety** GIS causes no risk of injury to operating personnel.
9. **Short Circuits by Wildlife** Fully encapsulated enclosures reduce risk of outages caused by lizards and vandalism.
10. **Unbeatable Performance** Factory assembled, and tested unit's offers unbeatable performance in terms of reliability and continuity of power supply.
11. **Unaffected by Environmental Conditions** GIS is unaffected by environmental factors. It is most suitable for harsh environmental conditions i.e. where humid, saline, polluted atmosphere laden with industrial exhausts prevails.

6.9.4 Life Cycle Assessment and maintenance of Grid station

1. Long maintenance intervals. Insulation arc-quenching properties reduce contact wear.

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Technological advancements over the years have seen GIS continues to grow smaller and lighter.

2. Low Maintenance Cost: GIS are highly reliable and maintenance free. No inspection is required before ten years.
3. Long Life: The operating life of GIS is 40 to 50 years compared to 25 to 30 years of conventional outdoor grid stations.
4. Personnel Safety: GIS causes no risk of injury to operating personnel.
5. Unaffected by Environmental Conditions: GIS is unaffected by environmental factors. It is most suitable for harsh environmental conditions i.e. where humid, saline, polluted atmosphere laden with industrial exhausts prevails.

6.9.5 Solid Waste and Management

Approx. 600-800 kg/day constructional and domestic waste will be produced during the constructional phase of the project. Constructional waste will be reused for road filling and maintenance purposes. According to an estimate, approx. 9-10 kg/day domestic (based on solid waste generation rates of 0.45 kg/capita/day urban waste generation) which will be handed over to the certified contractors. Project related waste will not be generated as the subject project is Grid station.

The Solid waste will be managed in proper way by following operations:

1. Placement of separate waste bins for domestic and project related waste in all designated points.
2. Collection of waste from all the offices at one designated point by the sanitary workers on daily basis.
3. Careful collection of sludge on regular basis and temporary storage at designated point.
4. Collection of waste from designated area and handling to the solid waste contractors for its final disposal.

6.10 Restoration and rehabilitation plans

There will be no any matter of rehabilitation as the site is already owned by the project proponent. However, at the end of the life of the unit, it will be duly dismantled with special precautions to avoid/minimize pollution and at the same time taking all safety precautions to protect human life and property around the project site. Debris or any other wastes resulting from demolishing will be disposed-

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off in environmentally sustainable fashion. The materials capable of recycling/reuse will be either sold in the market or to be reused for other suitable purposes. While dismantling, Government rules and regulations as applicable to such activities will be strictly adhered. Safety measures as desired under the code of demolition will be adopted to avoid any harm to humans, property around, or the environment in the project area. Dust to be generated will be minimized by constant sprinkling of water. After completion; all demolishing matrix, debris and garbage will be removed off immediately from the site within the minimum possible time under safe conditions. Any minor spillover of these materials will be cleared adequately. The land, if and where pitted will be adequately levelled. On the whole, the project site and the area in its near vicinity will be made neat and clean.

6.11 Government approvals

The environmental approval according to the Section 12 of Punjab Environmental Protection Act is the mandatory requirement of the project.

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7 DESCRIPTION OF ENVIRONMENT

This section covenants with the prevailing environmental conditions of the project area. Information that has been collected from different sources, including public literature, reports of other studies conducted in this area, knowledge with the proponent and the concerned government departments and the first-hand surveys and field measurements has been presented in this section. This encompasses all the important aspects of local environment; such as biological resources, socioeconomic development and quality of living values.

7.1 Baseline physical environment

Baselines refers to existing physical, environmental and socio-economic status of the project are. On the basis of baseline information, the project interventions are assessed and mitigation measure are proposed. The baseline information also helps to indicate the specific issues to be monitored during constructional and operational phases. The baseline data data (physical, biological and socio-economic parameters) related to the project area is described below. Information provided is based on primary and secondary data collected by site visits, desk studies and consultation with locals respectively. This section gives the overview of the topology, geology, seismology and meteorological conditions of whole city whereas, it gives detailed information about the water, ground water and air quality of the project area.

7.1.1 Geology/seismology

Pakistan is basically divided into 5 earthquake zones, four of them ranging from zero to four (0-4) and one zone i.e. five which is intensively dangerous ranges from five to ten (5-10). Zone zero describes least earthquake chances and destruction while 5-10 shows most chances of earthquake origination with extensive destruction like 08 October 2005 earthquake across the country. According to the map, district Gujranwala comes under zone 2A and no tectonic or thrust fault line is passing underneath the district Gujranwala thus making it less vulnerable to the destruction due to less seismic activity in the area.

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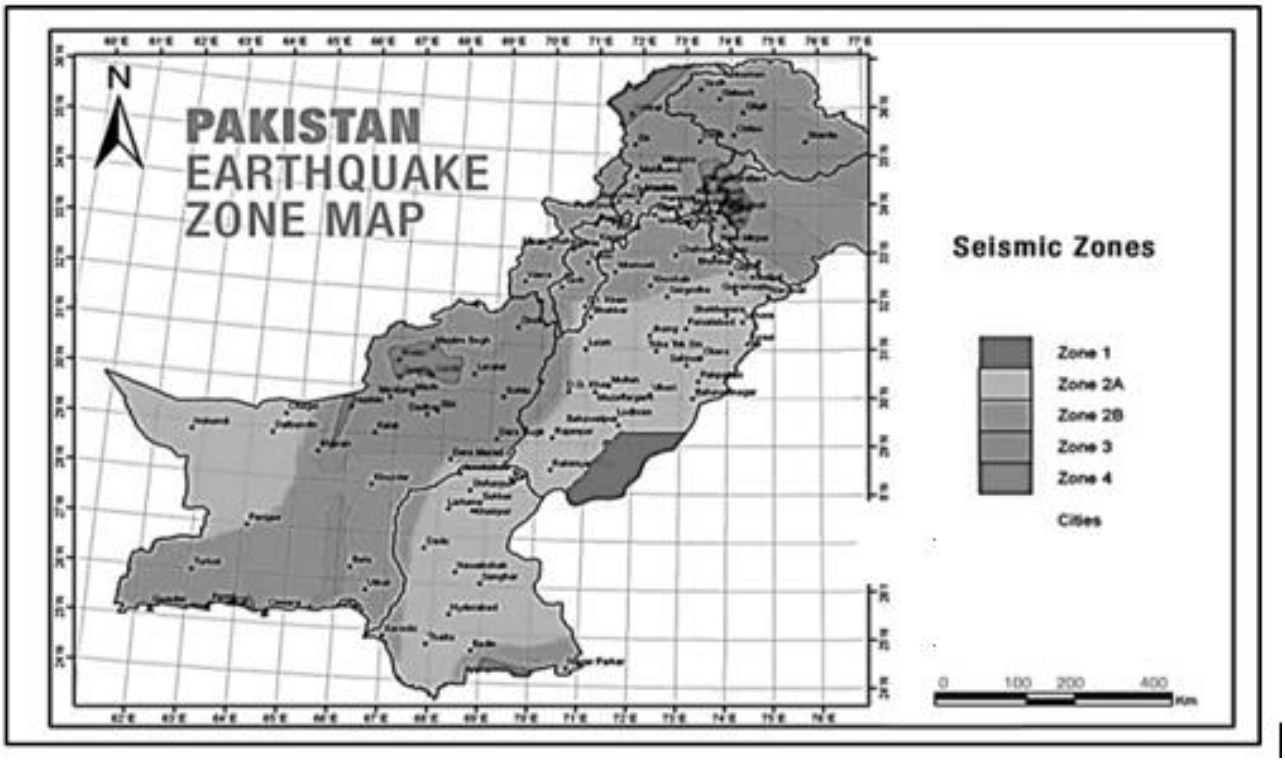

Figure 5: Seismic Zone of Pakistan

The mean maximum and minimum temperature in summer are 39 °C (102 °F) and 27 °C (81 °F) respectively. In winter it peaks at around 17 °C (63 °F) and 12 °C (54 °F) respectively. The "mean daily maximum" (solid red line) shows the maximum temperature of an average day for every month for Gujranwala. Likewise, "mean daily minimum" (solid blue line) shows the average minimum temperature. Hot days and cold nights (dashed red and blue lines) show the average of the hottest day and coldest night of each month of the last 30 years. For vacation planning, you can expect the mean temperatures, and be prepared for hotter and colder days. Wind speeds are not displayed per default but can be enabled at the bottom of the graph. Monthly precipitations above 150mm are mostly wet, below 30mm mostly dry.

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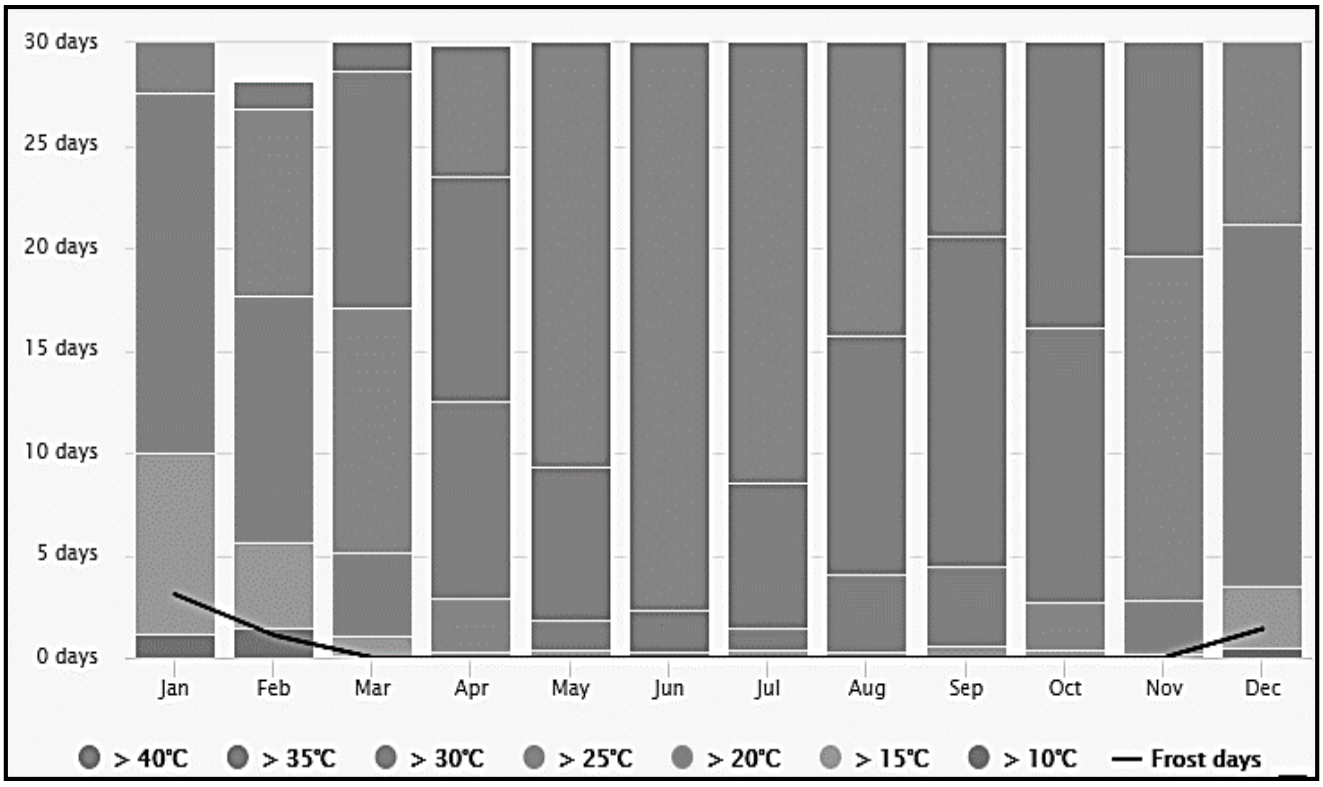

Figure 6: Maximum temperature ranges in Gujranwala

7.1.2 Rainfall

The average yearly rainfall lies only at about 388 mm (15.3 in) and is highly seasonal with approximately half of the yearly rainfall in the two months July and August.

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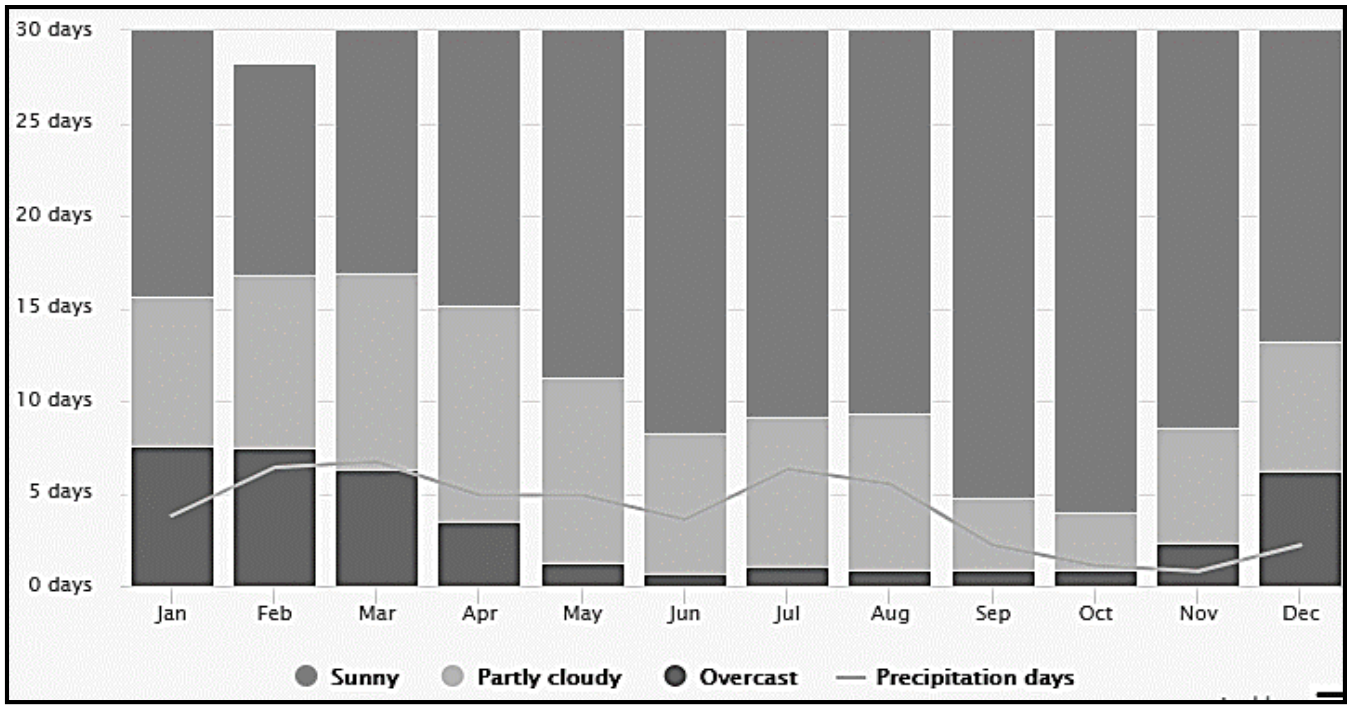

Figure 7: Annual cloudy, sunny and precipitation days in Gujranwala

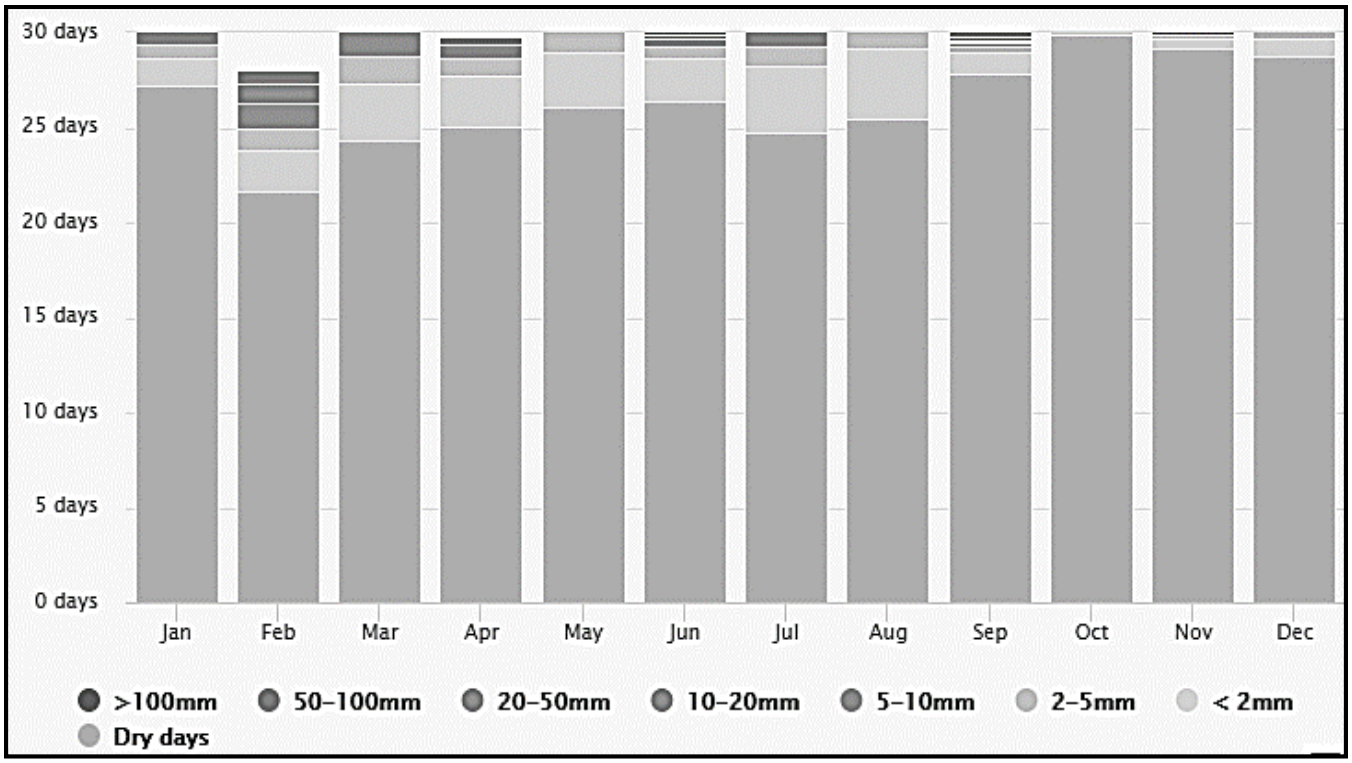

Figure 8: Annual Precipitation amounts in Gujranwala

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7.1.3 Topography and soil

The district consists of a triangular block of land running roughly east and west. Excepting its south-eastern corner, which is traversed by the Deg Nala, the district is a flat strip of country, unrelieved by hill or ravine and featureless. It naturally falls into two main divisions-the low-lying or Hithar alluvial lands fringing the Chenab River and Deg Nala, and the uplands or Uthar between them. Geographically and physically it lies between the fertile sub-montane district of Sialkot and the once desert of Jhang; the uplands decrease in fertility as the distance from the Himalayas increases until in the south-west it merges into what is known as the Bar tract, which in its natural aspect was a level prairie thickly covered with a stunted undergrowth. Canal irrigation has, however, changed the desert into smiling fields.

