



Environmental & Social Management Plan

Urban Rehabilitation and Infrastructure Improvement Project from Bhatti Gate to Katri Haji Allah Bakhsh (Taveela Shaikhen) Walled City Lahore

Phase 2. Rehabilitation of Infrastructure Development

November 2024

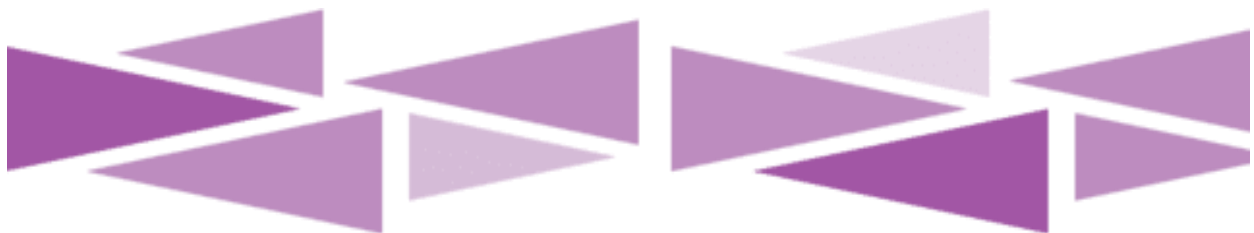


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LIST OF ABBREVIATIONS

ARAP	Abbreviated Resettlement Action Plan
BOQs	Bill of Quantities
CESMP DG	Contractor Environment and Social Management Plan Director General
DGA	Directorate General of Archaeology
EP	Environmental Protection
EPA	Environmental Protection Agency
ESMF	Environment and Social Management Framework
ESMP	Environment and Social Management Plan
E&S	Environmental and Social
E&SS	Environmental and Social Screening
BHU	Basic Health Unit
EA	Environmental Assessment
GOP	Government of Pakistan
GOPb	Government of Punjab
L/S	Lump Sum
LWMC	Lahore Waste Management Company
MCL	Metropolitan Corporation Lahore
MSDS	Material Safety Data Sheet
NA	Not Applicable
NOC	No objection certificate
OHS	Occupational Health and Safety
OP	Operational Policy
PCRM	Physical Cultural Resources Management
PDO	Project Development Objective
P&DD	Planning & Development Department
PHA	Parks & Horticulture Authority
PMU	Project Management Unit
PTEGP	Punjab Tourism for Economic Growth Project
RAP	Resettlement Action Plan
RHC	Rural Health Centre
R/I	Rehabilitation/Improvement
RPF	Resettlement Policy Framework
SAA	Same as Above
SDO	Sub-Divisional Officer
TMA	Tehsil Municipal Administration
TMP	Traffic Management Plan
UNESCO	United Nation, Education, Scientific and Cultural Organization USD
	United States of America, Dollar
WB	World Bank
WCLA	Wall City of Lahore Authority

EXECUTIVE SUMMARY

The Planning & Development Board, Government of Punjab (GoPb) with the financial assistance of the World Bank (WB) has launched the Punjab Tourism for Economic Growth Project (PTEGP) to increase the contribution of the tourism and related sectors to the local economic development of the province. The objectives of the project are to strengthen institutional capacity, increase private sector participation and improve infrastructure services for the tourism sector growth in the Province of Punjab. The total funding of the Project is 55 million USD with a World Bank contribution of USD 50 million over the five-year time frame.

The project has been implemented by a dedicated Project Management Unit (PMU) PTEGP since October 2017. The project is financing some low-scale physical interventions to provide improved access, better road conditions and public convenience facilities in selected tourists destinations located throughout the Punjab Province.

The detail of sub-projects to be executed under the PTEGP was not available during the project initiation, so an Environmental and Social Management Framework (ESMF) was prepared for PTEGP in December 2016.