7.1.4 Wind direction

The region 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. The prevalent wind speed ranges from 10-25 km/h, however on some days, there appear storms of 60 km/h.

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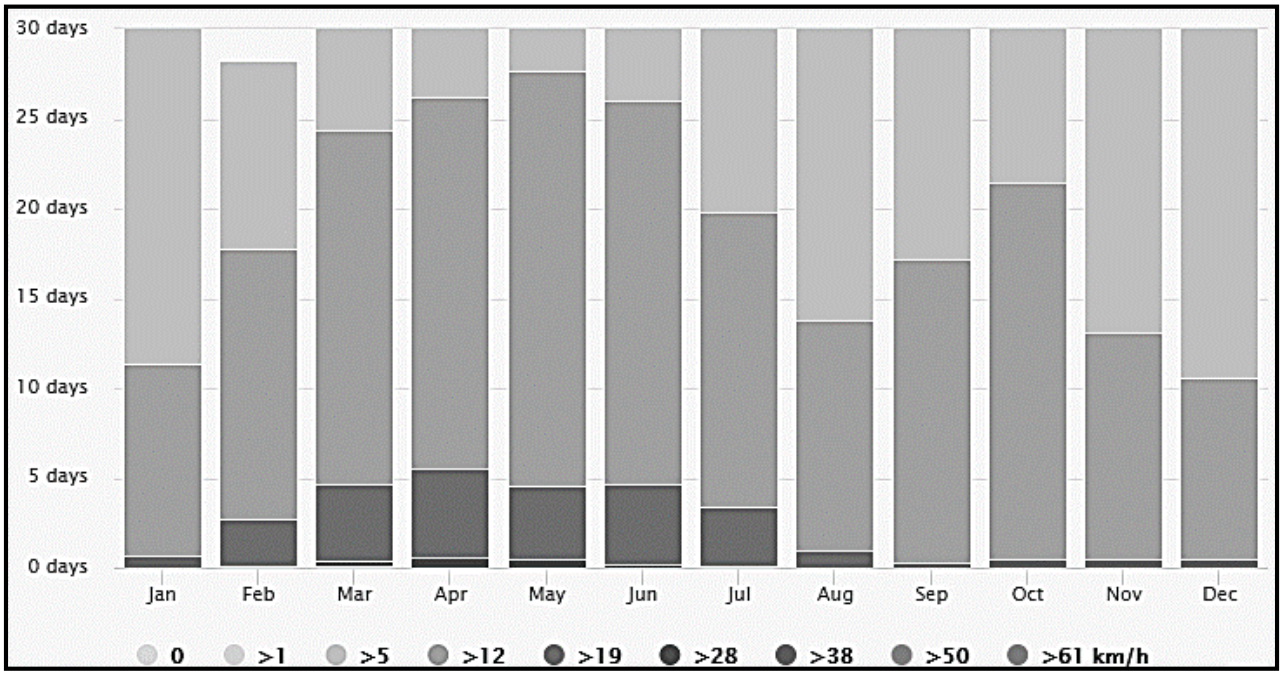

Figure 9: Annual average wind speed in Gujranwala

7.1.5 Ambient air quality

At present, major sources of air pollution are mobile sources and generators in commercial areas. Ambient air quality was monitored at the location the monitored parameters included Carbon mono-oxide (CO), Nitrogen oxides (NOx), Sulphur oxides (SOx), Particulate Matter (PM10).

7.1.6 Water resources

7.1.6.1 Ground water

The water requirements for the site for construction work will be extracted from groundwater aquifer by the help of turbines. Groundwater in Gujranwala can be found at various depths ranging from 20 feet in depth in various villages and goes up to hundreds of feet in depth like municipal water supply turbines of Gujranwala extract water from 650 feet. The water table in the ground varies in depth according to the climatic conditions as water table is high in rainy season lowers in hot and dry season. The groundwater at proposed site area is extracted from 70 feet down.

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7.1.6.2 Drinking water quality

To determine the existing quality of drinking water, one sample from the water coolers at site were collected for laboratory analysis. Drinking water samples were tested for 28 different selected parameters. Based on the laboratory test results, it was found that the drinking water was fit for drinking purposes as the chemical and biological parameters are in compliance with the PEQs. However, the groundwater can be used for bathing, washing and general purpose activities.

7.1.7 Noise level

Major source of noise generation is vehicular traffic.

7.2 Baseline ecological environment

The project area neither contain any forest nor falls in protected area or archaeological site and so no jurisdiction on the proposed sire area of the relevant legislations.

7.2.1 Flora

The proposed project is present on the agriculture land and there was no tree present on the site.

7.2.2 Fauna

There are only few animals like dogs,-crow and birds are present.

7.3 Baseline socio-economic environment

This section describes the key socioeconomic features of the study area like administrative setup, population and communities, education, health, transportation, infrastructure and archaeological sites etc.

7.3.1 Demographic profile of Gujranwala

The field survey (including interviews, focus group discussions, census, and area profile) was carried out to collect the socioeconomic data from the project affected people as well as other general population to accomplish the baseline information, which will provide the basis for subsequent monitoring and evaluation studies. The demographic features include the information on household's profile, gender composition, occupations, and literacy status of the population residing in the project area. The information relating to the demographic profile of the people in the project area are described below.

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7.3.2 Health facilities

The medical facilities are available within city as basic health unit (BHU) and some private hospitals and Clinics which are providing good medical facilities in the area.

7.3.3 Educational facilities

Government primary school for girls and boys are present near site some private school are present.

7.3.4 Transportation and communication

Gujranwala is one of the most accessible cities of Pakistan and that city of Pakistan where you can find Public and private Transport, 24 hrs a day and 7 days in a week. Public transport is always available in the project area. To fulfil the remaining needs of transport there are thousands of rickshaws and taxis which run on compressed natural gas to reduce pollution in the city and of course about 75 percent of the residents have their own conveyances.

7.3.5 Sites of historical significance

No archaeological sites are observed in the vicinity of proposed project during the field survey.

7.4 LAB REPORTS

Lab Reports are attached with and submitted to EPA.

To assess the environmental conditions of the project area, following environmental parameters were monitored;

- Ambient air quality monitoring
- Noise monitoring
- Water sampling and analysis

7.4.1 Ambient air monitoring

Major air pollutants including CO, NO, NO_2, NO_X, SO_2 and Particulate Matter (PM_{10}) were monitored during field visit near the proposed project site. The ambient air samples were taken 50-100meter distance from roadside. The results of all ambient air quality monitoring were observed below the standards because there are some air pollution sources were found in the study area. Methodology adopted for the air monitoring is given in **Table-3** while the results of ambient air monitoring are presented in **Table-4.**

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Table 3: Ambient air quality monitoring methodology

Parameter	Methodology	LDL
Nitrogen Oxide (NO)	US EPA Designated Method RFNA-1289-074	0.75
Nitrogen Dioxide (NO_2)	US EPA Designated Method RFNA-1289-074	0.75
Sulfur Dioxide (SO_2)	US EPA Designated Method ESQA-0486-060	1.3
Carbon Monoxide (CO)	US EPA Designated Method RFCA-0981-054	0.1
Particulate Matter ($PM_{2.5}$)	ISO 21501-4:2007	1.00
Particulate Matter (PM_{10})	ISO 21501-4:2007	1.00

Table 4: Result of ambient air quality monitoring at proposed project site

Parameter	Unit	Monitoring Duration	Average Obtained	Limits as per PEQs
Nitrogen Oxide (NOx)	µg/m^3	24 Hours	20.5	80 µg/m^3
Sulfur Dioxide (SOx)	µg/m^3	24 Hours	25.5	120 µg/m^3
Carbon Monoxide (CO)	µg/m^3	24 Hours	4.32	10 µg/m^3
Particulate Matter (PM_{10})	µg/m^3	24 Hours	115.0	150 µg/m^3

Table 5: Noise Level Results

Location	Min	Max	Average	PEQs Industrial Area
North Side of site	65.41	69.5	67.45	75
West Side of site	68.6	72.4	70.50	75
East Side of site	71.2	75.7	73.45	75
South Side of site	67.4	71.4	69.40	75
Centre of site	64.6	68.2	66.40	75

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7.5 Suitability of the site

The consultations demonstrated that goodwill towards the project proponents indeed exists; approval for project activities by the communities was evident. The consultations were considered a good gesture and appreciated. Proposed project will help in improving the health conditions of the area so the respondents were positive about the proposed development. Proponent recognizes that benefits from the project should be distributed judiciously and equitably especially among primary stakeholders in the project area, and will continue to ensure that this principle is followed in its projects and community development program.

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8 IMPACT ASSESSMENT

This section discusses the potential environmental impact of proposed project, methodologies for impact identifications and characteristics of impacts including nature, magnitude, extent and location, timing, duration, reversibility, risk The assessment carried out in this Section is based on potential impacts on overall environmental receptors within the project area.

8.1.1 Methodologies for impact identification

The potential impacts due to installation of grid station are mostly beneficial. During construction phase, adverse environmental & social impacts are depending on the resources and receptors involved along with other parameters such as; geographical scope (magnitude and extent), temporal scope (duration) and reversibility. It is anticipated that this project will have maximum positive impacts as it is environmentally friendly project to reduce pollution load.

Moreover, the project is expected to result in negative impacts of short-term duration and transient in nature. Having identified and characterized the potential significant impacts during design, construction and operation phase of project an Environmental Impact Severity Matrix & checklist to summarize all the identified impacts as mentioned below in tables.

Table 6: Impact significance criteria

Impact	Criteria
No Impact	When the proposed activity will have no impact
Long Term	When the impact is of high intensity with high spread and high duration or of high intensity with medium spread and medium duration
Moderate Term	When the impact is of moderate intensity with high spread and high duration or of high intensity with low/ moderate spread and low duration
Short Term	When the impact is of low intensity but with moderate spread and moderate duration or of moderate intensity
Insignificant	When the impact is of low intensity, low spread and low duration
Adverse	When the impact is of large intensity, spread easily and long-term

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Beneficial	When the impacts are positive and improve the environmental conditions

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8.1.2 Checklist

Table 7: Impact matrix checklist for construction phase

Environmental Sensitivities	Intensity of Impact						Impact Nature		Impact Significance				
	Low	Moderate	High	Local	Moderate	Regional	Beneficial	Adverse	Insignificant	No Impact	Short Term	Moderate	Long Term
Physical Parameters													
Air Quality		☒		☒									
Noise		☒			☒								
Water Quality		☒			☒								
Biological Parameters													
Land Environment													
Flora													
Fauna													
Physical Parameters													
Local Economy	☒												
Social Impacts	☒												

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Health & Safety													

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Table 8: Impact assessment checklist for operational phase

Environmental Sensitivities	Intensity of Impact						Impact Nature		Impact Significance				
	Low Intensity	Moderate Intensity	High Intensity	Local	Moderate	Regional	Beneficial	Adverse	Insignificant	No Impact	Short Term	Moderate	Long Term
Physical Parameters													
Noise													
Water Quality													
Odor													
Biological Parameters													
Land Environment													
Flora													
Fauna													
Physical Parameters													
Local Economy													
Social Impacts													
Health & Safety													

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8.2 Characteristics of impacts (nature, magnitude, extent and location, timing, duration, reversibility and risk)

The impact characteristics are identified to screen out potentially insignificant environmental and social impacts from potentially significant adverse environmental and social impacts during planning & designing, construction and operational phases of the project. The objective of impact screening process is to assess the significance of issues related to the air, water, noise, soil, transportation, civil work, communication, the hazards and external constraints. The beneficial and adverse impacts of project during planning & designing, construction and operational phases are identified based on their duration, location, frequency, extent, significance and reversibility. The impact of each activity on various environmental parameters is given below:

Table 9: Impact assessment characteristics

Sr#	Environmental Component	Impact Characteristics												
		Duration		Location		Frequency		Extent		Significance			Reversibility	
		Long	Short	Direct	Indirect	Cont.	Intermittent	Wide	Local	Large	Moderate	Minor	Rev.	Irrev.
Beneficial Impacts														
1	Employment Opportunity	◙		◙		◙			◙		◙		◙	
2	Solid Waste Management	◙		◙		◙			◙		◙		◙	
3	Land Value	◙			◙	◙			◙			◙		◙
4	Tree Plantation	◙		◙		◙			◙		◙			◙
5	Wastewater		◙	◙		◙		◙			◙		◙	

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Adverse Impacts													
1	Solid Waste	•		•		•			•		•		•	
2	Health and Safety		•		•		•		•			•		•
3	Physical Hazards		•	•			•		•			•		•
4	Security Risks		•		•		•		•		•		•	

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9 SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This Chapter identifies the potential impacts (positive and adverse) on the physical, biological and socio-economic environment of project area due to proposed project. It also identifies measures that will help to mitigate the adverse environmental and social impacts (if any) and it will enhance positive impacts of the project. Impacts are assessed by analyzing their magnitude and sensitivity, which is a legal requirement.

9.1 Impacts associated with project activities

- Environmental Impact - Construction and Operation Activity
- Socioeconomic Impact - Construction and Operation Activity

9.2 Project location

There will be no impacts due to project location as the land is owned by project proponent. For the installation of grid station an open plot has been selected. In the project area or its vicinity no ecologically important area is present. However, no human settlement or infra-structure will be dislocated due to the establishment of project. So, no adverse impact is being envisaged. Hence, there is no need to change the design of project is required.

9.2.1 Compensation in money terms

There is no damage envisaged to fauna, flora or any other biological source due to the establishment proposed project. However, agricultural land is being converted to the built-up area. So, no compensation in monetary terms will be needed as the land is owned by the project proponent.

9.2.2 Replacement/relocation/rehabilitation

The proposed project is located in open land where there is no sensitive area, population or natural resource is present which could be impacted due to the establishment of project. No replacement, relocation and rehabilitation is requiring for the proposed project establishment. However, at the end of the life of the unit, it will be duly dismantled with special precautions to avoid/minimize pollution and at the same time taking all safety precautions to protect human life and property around the project site. Debris or any other wastes resulting from demolishing

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will be disposed-off in environmentally sustainable fashion. The materials capable of recycling/reuse will be either sold in the market or to be reused for other suitable purposes.

9.3 Project design

The proponent has planned to construct the grid station on modern lines, meeting international standards, with incorporation of imported technology. The design, if maintained and operated in an environment-friendly manner, is expected to cast positive impact on the environment and will not pose any adverse impact or threat on any component of the environment.

The design of the proposed project will be sustainable and will follow the principles of energy conservation. The design of the main public buildings will follow the green building designs such as; maximum utilization of the sunlight, high roofs to keep the building cool, etc. Moreover, the building will be designed by keeping in consideration all the technical standards to avoid adverse impacts on the environment and society.

9.4 Construction phase

Following impacts could arise during constructional phase of project. The proposed project area is located in well-developed area. The roads of the area are metaled. During the transportation of the raw-material such as cement, bricks, sand, gravels, etc. The dust clouds may be generated which could impact the local climatic conditions on temporary basis. This impact is considered in-significant because of the metaled road structure.

9.4.1 Mitigation measures

Impacts of raw materials transportation can be reduced significantly by adopting better management and monitoring practices. Following management and monitoring practices will be adopted to reduce the impacts:

- Proper tuning of vehicles should be done on the regular basis in order to control the air pollution generated by the burning of the fossil fuels in the vehicles
- Restrict excessive transportation of the vehicles as well as the speed of the haulage trucks that shall not exceed the speed limit of 40km/hour
- Careful site planning and managing the transportation routes for the vehicles carrying raw-materials

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- Cover the vehicles with tarpaulin carrying sand and loose material
- The wind prone loose material should be covered and sprinkled with water on the regular basis.

9.4.2 Impacts on vegetation

There are no vegetation present on site so no mitigation measures are required.

9.4.3 Impacts on water sources

During construction phase, water will be used for the preparation of the raw material, for watering under-construction buildings and consumption by the workers in various domestic activities. It will cause negative impact on underground water resource. The consumption of the water will be high causing minor negative impact on the water resource of the area.

9.4.4 Mitigation measures for water

Following mitigation measures will be required for water sources:

- Avoid un-necessary consumption of the water and close the tap when water isn't in use
- Proper knowledge regarding the watering of the under-construction building should be given to the workers in order to conserve water
- Water efficient equipment and process will be used
- Awareness regarding the water conservation techniques should be carried out
- The wastewater that is being consumed from the use of the labour on-site will be disposed off in the wastewater drains.

9.4.5 Impacts on air quality

During construction phase, the machinery working on project site may cause air pollution due to release of the pollutants such as; carbon dioxide, methane, NOx and SOx from the burning of the fossil fuels in the vehicles. Dust may be generated due to the excavation activity and filling activities. No other impact is envisaged that may deteriorate the ambient air quality of the area.

9.4.6 Mitigation measures for ambient air quality

Following mitigation measures will be adopted to reduce the impact on the air quality:

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- Proper tuning of vehicles should be done on the regular basis in order to control the air pollution
- It should be ensured that the high quality fuel is being used in the vehicles that are working on-site
- The material prone to wind should be covered with tarpaulin
- Avoid unnecessary movement of the trucks carrying raw-materials to avoid unnecessary air emissions
- Avoid excavation and filling activity on the windy days
- Impact can be minimized through a management programs which ensure dust will be controlled by regular watering the dusty and wind areas
- Abandoned excess laterite and stone aggregate littered around stock pile areas after construction completed changes the soil structure
- Regular water sprinkling may be done to control the dust generation

9.4.7 Impacts due to noise

During construction phase, heavy construction machinery will be use. The machines are noisy and can cause a certain degree of nuisance to the nearby residents. The noise levels of machines and vehicles vary widely depending on the type of noise generated and level of activity. Some common impacts of noise nuisance include annoyance, sleep disturbance and interference with communication. Acceptable levels of noise are regarded to be 40 dB(A) during the night and 50 dB(A) during the day. Since construction will take place during the day only the 50 dB(A) level is of importance. As the proposed project is not located in the residential zone so the noise related impacts will cause insignificant impact on the nearby community

9.4.8 Mitigation for noise

Following mitigation measure will be adopted to reduce the noise;

- The noise related activities should be done during the day time to ensure minimum disturbance to the local community
- Proper tuning of the vehicles should be done on the regular basis, so that the noise level will be reduce up to the acceptable limits

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- Noise related activities should be done speedily and completed as soon as practically possible
- Construction activity will be confined to the small reserved area

9.4.9 Impacts on socio-economic environment

During this phase, skilled and unskilled labor will be required. Employment opportunities for the un-skilled workers will therefore increase which will enhance the positive benefits for the local people who are in dire need of income for sustenance. Furthermore, indirect opportunities for employment will arise from the provision of services to the construction teams; sale of raw-material such as cement, bricks, sand etc., as well as food and beverages for the labor. After completion of construction phase serve as a permanent business opportunity.

9.4.10 Mitigation measures

No mitigation is required.

9.5 Operational phase

The environmental and socio-economic impacts associated with the operation phase are had been studied in detail. Following is the detailed description:

9.5.1 Water consumption

A significant impact will be interpreted, if water extracted for the project directly affects the ability of the community and other users to meet their water needs. The water usage will be the water required for domestic use of workers, for floor cleaning.

9.5.2 Mitigation measures

Following mitigation measures will be adopted:

- Water conservation program will be initiated to prevent wastage of water
- The management will ensure maximum recycling of washing water, so that overall consumption could be reduced
- Reusing the water for sprinkling purpose after floor cleaning

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9.5.3 Wastewater

The building operations will generate wastewater in the form of domestic wastewater. The wastewater can be a potential source of pollution groundwater resources of the area. Domestic wastewater generated during building operation is estimated to be approximately 1.4m^3/day. Implementation of the proposed mitigation measures and regular monitoring is not likely to leave any significant impact of the wastewater from the proposed facility.

9.5.4 Mitigation measures

Following mitigation measures will be adopted for effective management of wastewater:

- The grey water will be treated through settling tank which will be recycled to be re-used in irrigation purposes
- Waste segregation measures would be employed to minimize entry of solid waste into the wastewater stream
- Water conservation strategies will be employed to avoid wastage of water
- Periodic sampling and monitoring of key parameters for wastewater effluent into the receiving body (drain or sewerage system) and for this purpose samples will be collected at the discharge point to ensure effective treatment

9.5.5 Noise

Noise cause stressful effect on the ears, nervous system and heart; especially to people exposed to noise above 85 dB (A) for long period of time. Due to the operation of the proposed project heavy machines can serve as the potential noise sources. This noise will depend upon the machine efficiency, their maintenance level and the nature of room housing it, and the atmospheric conditions. No significant increase in noise level in the community is envisaged under normal operation. Moreover, implementation of the below-stated mitigation techniques will also keep the noise impacts at minimum to the workers as well as to the community.

9.5.6 Mitigation measures

Noise management and mitigation plan should follow the underlying strategy:

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For people working in noisy installations, ear-protection aids like ear-plugs, ear-muffs, noise helmets, headphones etc. must be provided to reduce occupational exposure. This is possible if working methods are improved by:

- Proper designing and fabrication
- Proper lubrication and better maintenance of machines
- Covering noise-producing machine parts with sound-absorbing materials to check noise production
- Reducing the noise produced from a vibrating machine by vibration damping i.e. making a layer of damping material (rubber, neoprene, cork or plastic) beneath the machine
- Using silencers to control noise from automobiles, ducts, exhausts etc. and convey systems with ends opening into the atmosphere
- Using glass wool or mineral wool covered with a sheet of perforated metal for the purpose of mechanical protection

Noise can also be controlled with barriers by enclosing the source of the noise, by placing sound-reducing barriers between the worker and the source, or by increasing the distance between the worker and the source

- Tree plantation helps to block the propagation of sound. Proponent has planned tree plantation in and around the unit premises
- Sound-proof materials will also be used for construction
- During the project operation, it should be ensured that the noise level does not exceed prescribed limits as set by WHO or Pak-EPA; for which regular monitoring must be carried out.

9.5.7 Waste management

Improper disposal off the solid waste generated during the operational phase of proposed project can pose a health hazard; pollute soil, surface and ground water. Proper implementation of the mitigation measures will ensure that the residual impact from improper management and

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disposal of the waste is minimal. Monitoring and inspection will be undertaken to ensure compliance and minimize any residual impact.

Following mitigation measures will be adopted:

- Waste generation will be minimized by adopting waste management strategy of reduce, reuses and recycle
- A waste management plan will be prepared, implemented and monitored for the safe collection, storage and treatment/disposal of the building waste
- Quantities of waste disposed, recycled, or reused will be logged on a Waste Tracking Register
- Records of all waste generated will be maintained
- Training will be provided to personnel for identification, segregation, and management of waste
- Various waste containers for waste collection should be placed at appropriate locations in the building
- Waste management inspections will be undertaken on a regular basis of onsite waste management and of waste disposal contractors to ensure that the waste management procedures are being followed

Monitoring measures will include:

- Record of all waste generated
- Quantities of waste disposed, reused at site or sold should be logged on the waste tracking register
- Audit of waste management on annual basis
- The areas around the project boundary and access roads should be periodically inspected to verify that no project related waste is scattered in these areas

9.5.8 Air emissions

No air emissions are likely to generate during operational phase of project as the no combustion activities will be involved during operational phase of project.

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9.5.9 Mitigation measures

No mitigation measures are required.

9.5.10 Emergency response

Incidents and accidents may take place unexpectedly during project operations no matter how effective, strong and efficient the mitigation measures for all adverse impacts; especially the safety issues may be adopted. These may include; fire hazard which may poses a serious threat.

9.5.11 Mitigation measures

Following mitigation measures will be adopted:

- Fire extinguishers should be properly maintained and checked periodically
- Adequate fire hydrant system should be installed
- Flammable materials should be prohibited in the premises
- Fire alarm systems should be maintained for detection and warning of fire
- Adequate training of workers on use of fire-fighting system to deal with the situation.
- Administration of the unit will make a proper evacuation plans for emergency escape from all halls
- Emergency call service must be made available
- Fire-fighting team must remain ready at all times

9.5.12 Occupational hazards

It includes occupational hazards like physical injuries arising from accidents such as being hit by falling weak structures, being overrun by heavy equipment. The major safety issues in operational phase are:

- Electrical Hazards
- Machine Guarding
- Eye, Head and Foot Protection
- Fire and Explosion Hazards
- House-Keeping Issues

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9.5.13 Mitigation measures

Following mitigation measures will be suitable:

- Care will be taken to properly ground and insulate all equipment
- Head, arms and foot PPE's will be provided
- Fire-fighting equipment will be available and their locations will be clearly marked
- Exits from work places will be well marked and visible in dim light
- Housekeeping will be frequent and thorough to prevent slips, trips, and falls
- Workers will be told and encouraged to use PPEs as may be standardized
- Workers' awareness and safety wall chart showing safety symbols will be displayed.
- First Aid Box will be kept in easy approach of all in case of any injury or mishap.
- Basic medical and health facilities will be provided to all employees
- Safety and warning devices such as reflectors, lights, etc. shall be installed at designated spots
- Visual monitoring of hazards and accidents will be done in order to control the potential hazard

9.6 Potential environmental enhancement measures

Tree plantation within and outside the premises is a potential environmental enhancement measure. A large area will be reserved for tree plantation and among plants native flora like Peepal, Kikar and Amaltas will be planted in the specified green zone which will have the maximum capacity to reduce noise pollution and tolerance index of these species are more than 10. Some floral species like roses and other ornamental evergreen plants will also be introduced in the lawn which will enhance aesthetic beauty. In addition, trees like Amaltas will be planted as boundary wall inside the lawn which will look like green wall. The proponent will also make arrangements for protection and maintenance of trees

9.7 Building enhancement

The introduction of an ecologically effective and efficient design of a building is the environmental enhancement measures planned by the proponent to be incorporated into the design of the intended project.

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9.7.1 Social enhancement measures

Following measures will be adopted to improve the socio-economic condition of the area:

9.7.2 Employment/poverty alleviation

The employment opportunities in the project area will be increased due to the establishment of project at the proposed location. During establishment un-skilled workers will be required as labors, sanitary workers and sweepers as well as for the skilled workers such as; accounts and managers to run the administration office local community will be considered on the priority basis. In totality, the overall economic conditions of the area will be improved due to the establishment of the proposed project.

9.7.3 Local economy

The employment opportunities and/or income sources generated by the project construction and operation will be long term in nature. These will be enhanced once the construction phase is completed. The local economy will experience a slight boom during development and operational period.

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10 ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

The potential environmental impacts are identified from the planning stage of proposed project through the Environmental Impact Assessment (EIA) process. The EIA has identified potential impacts that are likely to arise during the project. The EIA has examined in detail both negative and positive impacts at each stage of the project covering both construction and operations phase. To minimize the effects of adverse impacts the EIA has recommended mitigation measures. The proposed mitigation measures have been based on the understanding of the sensitivity and behavior of environmental receptors in the project area, the legislative controls that apply to the project and a review of good industrial practices while operating in similar environments.

For effective implementation and management of the mitigation measures an Environmental Management Plan (EMP) has been prepared. The EMP satisfies the requirement of the Punjab Environmental Protection Department Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2000.

The EMP is a tool that serves as to manage environmental impacts and specifically focuses on implementation of mitigation measures in its true sense against likely environmental impacts.

10.1 Purpose and objective of the EMP

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA.
- Define legislative requirements, guidelines and best practices that apply to the project.
- 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.
- Define requirements for environmental monitoring and auditing.
- Provide a mechanism for taking timely action in the face of unanticipated environmental situations.
- Identify training requirements at various levels.

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10.2 Components of the EMP

The EMP consists of the following:

- Legislation and guidelines
- Organizational structure; roles and responsibilities
- Monitoring/Management plan
- Environmental monitoring
- Communication and documentation
- Change management Plan
- Training program/schedule

10.3 Legislation and guidelines

The EIA has discussed national and international legislation and guidelines that are relevant to the project; proponent will ensure that the project is conducted in conformance to the project proponent corporate environmental policy, national legislation and relevant international conventions and that guidance is sought from national and international guidelines. Project proponent will also ensure that its key project management staff and all its assigned contractors are aware of these legislation and guidelines prior to the start of project activities

10.4 Description of proposed mitigation actions

It lists all the mitigation measures identified in the EIA and the associated environmental or social aspect in line during construction and operational phase with the administrative framework involving all the responsible implementing authorities who are required to take the planned actions/measures and monitor it accordingly. It enhances project benefits by reducing its impacts and making it environmental friendly. The environmental management and monitoring plan is given below in table.

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Table 10: Description of proposed mitigation actions

Sr. No.	Project Activity	Impacts	Mitigation Measures	Responsibility
1	Water Resources	▪ Depletion in groundwater aquifer ▪ Water contamination	▪ Water extraction will be kept at minimum and waste management plan will be developed. ▪ Wastewater from construction & installation site will be directed to settling tanks. ▪ Spill prevention plan shall be followed to mitigate any kind of spill.	Proponent & Contractor
2	Air Quality	▪ Dust emissions during construction activities. ▪ Combustion products from vehicles used for project-related activities.	▪ Water will be sprinkled daily on all exposed surfaces to suppress emission of dust. ▪ All construction equipment used during the project will be properly tuned and maintained in good working condition. ▪ Regular maintenance of project vehicles to ensure that engines are in sound working condition and are not emitting smoke;	Proponent & Contractor

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3	Noise	▪ Noise Pollution ▪ Disturbance to the site workers	▪ Proper maintenance of vehicles and potentially noisy equipment. ▪ Minimize/avoid unnecessary use of noisy machinery. ▪ Blowing of horn will be prohibited. ▪ Provision of Personal Protective Equipment (PPE) to the on-site personnel in high noise areas.	Proponent & Contractor
4	Solid Waste	▪ Surface and groundwater pollution ▪ Soil contamination	▪ Recyclable material will be separated at source and will be sold to waste contractor. ▪ Hazardous waste will be segregated and stored in closed	Proponent & Contractor
Sr. No.	Project Activity	Impacts	Mitigation Measures	Responsibility
		▪ Air pollution, odor ▪ Health hazards ▪ Aesthetic issues	containers in a fenced storage area with paved floor; ▪ On-site audits of the waste management will be undertaken on a regular basis during the period of project activity. ▪ Records of all waste generated during the project activity period will be maintained. Quantities of waste disposed, recycled, or reused will be logged on a	

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			waste tracking register. ▪ Training will be provided to personnel for identification, segregation, and management of waste. ▪ No waste will be dumped at any location.	
5	Traffic Control	▪ Disturbance to local community	▪ Movement of vehicles (trucks) will remain confined to defined access and limited to a specific duration. ▪ Regular maintenance of vehicles to reduce exhaust emissions. ▪ Parking at NO PARKING areas shall not be allowed.	Proponent & Contractor
6	Worker's Health and Safety	▪ Health problems or immediate risk may take place. ▪ Occupational health of workers and community may be affected.	▪ Compliance to emergency response plan for emergencies and accidents will be ensured to avoid health safety risks. ▪ Work safety measures and good workmanship practices are to be followed by the contractor to ensure no health risks for laborers. ▪ Protection devices (earmuffs) will be provided to the workers operating in the vicinity of high noise generating machines. ▪ Proper maintenance of facilities for workers will be	Proponent & Contractor

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			monitored. ▪ Provision of protective clothing for labors e.g. helmet, adequate footwear, protective goggles, gloves ▪ Ensure strict use of wearing PPE during work activities. ▪ Provision of proper safety signage at sensitive/accident prone spots.	
7	Socio-Economic / Local community	▪ Community disturbance ▪ Community awareness ▪ Skilled and un-skilled jobs for local community	▪ All community grievances will be recorded and maintained in a Community Complaint's Register. ▪ Maximum number of unskilled and semi-skilled jobs will be reserved for the local communities. ▪ An increase in the income of locals may occur due to employment during project activities. ▪ Communities will be informed about the project activities and possible disturbance in advance.	Proponent & Contractor

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Table 11: Management and Monitoring Plan – Operation

Sr. No.	Project Activity	Impacts	Mitigation Measures	Responsibility
1	Water Use / Wastewater	▪ Surface water contamination ▪ Pollution risk from accidental spillage	▪ Wastewater from the proposed activities will be contained in settling tanks and will be reused. ▪ Compliance of effluent with PEQS will be ensured prior to discharge in water body. ▪ Water conservation practices will be followed to minimize the water usage. ▪ Water use will be monitored periodically to ensure that water is not wasted. ▪ In case of any accidental spillage, emergency plan should be implemented.	Proponent & Contractor
2	Air Emissions	▪ Compliance with prescribed PEQS for ambient air	▪ Proper ventilation and exhaust system for air passages; ▪ Daily maintenance of transport vehicles is required to control air emissions.	Proponent & Contractor

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3	Noise	▪ Noise Pollution ▪ Disturbance to the personnel handling the installations	N/a	Proponent & Contractor
			▪ The proposed project will be placed such that the cumulative noise levels at walkways and worker locations will not exceed PEQS for noise.	
4	Waste Management	If not managed properly; ▪ Groundwater pollution ▪ Soil contamination ▪ Air pollution, odor ▪ Health hazards ▪ Aesthetic issues	Solid waste management plan will be implemented and following mitigation measures will be taken: ▪ Only municipal solid waste will be produced which will be segregated and disposed off using environment friendly techniques ▪ Area supervisor will mark the quantity/weight and nature of the material on the drums and logbook. ▪ Training will be provided to personnel for identification, segregation, and management of waste.	Proponent & Contractor
5	Occupational Health and Safety	▪ Health problems or immediate risk may take place. ▪ Occupational health of	▪ Providing basic medical training, safety training to work staff and basic medical service during operations. ▪ Firefighting equipment, first aid, security, fencing,	Proponent & Contractor

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		workers and community may be affected.	and contingency measures in case of accidents. ▪ Provision of adequate sanitation, washing, cooking and dormitory facilities including light up to satisfaction; ▪ Adequate signage, safety cones, lightning devices, barriers, yellow tape and persons with flags. ▪ Adequate signage, safety cones, lightning devices, barriers, yellow tape and persons with flags during operations.	