The PTEG Project has been chosen to undertake the proposed project of rehabilitation and infrastructure improvement of Lahore walled city area from Bhatti Gate to Katri Haji Allah Bakhsh. The scope of Bhatti Gate Project has been divided into two phases: in first phase it is proposed to conserve the façade and rehabilitation of historic valued buildings, the 2nd phase deals with improvement of infrastructure facilities like water supply, fire hydrant system, domestic sewerage, storm water sewerage, electrical work, illumination work, gas, telecommunication and street surfacing. This report addresses the Improvement of infrastructure of the area which will be carried out in phase two of the sub-project. The infrastructure shall be upgraded / improved to modern standards. The project has been designed for the improvement of tourism-enabling infrastructure, enhance tourism assets, and strengthen destination management for sustainable tourism hence increasing the tourism potential of the area

This document covers ESMP report for the phase two of the proposed work schemes as explained above. It is assessed that the sub-project falls under category B project from environmental and social point of view. This is mainly because of carrying out construction activities near the heritage site i.e., historical residential buildings of the area. No land acquisition impacts are anticipated for execution of the phase two of the sub-project as the improvement of infrastructure facilities like water supply, fire hydrant system, domestic sewerage, storm water sewerage, electrical work, illumination work, gas, telecommunication and street surfacing will be carried out within state land. However, possible livelihood impacts on local community due to construction activities will be addressed through preparation and implementation of ESMP.

This ESMP report is prepared in accordance with the approved ESMF. The data required for this report has been obtained from the ESMP prepared for the Phase 1 of the project i.e., Conservation of Heritage Site and from both primary (field visit/s, laboratory-based monitoring/testing, stakeholder/public consultations, project engineering and secondary sources (literature including relevant reports, papers, dissertations, encyclopedias both available online and in printed format).

Following two World Bank Operational Policies are triggered:

OP 4.01 – Environment Assessment; and OP 4.11 – Physical Cultural Resources

Local environmental protection acts and rules/regulations including Punjab Environmental Protection Act 1997 (Amendment 2012), Punjab Environmental Quality Standards (PEQS) 2016, Review of IEE & EIA Regulation 2022 etc. will be followed and implemented for the said sub-project.

Physical environmental parameters including water and wastewater quality, ambient air quality and noise level were monitored, sampled and tested by the approved laboratory from EPA Punjab for developing baseline conditions of the area. The test results for the water supply (tap water) quality at the recommended site office indicated biological contamination so filtration and boiling of tap water is advised in interest of public. Noise and dust pollution in the area were found elevated from PEQS.

The climate data presented in this report comprised on duration 2000 to 2021 from Lahore meteorological station. The project area lies in the semi-arid climatic zone and has five well- defined seasons, summer, rainy monsoon, autumn, winter and spring. The average minimum monthly temperature varies from 7.6°C and 27.4°C and average maximum monthly temperature varies from 18.0°C and 38.9°C. The extreme maximum temperature recorded in Lahore is 48.3°C in the year 1944. The winters are generally mild and short, lasting from November till February. The lowest temperature recorded in Lahore is –2.2 °C, recorded on 17 January 1935.

Rainfall is mainly received during the monsoon in late summer and in the winters. The winter rainfall comprises of gentle showers and lasts for a longer period than the summer rainfall, which are usually short and intense and cause urban flooding. The average annual rainfall precipitation in Lahore is 838.8 millimeters.

The sub-project area is comprised on highly populated urban area and no noticeable wildlife exist in the area. Common Flora of the area include Indian Rosewood/ Shisham trees (*Dalbergia sissoo*), Peepul (*Ficus religiosa*), Neem (*Azadirachta indica*), Java Plum/Jaman (*Syzygium cumini*), White mulberry (*Morus alba*) and Safaidda (*Eucalyptus citriodora*) are found in the sub- project area. No protected species were observed.

Social conditions of the area summarized below:

Language: Urdu, Punjabi and Pashto are the languages commonly spoken in the community as mode of communication.