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10.5 Schedule of implementation and environmental budget

10.5.1 Schedule of implementation

This project will be completed in 12 months after getting Environmental Approval. The total cost of the project is **PKR 1000 million approx**. which includes; the cost of civil work, purchase of machinery and its installation, implementation of mitigation measures, site rehabilitation, etc.

10.5.2 Environmental budget

Environmental budget will be allocated for protection of environment. PKR 1.0 million will be allocated as environmental budget in both constructional and operational phase of project.

Table 12: Cost breakup of environmental budget

Constructional Phase		
Serial No.	**Activity**	**Environmental Budget**
1.	Air Quality Monitoring/Emission monitoring	Pkr/- 200,000
2.	Noise Monitoring	Pkr/- 50,000
3.	Waste Water Monitoring	Pkr/- 200,000
4.	Fire Safety	Pkr/- 200,000
5.	PPE's	Pkr/- 50,000
6.	Potential Environment Enhancement Measures	Pkr/- 200,000
Total		**Pkr/- 100,000,0**
Operational Phase		
Serial No.	**Activity**	**Environmental Budget**
1.	Air Quality Monitoring/Emission monitoring	Pkr/- 200,000
2.	Noise Monitoring	Pkr/- 50,000

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3.	Waste Water Monitoring	Pkr/- 200,000
4.	Fire Safety	Pkr/- 200,000
5.	PPE's	Pkr/- 50,000
6.	Potential Environment Enhancement Measures	Pkr/- 200,000
Total		**Pkr/- 100,000,0**

10.6 Environmental management team along with their roles and responsibilities

Proponent shall hire environmental management team in operational phase of project. The roles and responsibilities of environmental management team are given below in table.

Table 13: Roles & responsibilities of environmental management team

Roles and Responsibilities		
Sr#	Concerned Persons	Duties
1	The Project Manager	Following will be the responsibilities of the Project Proponent: ▪ Ensure that the contractor is aware of all specifications, legal constraints, standards and procedures pertaining to the project specifically with regards to environment. ▪ Ensure that all stipulations within the EMMP are communicated and adhered to by contractor(s) ▪ Monitor the implementation of the EMMP throughout the project by means of site inspections and meetings. This will be documented as part of the minutes of the site meeting documents ▪ Ensuring project execution within defined budget and timelines

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		▪ Conducting regular check of the project status and meetings with project team ▪ Provide support and guidance to project team as and when needed ▪ Project proponent is expected to continually monitor and improve the overall performance of their operation
4	HSE Manager	In addition to the health and safety responsibilities held by staff, managers and supervisors must do whatever is reasonably practical to ensure that both the workplace and the work itself are safe. This includes: ▪ Ensuring that staff are appropriately trained and supervised ▪ Identifying, assessing and managing health and safety risks ▪ Consulting with workers (including staff, affiliates and contractors ▪ Health and safety risk assessments ▪ Decisions are made about the measures to be taken to eliminate or control these risks ▪ Health and safety risk assessments ▪ Implementing health and safety risk management programs relevant to their operations, teaching, research and consulting functions and work environment ▪ Reporting investigating and responding to all hazards, accidents, incidents and taking action to control the risk ▪ Assisting with the development, implementation and maintenance of a return to work program for injured staff. ▪ Be fully conversant with the EIA and conditions of its approval

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		▪ Be fully conversant with the EMMP ▪ Be fully conversant with all relevant environmental legislation, policies and procedures, and ensure compliance ▪ Convey the contents of this document to the contractor site staff and discuss the contents in detail with the Project Manager and Contractor ▪ Undertake regular and comprehensive inspection of the site and surrounding areas in order to monitor compliance with the EMMP ▪ Take appropriate action if the specifications contained in the EMMP are not followed ▪ Monitor and verify that environmental impacts are kept to a minimum, as far as possible ▪ Review and approve construction methods, with input from the Site Manager, where necessary ▪ Ensure that activities on site comply with all relevant environmental legislation ▪ Compile progress reports on regular basis, with input from the Site Manager, for submission to the Project Manager, including a final post excavation audit ▪ Liaise with the Site Manager regarding the monitoring of the site ▪ Report any non-compliance or remedial measures that need to be applied ▪ All environmental problems arising on the construction area will be reported to the Site Manager by the Environmental Manager. Reports on such problems will be submitted to the Project Manager by the Site Manager

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10.7 Proposed monitoring program to assess performance or output of EMP

For effective monitoring, management and documentation of the environmental performance during the construction and operational phase of the project, environmental matters will be discussed during meetings held on-site. Environmental concerns raised during the meetings will be mitigated after discussions between project proponent and the contractors. Any issues that require attention of project proponent higher management will communicate to them for action. Project proponent and its contractors will ensure that the communication and documentation requirements specified in the EMP arefulfilled during the project.

Environmental monitoring can be categorized into two types; 1) compliance monitoring and 2) effects monitoring. The environmental monitoring program is summarized in **Table-14** which identify the roles and responsibilities of project monitoring, further described in detail in following section

10.8 Compliance monitoring

Compliance monitoring will be carried out to ensure compliance with the requirements of the EIA. The objectives of the EIA compliance monitoring will be to:

- Systematically observe the activities undertaken by the contractors or any other person associated with the project.
- Verify that the activities are undertaken in compliance with the EIA and other conditions identified by project proponent.
- Document and communicate the observations to the concerned person(s) of project proponent so that any corrective measures, if required, can be taken timely.
- Maintain a record of all incidents of environmental significance and related actions and corrective measures.

Compliance monitoring will be the responsibility of all teams involved in the project activities i.e. project proponent and the contractors. Project proponent staff and contractors will carry out the inspections on a set frequency.

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10.9 Effects monitoring

To monitor actual impacts of the project on selected sensitive receptors so that impacts not anticipated in the EIA or impacts which exceed the levels anticipated in the EIA can be identified and appropriate mitigation measures can be adopted in time. This objective will be achieved through effects monitoring.

Considering the environmental conditions of the project area and the assessment of potential impacts of the project made in the EIA, the following environmental parameters will be monitored at identified locations.

Air Quality Monitoring – Air quality monitoring will be done during the construction and operation phase of the project at the representative locations. Ambient air quality parameters will include NOX, SOX, CO, PM10, and Smoke.

Water Quality Monitoring – Ground water quality monitoring will be done during the construction and operation phase of the project at the representative locations.

Groundwater Quality Parameters: Total Coliforms, Total Colonial Count, E-Coli, pH, TDS, Total Hardness, Nitrate, Chloride, Fluoride, Colour, Manganese, Aluminium, Chromium, Cadmium, Boron, Barium, Antimony, Arsenic, Cyanide, Mercury, Nickel.

Wastewater Quality Parameters: pH, DO, TSS, Alkalinity, BOD5, COD, Turbidity.

Noise Monitoring - The monitoring will be carried out at key locations covering all receptors

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Table 14: Environmental monitoring plan

Component	Parameters	Monitoring Frequency		Responsibility	
		Construction	Operation	Construction	Operation
Ambient Air Quality	SOx , NOx, CO, PM_{10}, Smoke	Quarterly	As per EPA, Punjab Guidelines	Contractor	Proponent
Ground Water Monitoring	pH, TDS, Chloride, Fluoride, Colour, $NO3^-$, Selenium, Residual chlorine, Lead, Total hardness, Turbidity, Zinc, Manganese, Aluminium, Chromium, Cadmium, Boron, Barium, Antimony, Aresenic, Cyanide, Mercury, Nickel, Total Coliform, E.Coli, Total count.	Monthly	As per EPA, Punjab Guidelines	Contractor	Proponent
Surface & Waste Water Quality	pH, DO, TSS, Alkalinity, BOD5, COD, Turbidity.	Quarterly	As per EPA, Punjab Guidelines	Contractor	Proponent
Noise Level	Using noise level meter (minimum dB and maximum dB)	Quarterly	As per EPA, Punjab Guidelines	Contractor	Proponent

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Occupational Health & Safety	Proper provision of PPEs to workers	Daily	Daily	Contractor	Proponent

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10.10 Proposed EMP reporting and reviewing procedures

During construction, EMP reporting and reviewing will be done by the contractor/HSE department. Regular monitoring will be done and reports will be submitted in EPA as per condition of Environmental Approval of construction phase.

- Monitoring reports will be reviewed by EMP team and HSE department
- Photographic records will also be maintained
- Recorded data will be reviewed by supervisory contractor/proponent so that it can be further improved if required.

10.11 Training needs

Environmental training will help to ensure that the requirements of the EIA and EMP are clearly understood and followed by all project personnel throughout the project period. Environmental training will form part of the environmental management system. The training will be directed towards all personnel for general environmental awareness

10.12 Objectives of the training program

The key objective of training program is to ensure that the requirements of the EMP are clearly understood and followed throughout the project. The trainings to the staff will help in communicating environmental related controls specified in the EIA and EMP.

10.13 Objectives of the training program

The key objective of training program is to ensure that the requirements of the EMP are clearly understood and followed throughout the project. The trainings to the staff will help in communicating environmental related controls specified in the EIA and EMP.

10.14 Training schedule

The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Environmental Quality Standards usage of personal protection equipment, and health and safety related issues on the construction site.

The contractor will train all construction workers in basic sanitation and health care issues and in general health and safety matters, and on the specific hazards of their work. Training should also consist of basic hazard awareness, site specific hazards, safe work practices, and emergency

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procedures for fire, evacuation. A generic scope of the training which covers the requirements of the EIA and the EMP is discussed in **Table-14** while site contractor will prepare site specific training plan considering these training contents.

Table 15: Training needs

Target Audience	Contents	Schedule
Selected management staff of contractor and selected staff	▪ Introduction to project EIA and EMP. Key findings of EIA ▪ Mitigation measures ▪ EMP ▪ Social and cultural values of the area.	Prior to the start of project activities
All site personnel (including locally hired staff)	▪ Environmental sensitivity of the project area ▪ Waste disposal ▪ Community issues/ Social and cultural ▪ values	Prior to the start of project activities
Construction supervisor/ Installation crew	▪ EMP communication, documentation and monitoring requirements. ▪ Good construction & installation practices. ▪ Dust emissions control	Prior to the start of construction & installation activities
Drivers	▪ Safety provision ▪ Road access restrictions ▪ Dust reduction ▪ Waste disposal	Before and during field operations

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	▪ Emergency response preparedness	
Selected staff	Safety provision Hazardous waste disposal Emergency response preparedness	Prior to start of project operations

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11 STAKEHOLDER'S CONSULTATION

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, 2000 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 includes all the comments, which were taken into account in preparing the definitive development concept for the installation of the proposed unit.

11.1.1 Consultation mechanism

Primary stakeholders were consulted during informal and formal meetings. 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.

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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 formal 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 leaders 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

11.2 Proponent's environmental management team

Consultation regarding establishment of Installation of 132/11 KV GIS Consumer Grid Station was done with stakeholders 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.

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Figure 10: Pictorial Evidence for Stakeholder's Consultation

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11.3 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.

11.4 The other departments and agencies

Different Government departments were consulted regarding establishment of proposed project. Government officer 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.

11.5 Environmental practitioners and exerts

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

Table 16: Consultation with environmental practitioners and experts

Name	Qualification	Comments/suggestions
Dr. Sabiha Khurram	Ph.D. Environmental Sciences	Following comments are summarized: ▪ Latest technology must be preferred ▪ Regular monitoring should be conducted
Ms. Maham Ayesha	Ph.D. (scholar) Environmental Sciences	She said that current project must be installed as : ▪ DHA residents will be able to use electricity at low cost. ▪ GIS grid station are widely preferred over the world because of their benefits

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		▪ But, mitigatory measures and environmental conservation must be preferred.
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

11.6 Affected and wider community

Social survey was conducted to consult with local community. Their concerns were noticed and discussed with proponent and their team. There is no affected community present in the radius of our study area. Environtech Consultants 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 activity for the proposed plant.

11.7 Issues Discussed

Following issues were discussed during the stakeholder consultation:

- Overall activities of the project;
- Possible impacts on natural vegetation, air, land and properties;
- Possible mitigation measures;
- Benefits of the project specifically for the local people.

11.8 Sample size

Sample size of 40 respondents was selected by the Team of consultants for conducting the

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socioeconomic survey. Women were also consulted for the said survey; some of their names are mentioned in the above list of respondents while most of them were not willing to give personal information.

11.9 Statistical Analysis

Microsoft excel has been used for the statistical analysis of the data collected during the visit of study site area through questionnaires. In the sampled population, 90% respondents were male while 10% respondents were female. The number of female respondents is less as compared to male respondents because according to the social binding female hesitates to respond or communicate comfortably

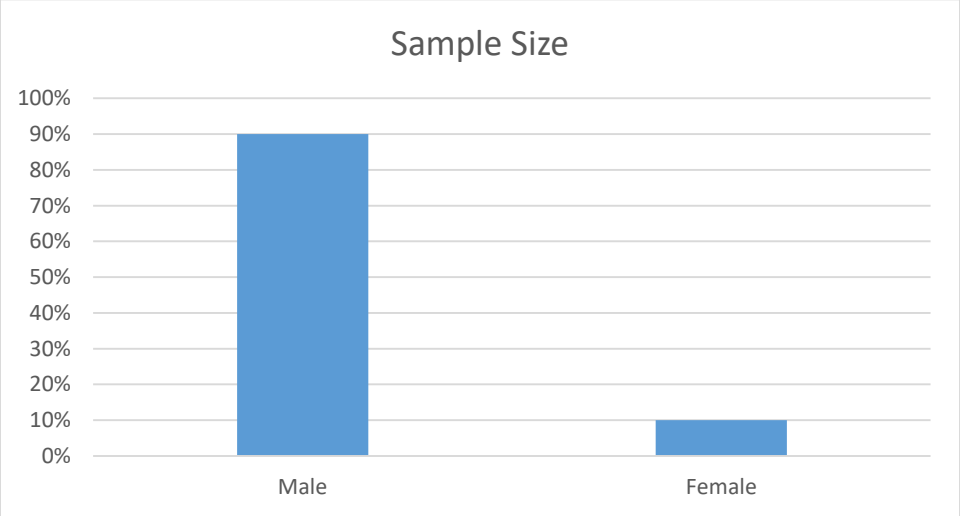

Figure 11: Sample Size of Stakeholders Consultation

In the sampled population, 80% respondents were educated while 20% were uneducated.

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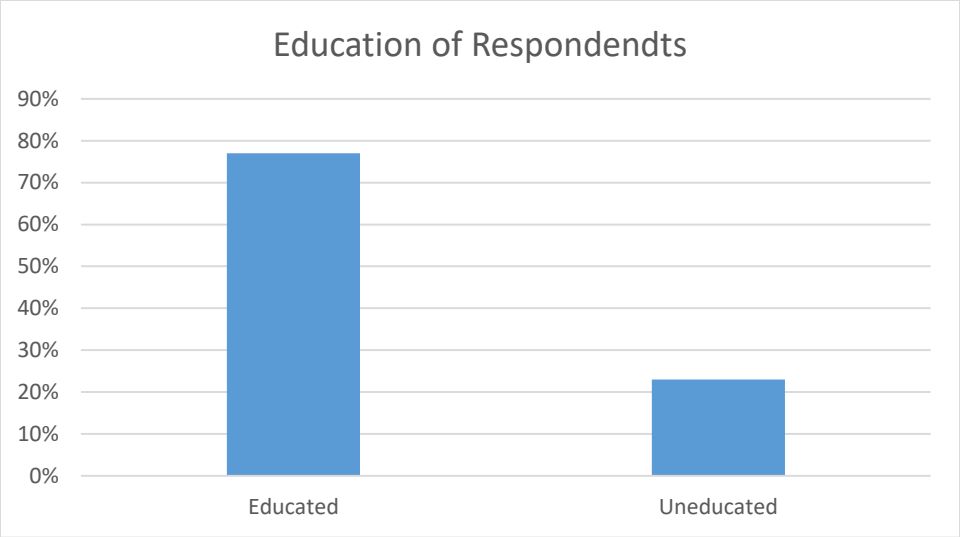

Figure 12: Education of Respondents

According to conducted survey, 98.8% respondents were in favor of proposed project.

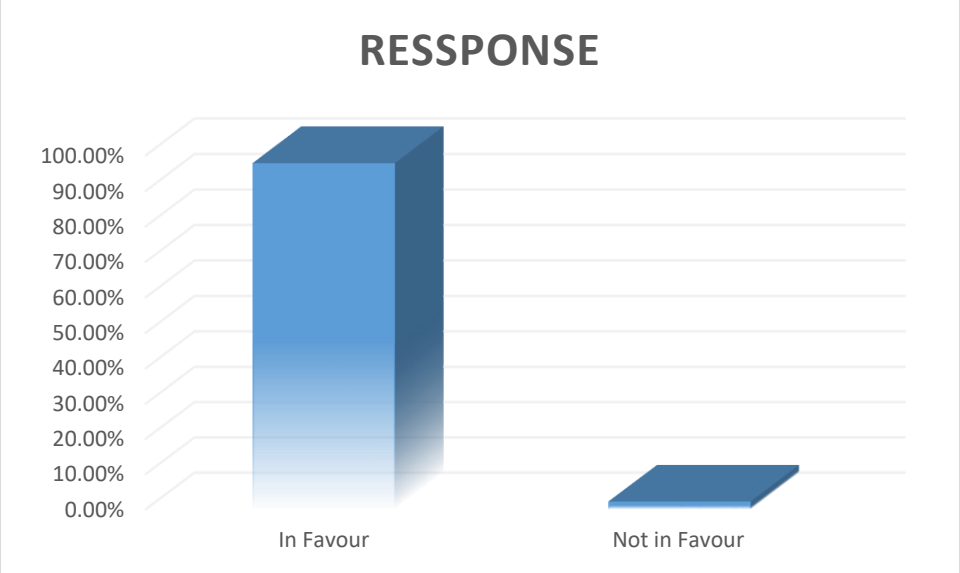

Figure 13: Project Response

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11.10 Key findings of stakeholder's consultation

The key points of stakeholder's consultation are given below:

- It will enhance the socio-economic conditions/values of the area.
- Project will increase revenue generation for the Government.
- It will create employment opportunities.
- Local people will be given preference for employment in the proposed project.
- Construction of the proposed project will be completed in the designated timeframe to limit adverse impacts of construction.
- There will be no significant additional load on the existing infrastructure i.e. utilities of water, telephone, electricity etc. due to the development of the proposed project.

Majority of people favored the proposed project in a sense that the construction of the said project generate employment opportunities for local people and revenue for the government, will enhance the socioeconomic conditions of the area and automatically will contribute to the national economy of the country.

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12 CONCLUSION AND RECOMMENDATION

Installation of 132/11 KV GIS Consumer Grid Station respects the environment, supports sustainable development and is committed to environmentally sound business practices. The proposed project will provide electricity to consumers. This study was carried out to assess the environmental and socioeconomic impacts of the proposed project. The assessment was carried out in keeping with the legislation of Pakistan, as well as national and international guidelines.

Baseline environmental and socioeconomic information was collected from a variety of sources, including reports of previous studies, published literature, and field surveys. The information collected was used to compose profiles of the natural, socioeconomic, and cultural environment likely to be affected by the project.

The proposed activities were reviewed, and an assessment was made of the potential impacts of these activities on the area's natural and socioeconomic environments, using both qualitative and quantitative assessment methods. Where appropriate, mitigation measures were recommended to keep the environmental impacts within acceptable limits.

It was analyzed that most of the aspects related with the proposed project have very minor impacts. It is therefore concluded that if the implementation of all mitigation measures is carried out as described in this report, the anticipated impact of the project on the area's natural and socioeconomic environment will be well within acceptable limits.

Proponent of subject project has expressed strong commitment to protection of the social and natural environment from any potential adverse impact of the project. A preventive maintenance philosophy supported by robust inspection plans and sound operational practices will be adopted to ensure sustainable and sound functioning of the proposed project. Therefore, it is recommended that the competent authority may please be issues Environmental Approval for the operation of this project.

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13 APPENDICES

13.1 Glossary

Air Quality	Measurement of the pollutants in the air; a description of healthiness and safety of the atmosphere.
Consultation	Consultation refers to two-way transfer of information or joint discussion between project staff and the affected population. Systematic consultation implies a sustained and rigorous sharing of ideas. Bank experience shows that consultation often yields the best resettlement alternatives, fruitful procedures for continued participation, and independent information on actual conditions for implementation.
Closure	The action of making new or secret information known.
Env. Management	Attempt to control human impact on and interaction with the environment in order to preserve natural resources
Effluent	Wastewater - treated or untreated - that flows out of a treatment plant, sewer, or industrial outfall. Generally, refers to wastes discharged into surface waters.
Evaluation	The making of a judgment about the amount, number, or value of something; assessment.
Geology	A science that studies rocks, layers of soil, etc., in order to learn about the history of the Earth and its life.
Ground Water	Aquifers currently being used as a source of drinking water or those capable of supplying a public water system. They have a total dissolved solid content of 10,000 milligrams per liter or less and are not "exempted aquifers."
Hazardous	Substance or material, which could adversely affect the safety of the public, handlers or carriers during transportation.
Household	People residing under one roof, using the same hearth and operating as a single economic unit.

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Impact	Effect on someone or something
Jurisdiction	The extent of the power to make legal decisions and judgments.
Land Acquisition	The process whereby a person is compelled by a public agency to cede all or part of the land a person owns or possesses, to the ownership and possession of that agency, for public purpose in return for compensation
	Supervising activities in progress to ensure they are on-course and on schedule in meeting the objectives and performance targets.
Occupational Health	Maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations by preventing departures from health, controlling risks and the adaptation of work to people, and people to their jobs.
pH	pH is a measure of how acidic/basic water is.
Project Area	The area specified by the funding and/or implementing agency according to the Official Gazette Notification and includes the areas within the administrative limits of the Federal or a Provincial Government.
Proponent	A person who advocates a theory, proposal, or course of action.
Capacity	The volume of products or services that can be produced by an enterprise using current resources.
Quality Control	A system of maintaining standards in manufactured products by testing a sample of the output against the specification.
Rehabilitation	Include all compensatory measures to re-establish; at least lost incomes, livelihoods, living and social systems. It does not include the payment of compensation for required assets.
Scope	The extent of the area or subject matter that something deals with or to which it is relevant.
Social Environment	It includes the culture that the individual was educated or lives in, and the people and institutions with whom they interact.

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Stakeholders	Include affected persons and communities, proponents, private and public businesses, NGOs, host communities and EPA.
Topography	Details of the surface features of land. It includes the mountains, hills, creeks, and other bumps and lumps on a particular hunk of earth.

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13.2 LIST OF ABBREVIATIONS

EIA	Environmental Impact Assessment
EMMP	Environment Mitigation and Monitoring Plan
EMP	Environmental Management Plan
EPAs	Environmental Protection Agencies
PEPC	Pakistan Environmental Protection Council
NEP	National Environmental Policy
IEE	Initial Environmental Examination
NGO's	Non–Government Organizations
NOC	No Objection Certificate
O&M	Operation and Maintenance
PEPA	Pakistan Environmental Protection Act 1997
PEQS	Punjab Environmental Quality Standards
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species
IUCN	International Union for Conservation of Nature
UNDP	United Nations Development Program
DO	District Officer
PKR	Pak Rupees
hr	Hour
mg/l	Milligram per Liter
mg/m^3	Milligram per Cubic Meter
PPE	Personal Protective Equipment
MEPCO	Multan Electric Power Company
QC	Quality Control
SEO	Site Environment Officer

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SH&E	Safety Health & Environment
APHA	American Public Health Association
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
SPM	Suspended Particulate Matter
WWTP	Wastewater Treatment Plant
SMART	Self-Monitoring and Reporting Tool
NOX	Oxides of Nitrogen
SOX	Oxides of Sulphur
NCS	National Conservation Strategy
PM	Particulate Matter

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13.3 LIST OF INDIVIDUALS AND ORGANIZATIONS CONSULTED ALONG WITH THEIR WRITTEN FEEDBACK

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PUBLIC CONSULTATION PROFORMA

Date: 15.02.2022

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.
Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: Iftikhar Ali	Gender: ✓ Male/Female
Occupation: Student	Contact Number: —
Address: Gujranwala	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) ✓ b) Rent/Own ✓ c) Other_____	**ii. Size of Household** a) Total family members: 9 b) Number of male member: 4 c) Number of female member: 5 d) Children: 3
iii. Source of Income a) Farming b) Job c) Business d) Other None	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) ✓ Graduation (Continue) e) Other
v. Access to social amenities a) ✓ School b) ✓ Roads	**vi. Kinds of expenditure** a) Food b) Education

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c) Health Facilities d) Drinking Water e) Electricity f) Sui Gas e) Others_____	c) Savings d) Housing utilities payments e) clothes f) Medicines f) Others N/A

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station"**

I find this project beneficial for the people who will live in DHA and I hope it will provide benefits to the people living nearby providing jobs prior too them

ii. Are you in the favour of the project?

Yes ✓ No

Signature of Interviewee

Signature of Interviewer

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-2-22

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: Nazma Nasir	Gender: Male/Female ✓
Occupation: Teacher	Contact Number: —
Address: Gujranwala.	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) ✓ b) Rent/Own ✓ c) Other_____	**ii. Size of Household** a) Total family members: 5 b) Number of male member: 3 c) Number of female member: 2 d) Children: 3
iii. Source of Income a) Farming b) ✓ Job c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation e) Other (M.A)
v. Access to social amenities a) ✓ School b) ✓ Roads	**vi. Kinds of expenditure** a) ✓ Food b) ✓ Education

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c) ✓ Health Facilities	a) ✓ Savings
d) ✓ Drinking Water	d) ✓ Housing utilities payments
e) ✓ Electricity	a) ✓ clothes
f) ✓ Sui Gas	f) ✓ Medicines
e) Others_____	f) Others_____
_____	_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station"**

Good wills for project. Proper hygiene and cleanliness must ensure.

ii. Are you in the favour of the project?

Yes ✓ No

Signature of Interviewee

Signature of Interviewer

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SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-2-22

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.
Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: لاور بخش	Gender: ✓ Male/Female
Occupation: دوکاندار	Contact Number: —
Address: Gujranwala	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type ✓ a) House (Katcha/ Pacca) b) Rent/Own ✓ c) Other_____	**ii. Size of Household** a) Total family members: 9 b) Number of male member: 4 c) Number of female member: 5 d) Children: 5
iii. Source of Income a) Farming b) Job c) ✓ Business d) Other_____	**iv. Literacy Status** a) Qualification b) ✓ Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) ✓ School b) ✓ Roads	**vi. Kinds of expenditure** a) ✓ Food b) ✓ Education

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c) ✓ Health Facilities	c) ✓ Savings
d) ✓ Drinking Water	d) ✓ Housing utilities payments
e) ✓ Electricity	e) ✓ clothes
f) ✓ Sui Gas	f) ✓ Medicines
e) Others_____	f) Others_____

C. Project Specific

i. Comments regarding Project "132/11 KV GIS Consumer Grid Station"

دوران تعمیر اردگرد کے ماحول کی
حفاظت کا خیال رکھا جائے پراجیکٹ مفید ثابت
ہو رہا ہے۔

ii. Are you in the favour of the project?

✓ Yes No

Signature of Interviewee

Signature of Interviewer

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SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-2-22

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: جنت بی بی	Gender: Male/Female ✓
Occupation: مزدور	Contact Number: —
Address: Gujranwala	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha ✓/ Pacca) b) Rent/Own ✓ c) Other_____	**ii. Size of Household** a) Total family members: 16 b) Number of male member: 10 c) Number of female member: 6 d) Children: 7
iii. Source of Income a) ✓ Farming b) Job c) Business d) Other_____	**iv. Literacy Status** a) Qualification (None) b) Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) ✓ School b) ✓ Roads	**vi. Kinds of expenditure** a) ✓ Food b) ✓ Education

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c) Health Facilities	c) ✓ Savings
d) Drinking Water	d) ✓ Housing utilities payments
e) ✓ Electricity	e) ✓ clothes
f) ✓ Sui Gas	f) ✓ Medicines
e) Others_____	f) Others_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

وہاں کے رہائشیوں کو فائدہ ہوگا

ii. Are you in the favour of the project?

Yes ✓ No

Signature of Interviewee

Signature of Interviewer

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DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2022

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: Hammad Ali	Gender: ✓ Male/Female
Occupation: Student	Contact Number: –
Address: Gujranwala	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ ✓Pacca) b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 8 b) Number of male member: 6 c) Number of female member: 2 d) Children: 6
iii. Source of Income a) Farming b) Job c) Business d) Other N/A	**iv. Literacy Status** a) Qualification b) Primary c) ✓Secondary d) Graduation e) Other
v. Access to social amenities a) ✓School b) ✓Roads	**vi. Kinds of expenditure** a) Food b) Education

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c) ✓ Health Facilities	c) Savings
d) ✓ Drinking Water	d) Housing utilities payments
e) ✓ Electricity	e) clothes
f) ✓ Sui Gas	f) Medicines
e) Others_____	f) Others N/A

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station"**

This project is good.

ii. Are you in the favour of the project?

Yes ✓ No

Hamad
Signature of Interviewee

Signature of Interviewer

Environtech Consultants (Private) Limited

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2022

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: عرفان احمد	Gender: ✓ Male/Female
Occupation: کسان	Contact Number: —
Address: گجرانوالہ	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own ✓ c) Other_____	**ii. Size of Household** a) Total family members: 12 b) Number of male member: 7 c) Number of female member: 5 d) Children: 6
iii. Source of Income a) ✓ Farming b) Job c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) ✓ Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) ✓ School b) ✓ Roads	**vi. Kinds of expenditure** a) ✓ Food b) ✓ Education

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c) ✓ Health Facilities d) Drinking Water e) ✓ Electricity f) ✓ Sui Gas e) Others_____ _____	c) ✓ Savings d) ✓ Housing utilities payments a) ✓ clothes f) ✓ Medicines f) Others_____ _____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

بجلی کی بہتر ترسیل میں اضافہ ہوگا۔

ii. Are you in the favour of the project?

✓ Yes No

Signature of Interviewee **Signature of Interviewer**

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Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2022

Defence Housing Authority, Gujranwala, has planned to Install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of Interviewee

Name of Interviewee: Sheikh Saad	Gender: Male/Female
Occupation: Pvt Job	Contact Number: 0302 — 4839456
Address: Gujranwala	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 5 b) Number of male member: 2 c) Number of female member: 3 d) Children: 3
iii. Source of Income a) Farming b) Job c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) School b) Roads	**vi. Kinds of expenditure** a) Food b) Education

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Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

c) Health Facilities d) Drinking Water e) Electricity f) Sui Gas e) Others_____	c) Savings d) Housing utilities payments e) clothes f) Medicines f) Others_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station"**

This project will create job opportunities and will increase in supply of electricity which shall decrease the total load.

ii. Are you in the favour of the project?

Yes No

Signature of Interviewee **Signature of Interviewer**

Environtech Consultants (Private) Limited

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2022

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.
Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: نسرت	Gender: Male/Female ✓
Occupation: ملازمہ	Contact Number: —
Address: Gujranwala.	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) ✓ b) Rent/Own ✓ c) Other_____	**ii. Size of Household** a) Total family members: 7 b) Number of male member: 5 c) Number of female member: 2 d) Children: 5
iii. Source of Income a) Farming b) Job ✓ c) Business d) Other_____	**iv. Literacy Status** a) Qualification (نہیں) b) Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) School ✓ b) Roads ✓	**vi. Kinds of expenditure** a) Food ✓ b) Education ✓

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Qazi Nisar Ahmed
DHA Gujranwala



c) Health Facilities	c) Savings
d) Drinking Water	d) ✓ Housing utilities payments
e) ✓ Electricity	e) ✓ clothes
f) ✓ Sui Gas	f) ✓ Medicines
e) Others_____	f) Others آنے جانے کا خرچہ

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

سننے میں پراجیکٹ اچھا ہے لیکن اس سے اردگرد
کے لوگوں کو بھی فائدہ ملنا چاہئے۔

ii. Are you in the favour of the project?

Yes ✓ No

Signature of Interviewee

Signature of Interviewer

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2022

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: محمد عمران	Gender: ✓ Male/Female
Occupation: زمیندار	Contact Number: N/A
Address: Gujranwala.	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) ✓ House (Katcha/ Pacca) b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 5 b) Number of male member: 3 c) Number of female member: 2 d) Children: 0
iii. Source of Income a) Farming b) Job c) ✓ Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) School b) Roads	**vi. Kinds of expenditure** a) Food b) Education

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DHA Gujranwala

c) Health Facilities	c) Savings
d) Drinking Water	d) Housing utilities payments
e) Electricity	e) clothes
f) Sui Gas	f) Medicines
e) Others_____	f) Others_____

C. Project Specific

i. Comments regarding Project "132/11 KV GIS Consumer Grid Station"

ہم وصلت بہت اچھا ہے۔ اس کے ملنے سے DHA کے رہائشیوں کو بجلی ملے گی۔ اور اہل علاقہ کے لوگوں کو مزدوری بھی مل گی

ii. Are you in the favour of the project?