Communication: All the houses are connected to the national grid for electricity supply. Telephone line connection and mobile phone networks are available in the area.

Means of Transport: Sub-project area is located in the congested part of Lahore city and very well connected with other part of the city/country through public and government transport system. Lahore Metro bus station (Bhatti Chowk bus station) is located at approximately five-minute walk from the Bhatti Gate monument.

Health Facilities: Mayo Hospital and Lady Willington Hospital are main hospitals of the area, in case of any emergency and serious health care needs. Apart from this there are several private clinics and small hospitals are present

The phase 1 of the project identified some gaps and some lessons were learnt during

the planning and execution phase. The general public demanded that there must be timely execution of work so that their physical mobility must not be hindered, the GRM must be active at site as well as the project level, Special consideration to the privacy of the females and the schedule for the construction activities must be shared with the local community and schools administration etc.

Anticipated adverse environmental & social impacts of the sub-project are related to execution of construction work in the highly populated urban area. Environmental and social risk is assessed as moderate as the planned civil works are predominately linked to improvement of already existing infrastructure facilities. Envisaged adverse impacts are predictable and expected to be temporary, localized and/or reversible, low in magnitude, site-specific, without likelihood of impacts beyond the actual footprint of the project; and have low probability of serious adverse effects to human health and/or the environment.

Construction related impacts including dust & noise pollution, disturbance of local community day to day activities e.g. hurdle in movement/transportation, traffic congestion, affecting privacy, extra burden on existing welfare facilities etc. are expected. The contractor will develop the Contractor Environmental and Social Management Plan (CESMP) before commencement of work on site. The CESMP will include site specific safeguard plans (traffic management plan, waste management plan, health & safety plan and communication plan etc.) prepared in the light of outlines provided in this ESMP.

No significant adverse environmental or social impact of the sub-project is anticipated. Land acquisition will not be required for phase 2 of the proposed work scheme. On the other hand, the project will accommodate thousands of people visiting the historical part of the Lahore City. As a result of the proposed sub-project, the overall archeological values of the area will be enhanced and health & safety conditions of the area for local community and visitors will be improved by converting electric supply and drainage systems to underground or safe conveying system. This will encourage tourism activities in the area and subsequently boost local economy and help in poverty alleviation.

1 INTRODUCTION

1.1 OVERVIEW

The Government of Pakistan (GOP) development agenda (Vision 2025) stresses the objectives of boosting economic growth, job creation and regional cooperation in addition to bolstering the country's image abroad. Tourism is highlighted as one of the sectors of the economy that could help stimulate economic growth. Cultural and heritage tourism is a large and growing international market that Pakistan could leverage to create more and better jobs¹.

The Planning & Development Board, Government of Punjab (GoPb) with the financial assistance of the World Bank (WB) has launched the Punjab Tourism for Economic Growth Project (PTEGP) to increase the contribution of the tourism and related sectors to the local economic development of the province. The objectives of the project are to strengthen institutional capacity, increase private sector participation and improve infrastructure services for the tourism sector growth in the Province of Punjab¹. The total funding of the Project is 55 million USD with a World Bank contribution of USD 50 million over the five-year time frame ².

The Project consists of four major components³:

- Component 1: Policy, Institutions and Governance for Tourism Development
- Component 2: Private Investment and Entrepreneurship Promotion
- Component 3: Public Investment Facility
- Component 4: Project Management, Monitoring and Evaluation

The project has been implemented by a dedicated Project Management Unit (PMU) PTEGP since October 2017. The project is financing some low-scale physical interventions to provide improved access, better road conditions and public convenience facilities in selected tourists destinations located throughout the Punjab Province.

1.2 PROJECT ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

The details of sub-project to be executed under the PTEGP was not available during the project initiation, so an Environmental and Social Management Framework (ESMF) was prepared for PTEGP in December 2016 according to WB Operational Policy (OP) 4.01.