Yes ✓ No

Signature of Interviewee

Signature of Interviewer

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Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2022

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: عدنان	Gender: ✓ Male/Female
Occupation: ڈرائیور	Contact Number: N/A
Address: Gujranwala	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) ✓Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 7 b) Number of male member: 3 c) Number of female member: 4 d) Children: 4
iii. Source of Income a) Farming b) Job c) ✓Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation e) ✓Other
v. Access to social amenities a) School b) Roads	**vi. Kinds of expenditure** a) ✓Food b) ✓Education

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Qazi Nisar Ahmed
DHA Gujranwala

c) Health Facilities	c) Savings
d) Drinking Water	d) ✓ Housing utilities payments
e) Electricity	e) ✓ clothes
f) Sui Gas	f) ✓ Medicines
e) Others All	f) Others

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

اس پروجیکٹ میں وام کرنے کے لیے قریب کے
رہائشی کو ترجیح دی جائے۔

ii. Are you in the favour of the project?

✓ Yes No

عمران محمد
Signature of Interviewee

Signature of Interviewer

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2020

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.
Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: Ali Raza	Gender: Male/Female
Occupation: Businessman	Contact Number: –
Address: Gujranwala	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 8 b) Number of male member: 4 c) Number of female member: 4 d) Children: 5
iii. Source of Income a) Farming b) Job c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) School b) Roads	**vi. Kinds of expenditure** a) Food b) Education

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c)	Health Facilities	c)	Savings
d)	Drinking Water	d)	Housing utilities payments
e)	Electricity	e)	clothes
f)	Sui Gas	f)	Medicines
e)	Others_____	f)	Others_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station"**

useful for Economy

ii. Are you in the favour of the project?

Yes ✓ No

Signature of Interviewee **Signature of Interviewer**

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DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2022

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: Hassan Ali	Gender: ✓ Male/Female
Occupation: Student	Contact Number: —
Address: Gujranwala.	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own ✓ c) Other_____	**ii. Size of Household** a) Total family members: 8 b) Number of male member: 5 c) Number of female member: 3 d) Children: 5
iii. Source of Income a) Farming b) Job c) Business d) Other none.	**iv. Literacy Status** a) Qualification b) Primary c) Secondary ✓ d) Graduation e) Other
v. Access to social amenities a) ✓ School b) ✓ Roads	**vi. Kinds of expenditure** a) Food b) Education

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DHA Gujranwala

c) Health Facilities	c) Savings
d) Drinking Water	d) Housing utilities payments
e) Electricity	e) clothes
f) Sui Gas	f) Medicines
e) Others_____	f) Others None.

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

Fulfil the demand of electricity.

ii. Are you in the favour of the project?

Yes No

Signature of Interviewee

Signature of Interviewer

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2020

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: Umar	Gender: Male/Female
Occupation: Shopkeeper	Contact Number: —
Address: Gujranwala.	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 7 b) Number of male member: 5 c) Number of female member: 2 d) Children: 4
iii. Source of Income a) Farming b) Job c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) School b) Roads	**vi. Kinds of expenditure** a) Food b) Education

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DHA Gujranwala

c) Health Facilities	c) Savings
d) Drinking Water	d) Housing utilities payments
e) Electricity	e) clothes
f) Sui Gas	f) Medicines
e) Others_____	f) Others_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

Overcome the demand of Power supply.

ii. Are you in the favour of the project?

✓ Yes No

Umer
Signature of Interviewee

Saba
Signature of Interviewer

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Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 5-Jan-2020

Defence Housing Authority, Gujranwala, has planned to Install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: Irfan Ali	Gender: Male/Female
Occupation: Farmer	Contact Number: —
Address: Gujranwala.	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 10 b) Number of male member: 6 c) Number of female member: 4 d) Children: 6
iii. Source of Income a) Farming b) Job c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) School b) Roads	**vi. Kinds of expenditure** a) Food b) Education

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DHA Gujranwala



c) Health Facilities	c) Savings
d) Drinking Water	d) Housing utilities payments
e) Electricity	e) clothes
f) Sui Gas	f) Medicines
e) Others_____	f) Others_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station"**

بجلی فراہم کریں

ii. Are you in the favour of the project?

Yes ✓ No

Signature of Interviewee

Saba.
Signature of Interviewer

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Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2020

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: رحمن	Gender: ✓ Male/Female
Occupation: سکول ملازم	Contact Number: —
Address: گوجرانوالہ	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 11 b) Number of male member: 5 c) Number of female member: 6 d) Children: 7
iii. Source of Income a) Farming b) Job ✓ c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary ✓ d) Graduation e) Other
v. Access to social amenities a) School b) Roads	**vi. Kinds of expenditure** a) Food b) Education

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Qazi Nisar Ahmed
DHA Gujranwala



c) Health Facilities	c) Savings
d) Drinking Water	d) Housing utilities payments
e) Electricity	e) clothes
f) Sui Gas	f) Medicines
e) Others_____	f) Others_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

مستقل بجلی کی فراہمی

ii. Are you in the favour of the project?

Yes ✓ No

Signature of Interviewee

Signature of Interviewer

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Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2020

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.
Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: Azam Javeal	Gender: Male/Female
Occupation: Teacher	Contact Number: —
Address: Gujranwala.	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 8 b) Number of male member: 4 c) Number of female member: 4 d) Children: 5
iii. Source of Income a) Farming b) Job ✓ c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation ✓ e) Other
v. Access to social amenities a) School ✓ b) Roads ✓	**vi. Kinds of expenditure** a) Food ✓ b) Education

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DHA Gujranwala

c) Health Facilities	c) Savings
d) Drinking Water	d) Housing utilities payments
e) Electricity	e) clothes
f) Sui Gas	f) Medicines
e) Others_____	f) Others_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

Beneficial for the economy of country.

ii. Are you in the favour of the project?

✓ Yes No

Signature of Interviewee **Signature of Interviewer**

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Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: آصف	Gender: Male/Female ✓
Occupation: skills	Contact Number: —
Address: Gujranwala.	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) ✓ b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 7 b) Number of male member: 3 c) Number of female member: 4 d) Children: 1 .
iii. Source of Income a) Farming b) Job ✓ c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation e) Other ✓
v. Access to social amenities a) School ✓ b) Roads ✓	**vi. Kinds of expenditure** a) Food ✓ b) Education ✓

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala



c) Health Facilities	c) Savings
d) Drinking Water	d) Housing utilities payments
e) Electricity	e) clothes
f) Sui Gas	f) Medicines
e) Others_____	f) Others_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

ii. Are you in the favour of the project?

✓ Yes No

Signature of Interviewee **Signature of Interviewer**

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Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2020

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: AHSAN	Gender: Male/Female
Occupation: Labour	Contact Number: —
Address: Gujranwala.	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 7 b) Number of male member: 4 c) Number of female member: 3 d) Children: 4
iii. Source of Income a) Farming b) Job c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) School b) Roads	**vi. Kinds of expenditure** a) Food b) Education

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DHA Gujranwala



c)	Health Facilities	c)	Savings
d)	Drinking Water	d)	Housing utilities payments
e)	Electricity	e)	clothes
f)	Sui Gas	f)	Medicines
e)	Others	f)	Others

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

لوگوں کو روزگار ملے گا۔

ii. Are you in the favour of the project?

✓ Yes No

Signature of Interviewee

Signature of Interviewer

Environtech Consultants (Private) Limited

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2022.

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of interviewee

Name of Interviewee: Ahmed Ali	Gender: ✓ Male/Female
Occupation: Teacher	Contact Number: —
Address: Gujranwala	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own ✓ c) Other_____	**ii. Size of Household** a) Total family members: 7 b) Number of male member: 4 c) Number of female member: 3 d) Children: 5
iii. Source of Income a) Farming b) Job ✓ c) Business d) Other_____	**iv. Literacy Status** a) Qualification b) Primary c) Secondary d) Graduation ✓ e) Other
v. Access to social amenities ~~a)~~ School ~~b)~~ Roads	**vi. Kinds of expenditure** ~~a)~~ Food ~~b)~~ Education

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Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

c) Health Facilities d) Drinking Water e) Electricity f) Sui Gas e) Others_____	c) Savings d) Housing utilities payments e) clothes f) Medicines f) Others_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station"**

Production of electricity increases.

ii. Are you in the favour of the project?

Yes No

Signature of Interviewee

Saba

Signature of Interviewer

Environtech Consultants (Private) Limited

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOCIO ECONOMIC SURVEY FOR PROJECT INSTALLATION OF 132/11 KV GIS CONSUMER GRID STATION AT SECTOR-A, PACKAGE 1A (OPPOSITE OVERHEAD WATER TANK), DHA GUJRANWALA.

PUBLIC CONSULTATION PROFORMA

Date: 15-Jan-2020

Defence Housing Authority, Gujranwala, has planned to install a 132/11 KV GIS Consumer Grid Station for residents of DHA, Gujranwala.

Social survey is being conducted to assess the socio-economic aspects of the project.

A. Personal Information of Interviewee

Name of Interviewee: زبیر	Gender: Male/Female
Occupation: مزدور	Contact Number: —
Address: گوجرانوالہ	

B. Socioeconomic Aspect of the area size and population/village/settlement :

i. Accommodation Type a) House (Katcha/ Pacca) b) Rent/Own c) Other_____	**ii. Size of Household** a) Total family members: 10 b) Number of male member: 4 c) Number of female member: 6 d) Children: 6
iii. Source of Income a) Farming b) Job c) Business d) Other_____	**iv. Literacy Status** a) Qualification none b) Primary c) Secondary d) Graduation e) Other
v. Access to social amenities a) School b) Roads	**vi. Kinds of expenditure** a) Food b) Education

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DHA Gujranwala



c) Health Facilities	c) Savings
d) Drinking Water	d) Housing utilities payments
e) Electricity	e) clothes
f) Sui Gas	f) Medicines
e) Others_____	f) Others_____

C. Project Specific

i. Comments regarding Project "**132/11 KV GIS Consumer Grid Station**"

نوکری ملنے کی۔

ii. Are you in the favour of the project?

✓ Yes No

Signature of Interviewee

Saba.
Signature of Interviewer

Environtech Consultants (Private) Limited

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DHA Gujranwala

13.4 SOURCES OF DATA AND FULL LIST OF ALL REFERENCE MATERIAL USED

Data was collected by:

- Field visits
- Published articles
- Stakeholder's consultation
- Client meetings'

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13.5 TERMS OF REFERENCES

The consultants is required to carry out an environmental impact assessment study of the project under Section-12 of Pakistan Environmental Protection Act 1997/ Punjab Environmental Protection (Amendment) Act 2012.

The Study should be comprehensive and should cover all aspects which are envisaged under the relevant national and provincial laws & regulations including but not limited to:

- Identification and recommendation for suitable solution/treatment/mitigation measures for emissions and effluents such as wastewater and sludge etc. in accordance with Punjab Environmental Quality Standards (PEQS).
- Identification and recommendation for suitable solution/treatment/mitigation measures of solvents, oils (tar), hazardous waste, organic compounds, steam, flue gases, particulate matter and chemical compounds harmful for the environment and other substances leading to air, noise, water and soil pollution in accordance with PEQS.

The Study should be acceptable to the relevant national and/or provincial authorities (relevant authorities) in Punjab.

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DHA Gujranwala

13.6 LIST OF NAME, QUALIFICATION AND ROLES OF TEAM MEMBERS CARRYING OUT IN IEE/EIA STUDY

Sr. No.	Name	Designations	Qualifications	Roles & Responsibility
1.	Dr. Mateen Shafqat	Peer Advisor	PhD Environmental Sciences PMAS, Arid Agriculture University M. Phil Environmental Sciences PMAS, Arid Agriculture University M.Sc. Environmental Sciences PMAS, Arid Agriculture University	Technical Peer Review
2.	Mr. Kamal Ahmed Cheema	Lead Environmentalist	M. Phil. Environmental Economics PIDE, Islamabad Diploma in Environmental Law Punjab University, Lahore BS Environmental Sciences University of Gujrat	Technical Peer review
3.	Ms. Maham Ayesha	Manager Operations	PHD, Environmental Sciences, GCU, LHR MS Environmental Sciences, NUST BS Environmental Sciences, University of Gujrat (UOG)	Legal framework review and Stakeholder consultation IEE/EIA Expert, Environmental & Social Baseline, Report Writing.
4.	Arslan Iqbal	Environmentalist	MS Environmental Sciences, The University of Lahore	Project Coordination and management, Impact

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			BS Environmental Sciences University of Lahore	Assessment and Mitigation Measures, Environmental Management Plan, Technical Report Writing.
5.	Mr. Jawad Shafiqe	Zooligist	M. Phil Development Studies, PIDE, Islamabad. M.Sc. Development Sciences Islamic International University, Islamabad	Legal framework review and Stakeholder consultation, IEE/EIA Expert, Environmental & Social Baseline, Report Writing.
6.	Ms. Amna Hafeez	Environmentalist & GIS Expert	M.Sc. Mountain conservation and Water management Punjab University, Lahore	Legal framework review and Stakeholder consultation, IEE/EIA Expert, Environmental & Social Baseline, Report Writing.
7.	Ms. Saba Nazir	Environmentalist	M. Phil. Environmental Sciences, The University of Lahore	Legal framework review and Stakeholder consultation, IEE/EIA Expert, Environmental & Social Baseline, Report Writing.
8.	Hira ali	Environmentalist	MS. Environmental Sciences MS. Environmental Sciences, LCWU, Lahore	Legal framework review and Stakeholder consultation, IEE/EIA Expert, Environmental & Social Baseline, Report Writing.
9.	Aishah mushtaq	Environmentalist	MS. Environmental Sciences, LCWU, Lahore	Legal framework review and Stakeholder consultation, IEE/EIA Expert, Environmental &

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				Social Baseline, Report Writing.

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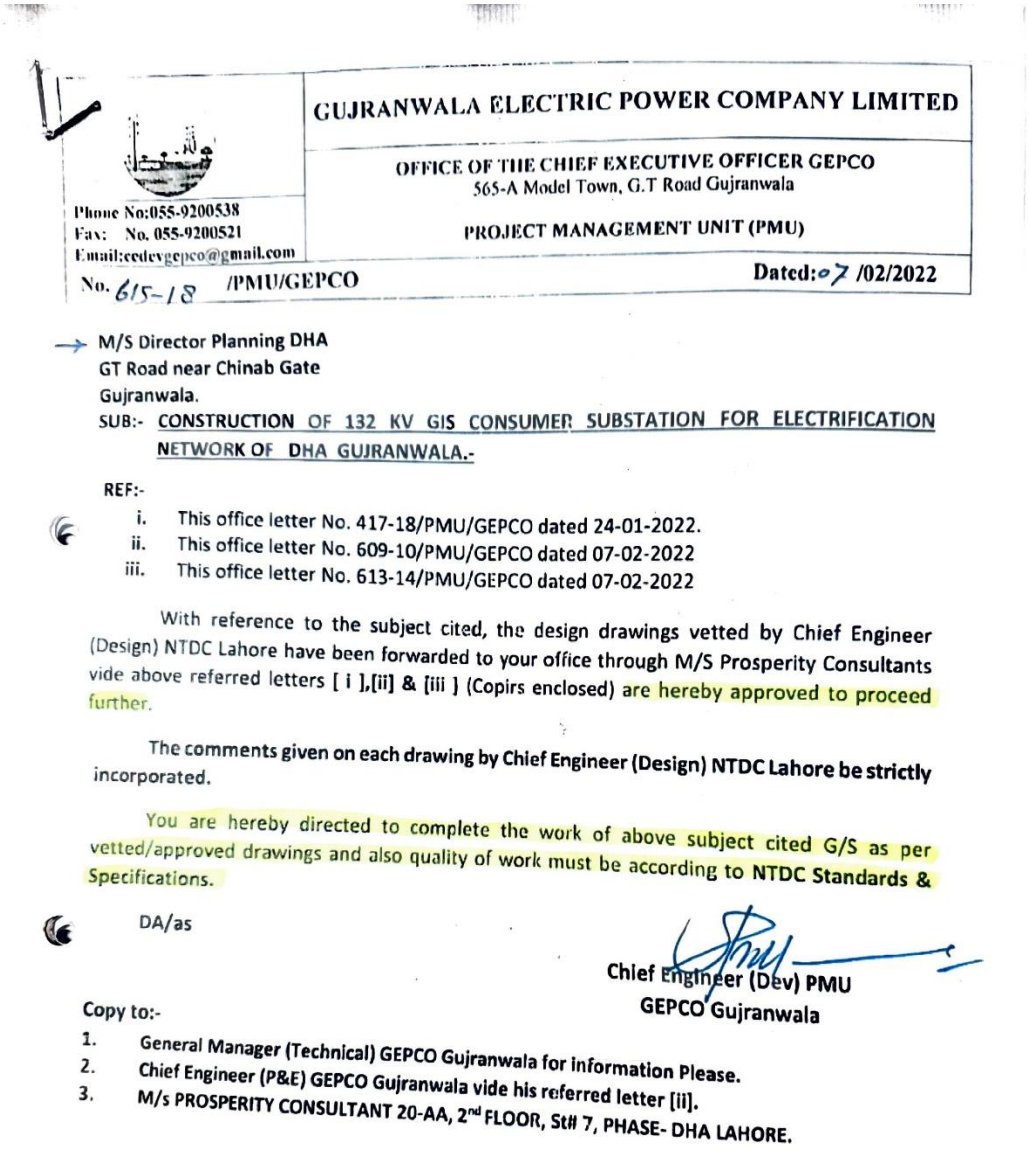
DHA Gujranwala

13.7 APPROVALS FROM OTHER CONCERNED DEPARTMENT



GUJRANWALA ELECTRIC POWER COMPANY LIMITED

OFFICE OF THE CHIEF EXECUTIVE OFFICER GEPCO
565-A Model Town, G.T Road Gujranwala

PROJECT MANAGEMENT UNIT (PMU)

Phone No:055-9200538
Fax: No. 055-9200521
Email:cedevgepco@gmail.com

No. 615-18 /PMU/GEPCO Dated: 07 /02/2022

M/S Director Planning DHA
GT Road near Chinab Gate
Gujranwala.

SUB:- CONSTRUCTION OF 132 KV GIS CONSUMER SUBSTATION FOR ELECTRIFICATION NETWORK OF DHA GUJRANWALA.-

REF:-

i. This office letter No. 417-18/PMU/GEPCO dated 24-01-2022.
ii. This office letter No. 609-10/PMU/GEPCO dated 07-02-2022
iii. This office letter No. 613-14/PMU/GEPCO dated 07-02-2022

With reference to the subject cited, the design drawings vetted by Chief Engineer (Design) NTDC Lahore have been forwarded to your office through M/S Prosperity Consultants vide above referred letters [i],[ii] & [iii] (Copirs enclosed) are hereby approved to proceed further.

The comments given on each drawing by Chief Engineer (Design) NTDC Lahore be strictly incorporated.

You are hereby directed to complete the work of above subject cited G/S as per vetted/approved drawings and also quality of work must be according to NTDC Standards & Specifications.

DA/as

Chief Engineer (Dev) PMU
GEPCO Gujranwala

Copy to:-

1. General Manager (Technical) GEPCO Gujranwala for information Please.
2. Chief Engineer (P&E) GEPCO Gujranwala vide his referred letter [ii].
3. M/s PROSPERITY CONSULTANT 20-AA, 2nd FLOOR, St# 7, PHASE- DHA LAHORE.

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

NATIONAL TRANSMISSION AND DESPATCH COMPANY LIMITED

Phone No. 042-99203527 & 99203528
Fax No. 042-99203528

OFFICE OF THE CHIEF ENGINEER (CIVIL)
NTDC LAHORE

No. CE (CIVIL)/NTDC/MDC/253-54 Date: 28-1-2022

Chief Engineer (SS Design) NTDC,
143-WAPDA House,
Lahore

Project: DESIGN, MANUFACTURING, SUPPLY, ERECTION, TESTING & COMMISSIONING OF 132KV GIS SUBSTATION AT DHA GUJRANWALA

Subject: APPROVAL OF CONSTRUCTION DRAWINGS & CONCRETE MIX DESIGN

Ref:
i). Meetings held at Manager (Civil) Design office with Civil Designer (Miss. Sana Nisar) dated 13-01-2022, 24-01-2022, 25-01-2022, 26-01-2022
ii). Your office Noting No. CED/NTDC/MGS/245 dated 07-12-2021

Referring above, this office received the drawings along with Soil investigation report of subject Grid Station vide noting at ref (ii). In this regards, subsequent meetings were held at this office with representative (Miss. Sana Nisar Civil Designer). Accordingly, following drawings have been reviewed and are being approved with remarks noted in red as below:

Sr. No.	Description	Drawing No.
1.	Foundation Layout Plan	DG-FLO-C-001
2.	CHB & GIS Hall Ground Floor Plan	DG-CHB-C-002
3.	CHB & GIS Hall First Floor Plan	DG-CHB-C-003
4.	CHB & GIS Hall Second Floor Plan	DG-CHB-C-004
5.	CHB & GIS Hall Roof Drainage Plan	DG-CHB-C-005
6.	CHB & GIS Hall Sections	DG-CHB-C-006

Page 1 of 6

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Annex-A

Transfer Deed of Land to GEPCO

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

0068-11058746 E-STAMP PB-GRW-A6408FC2F47F4B49

Non-Judicial Rs 81,438/-

AGRICULTURE LAND

Description	: CONVEYANCE - 23(a)
Seller	: Muhammad Iqbal Sahi [34601-6501865-3]
Purchaser	: Muhammad Ramzan Butt [35202-9028955-7]
Agent	: Akbar Ali [34104-2331463-1]
Stamp Duty Paid by	: Muhammad Ramzan Butt [35202-9028955-7]
Issue Date	: 28-Dec-2020, 11:23:27 AM
Paid Through Challan	: 2020C1174D7E7CA9
Land DC Rate	: 4,950,000 per Acre
Structure DC Rate	: N/A
Amount in Words	: Eighty One Thousand Four Hundred and Thirty Eight Rupees Only

Serial No. 91

Certified that Mr. GEPCO Muhammad Ramzan has paid the TIP Tax amounting to Rs 16,876/- Vide Challan No. 9/2 Dated 29-12-2020 in respect of Khasra Prop. / Qitat / Plot No. 14-28-30 Measuring 1.62 Situated at [illegible]

Land Area: 1.6205 Acre

Covered Area: N/A

The TIP Tax has been calculated on the basis of the rates approved by the Board without [illegible] ownership. The Board shall not be responsible for any claim with regard to ownership of the [illegible]

For Cantonment Executive Officer
Gujranwala Cantonment

Please Write Below This Line

TRANSFER DEED

This Transfer Deed is made on ___ day of December 2020 at Gujranwala for the land measuring **12 Kanal, 19 Marlas and 76-Sft situated in Badoki Ghussian Tehsil Wazirabad & District Gujranwala valued for the Purpose of Stamp fee and registration etc." Rs.4,950,000 per Acre Rate fixed by the District Collector (DC)" Gujranwala for the year of 2020-21 i.e Rs. 8,043,800. Between DHA Lahore Chapter Gujranwala Near Chenab Gate GT Road Gujranwala through its Qanoongo Mr. Muhammad Iqbal Sahi having CNIC # 34601-6501865-3** (herein after called the vendor of the one part).

And

Gujranwala Electric Power Company (GEPCO) Through Mr. Muhammad Ramzan Butt, Project Director (GSC) GEPCO authorized for the purpose of execution of the deed (thereinafter called the vendee of the other part). The terms Vendor & Vendee shall wherever & whenever the context so permits or requires, means & include their respective, representative in interest & assigns etc.

Whereas the Vendors are engaged in the business of real estate and have developed a housing scheme known as **DHA Lahore Chapter Gujranwala Near Chenab Gate GT Road Gujranwala herein after referred to as the 'Project".**

And whereas the vendor seeks to provide quality living to its residents and in order to ensure proper and adequate supply for electricity for that purpose such as [illegible] fluctuations, faults, errors, break down and interruptions the Vendors, desirous to have available additional load of electricity.

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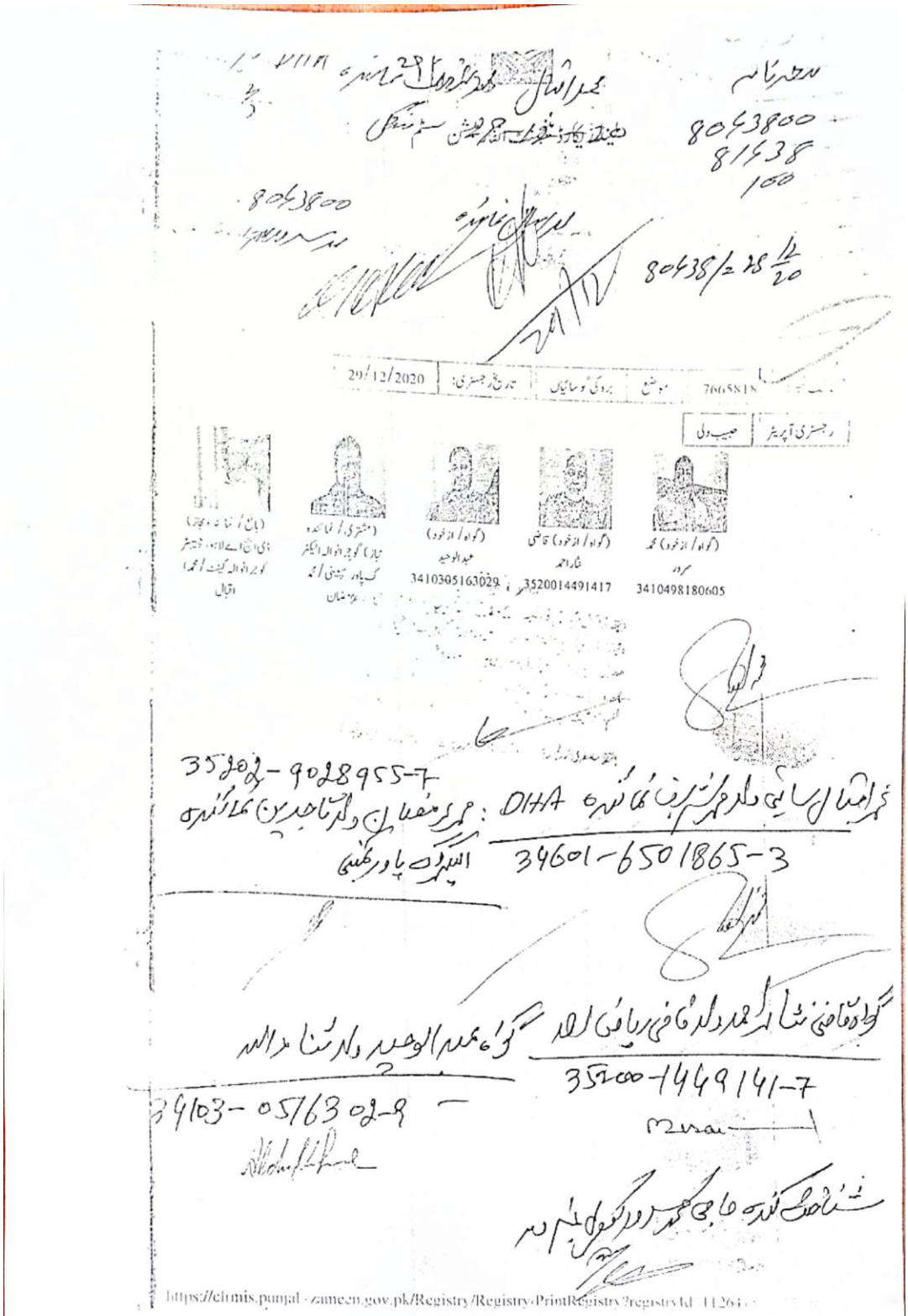
Qazi Nisar Ahmed
DHA Gujranwala



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Qazi Nisar Ahmed
DHA Gujranwala

And whereas the vendee is carrying on the business of distribution of electricity in its service territory, under a license issued to it by the National Electric Power Regulatory Authority (NEPRA).

And whereas the Project falls within the service territory of the vendee. And whereas the vendor has requested the vendee for supply of the electricity to the project and the vendee has agreed to do so on certain conditions which comprise, inter alia, prevalent utility practices as prescribed by the WAPDA from time to time for such purpose. And whereas the quantum of load and quality of electricity required by the vendor for his project shall require a 132-KV Grid Station in the vicinity from which the electricity can be provided to the project thus necessitating that the requisite Grid Station (The Grid Station) be constructed adjacent to the project. The Vendor wants to build grid station at his own cost for purchase of one point supply at 132 KV, therefore the grid station shall be a dedicated grid for the Vendor, however the Vendee by extending the Bus bar and installation of additional Power Transformer at his own expense may utilize Grid Station in the benefit of consumer other than the project of vendor.

And whereas the vendors have agreed that the 132-KV Grid Station along with office & Residential block be constructed within provided land for Grid Station. And whereas under the prevalent utility practices, Policy and Guidelines regarding provision of electricity to a housing scheme having ultimate load demand **48.76 MW, the Vendor will have to Transfer 12.9-Kanals** of land free of cost to the vendee as defined in WAPDA letter no 19-31/GM(C&M)PES dated 02-01-2003.

And whereas the vendor has agreed to transfer a piece of land measuring **12 Kanal, 19 Marlas and 76-Sft situated in Badoki Ghussian Tehsil Wazirabad & District Gujranwala** to the vendee for the Grid Station along with office and residential blocks as per agreement signed by the Vendor & Vendee at Gujranwala.

And whereas in view of the foregoing a piece of land with following detail (herein after referred to as the Property) within the boundary of approved plan of DHA Lahore Chapter Gujranwala for construction of 132 KV Grid Station.

Sr. No	Mauza	Khasra_No	Khewat_No	Khatoni_No	Area	
					Kanal	Marla
1	Baddoki Ghusaian	2830	542	681	1	4.50
2	Baddoki Ghusaian	2823	542	681	1	15.57
3	Baddoki Ghusaian	2827	258	347	0	6.60
4	Baddoki Ghusaian	2822	542	681	6	5.40
5	Baddoki Ghusaian	2809	47	87	0	3.31
6	Baddoki Ghusaian	2818	49	89	3	3.90
Total					11	39.28

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Qazi Nisar Ahmed
DHA Gujranwala

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Qazi Nisar Ahmed
DHA Gujranwala

Land said above is being transferred along possession with all the easement and other rights to the vendee by the vendor who is its lawful owner in possession, according to **Register Haqdaran Zameen (Jamab bandle) for the year 2008-2009 pertaining to Mouza Badoki Ghusaian Tehsil Wazirabad & District Gujranwala. A copy of the same issue by Patwari halka Badoki dated 22-12-2020 is attached here with as Annexure "A"**. The description and site map of the property is giving in the diagram above. And whereas the vendor has transferred & the above named vendee has taken over the said property from the vendor in accordance with policy of Housing Scheme notified by the PEPCO.

NOW THEREFORE THIS TRANSFER DEED IS WITHNESSTH AS UNDER:-

1. That the vendor as per Agreement signed has agreed to transfer a total **12 Kanal, 19 Marlas and 76-Sft** of land precisely delineated in schedule -1 to his deed which is part and parcel hereof and more clearly defined as the property therein above.

2. That the vendor has represented to the vendee that the said property is free from all claims, liens, disputes, litigations, charges, mortgage, encumbrances, guarantees waqf /trust of all land whatsoever nature and the vendor has all rights, with full power and lawful authority and power to extend the Grid Station build by the Vendor. The vendor further binds himself to do whatsoever may be required to be done for further perfecting the title of the vendee as shall be reasonably required by the vendee

رقبہ ہذا میں سے کوئی فائل یا پلاٹ ان نمبرات میں جن کی فرد دی گئی ہے کوئی فائل سیل شدہ نہ ہے اور نہ ہی کہیں پر رہن ہے اور بار کفالت سے پاک وصاف ہے۔

3. The property falls within boundary wall of the vendor project and the vendee, being the owner of the property, shall be entitled to peaceful possession thereof for the purpose said above without any interruption or disturbance by the vendor or any person claiming through other person whosoever.

4. That the vendor hereby covenant that prior to this Transfer Deed they have not entered into any agreement with any other person (s) for sale, gift, rent, etc. for the property. The vendor further covenant with the vendee that the title documents in respect of the said property are in full force and are subsisting, and the vendors have not committed any act by which the same may be impaired or have become or may become void or voidable and that they or anyone of them have not, prior to the date of these presents, done, made committed, caused or knowingly suffered to be done any such act, thing deed thereby or by any reason of which the right to transfer the said property has been or may be impaired or that the property is charged, encumbered or prejudicially effected in anyway.

5. That the vendors and all persons claiming through, under or in trust of the vendor shall at all time here after keep the vendee indemnified against all costs. Charges expenses, losses owing to any deficiencies or distortions in the vendor title to the property and or any claim, action, suit or demand, preferred by any person.

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DHA Gujranwala

6. That payment of all taxes, ceases, charges and bills payable, if any to federal / central Government, provincial Government, local Government, statutory Organization and to any other department / Organization of any government or person in respect of the property shall be the exclusive responsibility of the vendor.

7. That any incorrect description, omission or mistake in the particulars of the property shall not affect the viability of the Transfer Deed which, however, shall be rectified by the vendor at their own expensive.

8. All expenses in connection with transfer of the title of the property from the vendor to the vendee including stamp duty, registration charges, transfer fee, legal charges and all other miscellaneous express shall be and / or have been borne and paid in full by the vendor.

9. That the vendor shall be liable to get the property mutated / transferred from the name of the vendor to the name of the vendee in the revenue records.

10. That there is no legal impediment, including any stay order from any court of law, upon the transfer of property by the vendor to the vendee.

11. The vendor hereby agrees to indemnity the vendee against all claims, damages, losses, costs and charges which the vendee may suffer due to any defect in the title of the vendor in the property.

12. The vendor hereby agree with the vendee that if for any defect in title of the vendor in the property, the vendee is deprived of the whole or any part of the property or is prevented from enjoying the property the vendor hereby undertake to compensate and indemnify the vendee.

13. The vendor hereby covenant with the vendee that the vendor and any other person claiming, whether in law or in equity, through or under the vendors permission any interest in the property or any part hereof shall from time to time or any time at the request the vendee do and executed or cause to be done and executed at the cost of the vendor all such acts, deed and things as may be necessary for more perfectly, properly and completely conveying/ transferring and assuring to the vendee all the rights, title and interest of the vendor in or to the property.

14. The vendor further undertake, to extend facility of water supply, gas, sewerage, right of way (ROW) for feeders & transmission lines etc.

15. In addition to the express terms of this Transfer Deed, all terms and conditions applicable in the context of Transfer of immovable properties as set out in the transfer of property Act and as modified from time to time, shall also govern the relationship of the parties to this Transfer Deed.

16. Vendor shall make sure that are a being transferred shall be fully developed and all underground electricity, gas, sewerage etc facilities shall be provided and accessible at this land.

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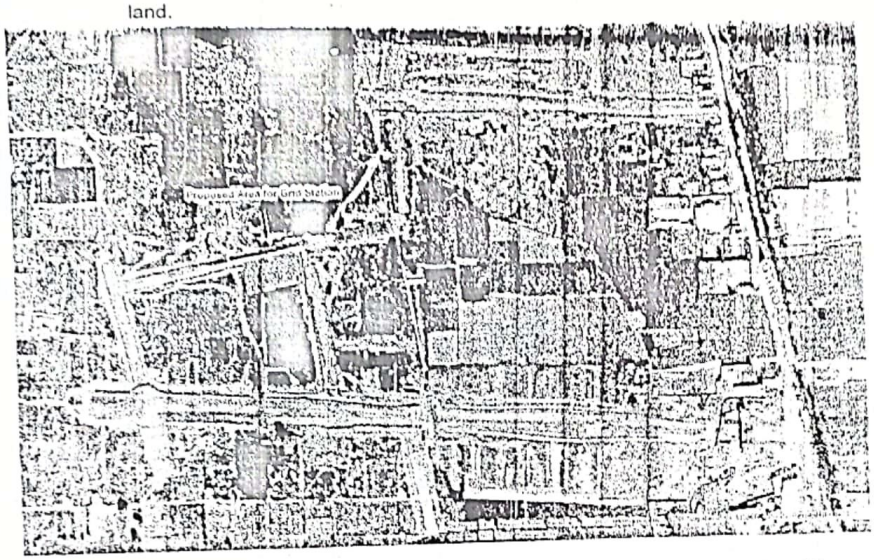
DHA Gujranwala

17. Vendor shall make sure that proper boundary wall is constructed at this land.



IN WITNESS WHEREOF the parties have signed this deed of land measuring 12 Kanal, 19 Marlas and 76-Sft situated in Badoki Ghussian Tehsil Wazirabad & District Gujranwala.

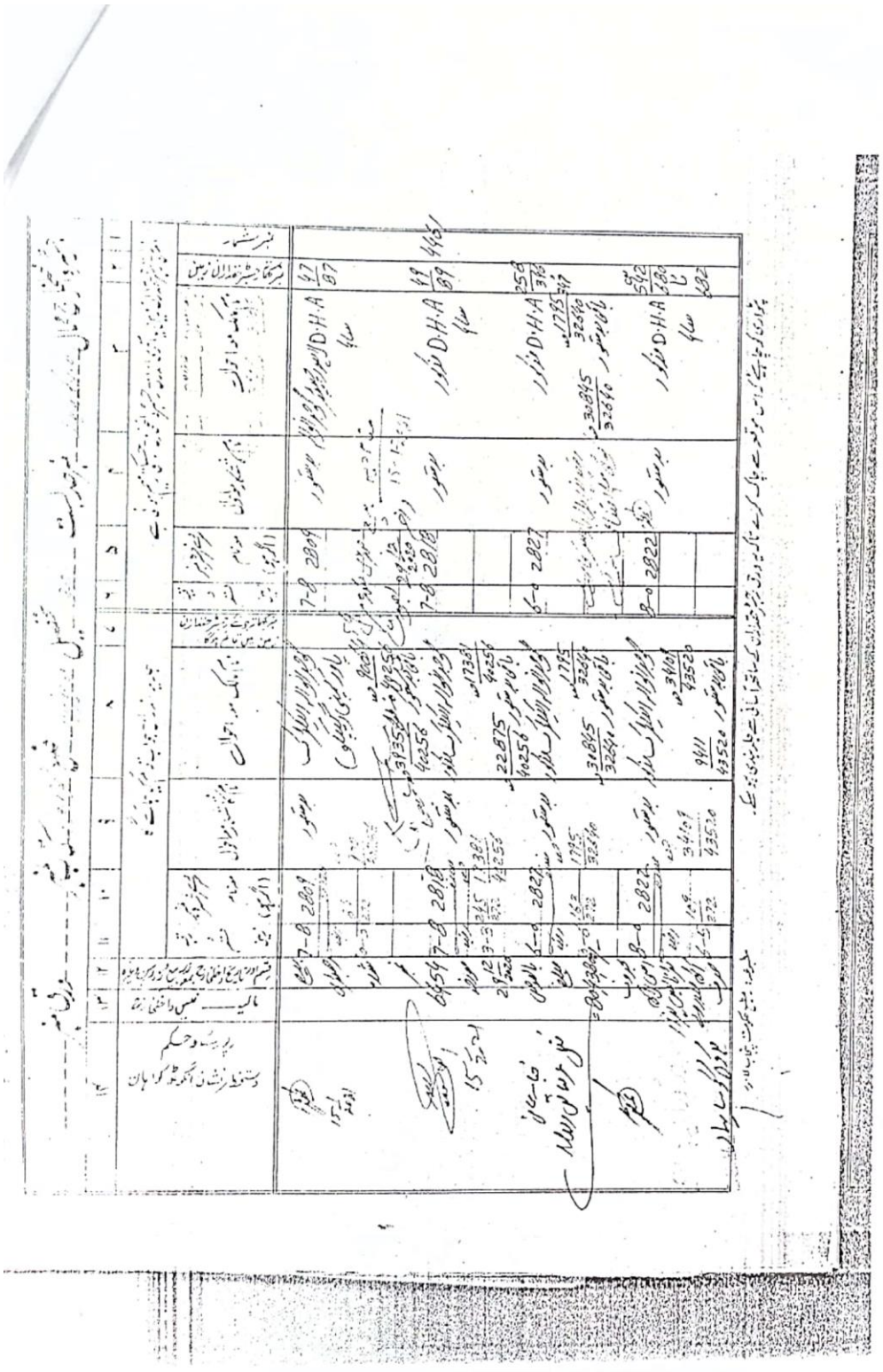
Executant: CNIC: 34601-6501865-3
Mr. Muhammad Iqbal Sahi
Qanoongo DHA Lahore Chapter Gujranwala

Executant: CNIC: 35202-9028955-7
Mr. Muhammad Ramzan Butt
Project Director (GSC) GEPCO

Witness: CNIC: 35200-1449141-7
Mr. Qazi Nisar Ahmed
Addl. Director (Elect)
DHA Lahore Chapter Gujranwala

Witness: CNIC: 34103-0516302-9
Mr. Abdul Waheed
Qanoongo / ALAO (GSC) GEPCO

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala



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Qazi Nisar Ahmed
DHA Gujranwala

نقشہ جرحِ قطعاتِ زمین (مسل میعادی) نقشہ

XXXIVA

ضلع گوجرانوالہ تحصیل گوجرانوالہ حلقہ

۱	۲	۳ (الف)	۳ (ب)	۳ (ج)	۳ (د)	۳ (ہ)	۴	۵	۶	۷	۸	۹	۱۰
نمبر کھیوٹ مالک	نمبر کھتونی کاشتکار	نام مالک معہ نام والد/ خاوند قوم اور سکونت		کیفیت: نوعیت مالکانہ حق، قرض وغیرہ			نام کاشتکار معہ احوال	نمبر خسرہ مقام (اگر کوئی ہو)	رقبہ قسم زمین جیسا کہ واجبات کولیکٹ کا حق	دستی یا پانی مقام آبپاشی راجباہ وغیرہ	لگان جو کاشتکار ادا کرتا ہے شرح اور مطالبہ	مطالبہ معہ تفصیلات مالیہ واجب	کیفیت معہ نمبر اندراج (اگر کوئی ہو)
47	87	DHA سلور		سارک	۴ سال			2809	نہری 7-0	نہری			
		(ب) آبی ضلعی کارڈ نمبر											
49	89	DHA سلور		سارک	۴ سال			2810	نہری 7-0	نہری			
		(ب) آبی ضلعی کارڈ نمبر											
542	580 تا 582	DHA سلور		سارک	۴ سال			2823	نہری 4-0	نہری			
		(ب) آبی ضلعی کارڈ نمبر											
		(ب) آبی ضلعی کارڈ نمبر						2830	نہری 4-0	نہری			
		(ب) آبی ضلعی کارڈ نمبر											

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

Annex-B

Environmental Baseline Reports

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOLUTION ENVIRONMENTAL & ANALYTICAL LABORATORY

EPA CERTIFIED

GROUND WATER ANALYSIS REPORT

Client Name:	132/11 KV GIS Consumer Grid Station, Gujranwala	**Sample Location:**	Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala.
Sampling Point:	Tap Water	**Nature of Sample:**	Ground Water
Sampling Date:	15-02-2022	**Date of Completion:**	22-02-2022
Sampling By:	Solution Environmental & Analytical Laboratory	**Temp. & Humidity**	25-28 C^0 & 52-56 %
		Reference No.:	SEAL/LAB/2022/GW/001

Results: -

Sr. No.	Parameter	Method	Unit	Result	PEQS
1	pH	APHA 4500-H^+ B	--	6.92	6.5-8.5
2	Total Dissolved Solids (TDS)	APHA 2540 C	mg/l	495.6	1000
3	Chloride	4500- APHA Cl^- B	mg/l	88.5	250
4	Fluoride	APHA 4500-F^- D	mg/l	0.14	1.5
5	Taste	APHA 2120 B	Object. /unobj.	Non-object.	Unobject.
6	Odour	APHA 2120 B	Object. /unobj.	Non-object.	Unobject.
7	Colour	APHA 2120 B	TCU	3	15
8	Nitrate (as NO_3^-)	APHA 4500-NO^{3-} E	mg/l	4.50	50
9	Nitrite (as NO_2^-)	APHA 4500-NO^{2-} B	mg/l	1.10	3
10	Lead	APHA-Pb B	mg/l	0.01	0.05
11	Total Hardness as $CaCO_3$	APHA 2340 C	mg/l	219.0	500
12	Turbidity	APHA 2130 B	NTU	1.7	5
13	Zinc	APHA 3500-Zn B	mg/l	0.60	3
14	Aluminum	APHA 3111 D	mg/l	0.15	0.2
15	Chromium	APHA 3500-Cr B	mg/l	0.01	0.050
16	Cadmium	APHA 3500-Cd D	mg/l	BDL	0.01
17	Copper	APHA 3500-Cu C	mg/l	0.05	2
18	Boron	APHA 4500-B C	mg/l	0.013	0.300
19	Barium	APHA 3111 B	mg/l	0.12	0.700

Page 1 of 2

HEAD OFFICE :
Plot # 12, Water Avenue, Green View Society, Off Kacha Jail Road, Kot Lakhpat, Lahore, Pakistan. Phones : +92-42-35922295-96, Fax : +92-42-35922296
Email: info@seal.com.pk | nihalasghar@gmail.com | hr@seal.com.pk

KARACHI OFFICE :
Office No. M-06-07 in Fort Sultan opp. Air Port Telephone Exchange, Shahrah-e-Faisal, Karachi, Pakistan. Phone : 92-300-9768799
Email : karachi@seal.com.pk

THIS RECYCLED PAPER PROTECTS OUR ENVIRONMENT

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOLUTION ENVIRONMENTAL & ANALYTICAL LABORATORY

EPA CERTIFIED

Client Name: 132/11 KV GIS Consumer Grid Station, Gujranwala
Sample Location: Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala.
Sampling Point: Tap Water
Sampling Date: 15-02-2022
Nature of Sample: Ground Water
Date of Completion: 22-02-2022
Temp. & Humidity 25-28 C^0 & 52-56 %
Sampling By: Solution Environmental & Analytical Laboratory
Reference No.: SEAL/LAB/2022/GW/001

Results: -

Sr. No.	Parameter	Method	Unit	Result	PEQS
20	Antimony	APHA 3114 C	mg/l	0.23	0.020
21	Arsenic	APHA 3114 C	mg/l	0.010	0.050
22	Cyanide	APHA 4500-CN^- D	mg/l	0.013	0.05
23	Mercury	APHA 3112	mg/l	BDL	0.001
24	Nickel	APHA 3111 B	mg/l	0.00	0.020
25	Residual Chlorine	APHA 4500-Cl_2	mg/l	0.22	0.2 – 0.5
26	Total Thermo Coliform	APHA 9222 B	Number/100ml	0	0/100 ml
27	Total Coliform	APHA 9222 B	Number/100ml	0	0/100 ml
28	E. coli	APHA 9222 C	Number/100ml	0	0/100 ml

PEQS = Punjab Environmental Quality Standards
BDL (Below Detection Limit)
APHA = American Public Health Association

Note:

- Standard Method for the Examination of Water & Wastewater, 23rd Edition, 2017
- This report should be reproduced as a whole and not in parts.
- The responsibility of the ethical use of the results reported in this report lies with the client. Consequently, the laboratory is absolved of its responsibility for any claim that may result through the use by the client or others of the results appearing in this report.
- The left-over samples (if so available) shall be retained for 15 days after the issuance of the report unless otherwise negotiated between the client and the laboratory.
- The report is not valid for any negotiation.

Sample Analyzed By: Saad Malik

Signature:

Name of Chief Chemist with Seal: Khalid Shafiq Chief Chemist

Signature of Chief Chemist:

Page 2of 2

HEAD OFFICE :
Plot # 12, Water Avenue, Green View Society, Off Kacha Jail Road, Kot Lakhpat, Lahore, Pakistan. Phones : +92-42-35922295-96, Fax : +92-42-35922296
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KARACHI OFFICE :
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Email : karachi@seal.com.pk

THIS RECYCLED PAPER PROTECTS OUR ENVIRONMENT

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

SOLUTION ENVIRONMENTAL & ANALYTICAL LABORATORY

EPA CERTIFIED

AMBIENT AIR MONITORING REPORT

Client Name: 132/11 KV GIS Consumer Grid Station, Gujranwala
Sample Location: Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala.
Monitoring Point: Near Main Entrance
Time Duration of Monitoring: 24 Hour
Monitoring Date: 15-02-2022
Reporting Date: 22-02-2022
Monitoring By: SEAL
Reference No.: SEAL/LAB/2022/AA/001
Results:

Sr. No.	Parameter	Unit	Method	Results	PEQS	Remarks
1	PM_{10}	(µg/m3)	Gravimetric Method	115.0	150	All the parameters are well below the PEQS
2	CO	mg/m^3	Non-Dispersive Infra-Red(NDIR) Method	4.32	10	
3	NO_X	(µg/m3)	Gas Phase Chemilûminescence	20.5	80	
4	SO_X	(µg/m3)	Ultraviolet Fluorescence method	25.5	120	

PEQS: Punjab Environmental Quality Standards

Note:

- Quality was assured through self calibration of the instrument.
- The measurements were carried out on client request.
- The client is responsible lawful usage of reported data in future.
- The report is not valid for any negotiations

Monitoring Supervisor: Saad Malik

Signature:

Chief Chemist with SEAL: Khalid Shafi, Chief Chemist

Signature:

Page 1 of 1

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EPA CERTIFIED

NOISE LEVEL MONITORING REPORT

Client Name:	132/11 KV GIS Consumer Grid Station, Gujranwala	**Sample Location:**	Sector-A, Package 1A (Opposite Overhead Water Tank), DHA Gujranwala.
Monitoring Date:	15-02-2022	**Instrument Used:**	Digital Sound Level Meter T.M 102
Reporting Date:	22-02-2022	**Time of Monitoring:**	10:00 am – 11:00 am
Monitoring By:	SEAL	**Reference No:**	SEAL/LAB/2022/NM/001

Results: -

Sr. No.	Location	Min. dB(A)	Max. dB(A)	Average dB(A)
1.	North Boundary of Site	65.4	69.5	67.45
2.	South Boundary of Site	68.6	72.4	70.50
3.	East Boundary of Site	71.2	75.7	73.45
4.	West Boundary of Site	67.4	71.4	69.40
5.	Centre of Site	64.6	68.2	66.40
PEQS (Commercial Area Day Time)				**75 dB (A)**

PEQS: Punjab Environmental Quality Standards

Note:

- The average noise levels describe the overall ambient noise levels of the proposed site.
- Selected measurement units were dB (A) otherwise stated.
- Quality was assured through self-calibration of the instrument.
- The measurements were carried out on client request.
- The client is responsible lawful usage of reported data in future.
- The report in not valid for any negotiations.

Monitoring Supervisor: Saad Malik

Signature:

Chief Chemist with SEAL: Khalid Shafiq, Chief Chemist

Signature:

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Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

Annex-C

Power of Attorney in Favour of Qazi Nisar Ahmed

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala

Defence Housing Authority Gujranwala
Near Chenab Gate
GT Road Gujranwala
Telephone No: 055-3866151
No. 111/20/DHA Gwa / Planning Branch
Jan 2022
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To Whom It May Concern

Subject: **Authority Letter for 132 kV Grid Station DHA Gujranwala Environmental NOC**

It is stated that DHA Gujranwala is situated near Ghakhar which has been approved in Gazette of Pakistan. DHA Gwa has authorized Additional Director (Electrical) Qazi Nisar Ahmed S/O Qazi Riaz Ahmed having CNIC # 35200-1449141-7 residence of P.G.E.C.H.S Township Lahore whose specimen signatures are given below for correspondence regarding Environmental NOC of 132kV Grid Station DHA Gujranwala from EPA Punjab on behalf of DHA Gwa.

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COUNTERSIGNED

Lieutenant Colonel
Project Secretory
(Azmat Abbas Khan)

Addl Dir (Elec)
Qazi Nisar Ahmed
DHA Gujranwala