The project ESMF has been approved by the WB and is available on the WB and PTEGP website for public disclosure (refer to footnote no. ³ and ⁴ for the web link to ESMF available on PTEGP and WB website respectively). The overall project has been assigned Category B, due to the limited environmental and social impacts only during the construction phase. The ESMF concluded that:

¹ Combined project information documents / integrated safeguards data sheet (PID/ISDS) concept stage, May 23, 2016. The document is available at <https://documents1.worldbank.org/curated/en/841201468290413656/text/PIDISDS-CON-Print-P158099-05-29-2016-1464517363920.txt>

² Financing Agreement PTEGP between Islamic Republic of Pakistan and International Development Association, dated; August 2, 2017. The document is available at <https://documents1.worldbank.org/curated/en/337281506350830259/pdf/ITK171540-201708251045.pdf>

³ https://ptegp.punjab.gov.pk/project_overview
⁴ <https://ptegp.punjab.gov.pk/system/files/ESMF%20Manual.pdf>

⁴ <https://documents1.worldbank.org/curated/en/916261483004102-EA-P158099-Box396342B-PUBLIC-Disclosed-12-28-2016.pdf>

Environmental and Social Screening (E&SS) shall be carried for each sub-project intervention/s in order out to determine the appropriate Environmental and Social category as per WB Operation Policies.

- Category-A sub-projects will not be financed under this project. If a Category-A sub-project is identified, the sub-project will be either dropped or replaced with a Category B or C sub-project.
- Environmental and Social Management Plans (ESMPs) will be prepared for category 'B' sub- projects and clearance from WB will be a prerequisite before initiating the sub-project. The guidelines for the preparation of ESMPs are attached as **Annex-8** of project ESMF.
- Sub-projects categorized as Category C, no further activity beyond screening would be required.
- PMU PTEGP will obtain necessary NOCs from the relevant departments before commencing work on any sub-project.

1.3 INTRODUCTION OF SUB-PROJECT

The Government of Punjab Walled City of Lahore Authority (WCLA), with the help of World Bank has undertaken the initiative for Urban Rehabilitation of Façade and Infrastructure Improvement Project Bhatti Gate to Katri Haji Allah Bakhsh Phase-I areas. Walled City of Lahore Authority (WCLA) has submitted a request/PC-I of the proposed sub-project. The sub-project covered area is 77828.35 m² with 1028 number of properties (69 on Main Trail, 939 Houses in Streets, 20 number of empty plots/ruins,) including high value Heritage properties, project area is indicated on **Figure 1-1**.



Figure 1-1: Selected Area for the Sub-Project within Bhatti Gate Area

The proposed work scheme includes conservation of facade, rehabilitation of historic valued buildings, and improvement of infrastructure facilities like water supply, fire hydrant system, domestic sewerage, storm water sewerage, electrical work, illumination work, gas, telecommunication and street surfacing. The infrastructure shall be upgraded / improved to modern standards. The project has been designed for the betterment of the inhabitants and increasing the tourism potential of the area. The sub-project is divided into two phases:

Phase 1 - Conservation of Historical Buildings/Monuments and Development of Car Park Area

Phase 2 - Infrastructure Development of the sub project area

This ESMP report only covers Phase 2 of the project. A separate ESMP has been prepared for phase 1.

1.4 PURPOSE OF THIS DOCUMENT

Environmental & Social screening of the sub-project has been completed and it is envisaged that the proposed sub-project falls under category B, mainly because of carrying out construction activities of rehabilitation of existing structures in the highly populated historical urban area. Phase 2 of the project mainly comprises of improvement of infrastructure facilities like water supply, fire hydrant system, domestic sewerage, storm water sewerage, electrical work, illumination work, gas, telecommunication and street surfacing. The infrastructure shall be upgraded / improved to modern standards. Therefore, according to the World Bank's OP4.01 (Environment Assessment) and OP4.11 (Physical Cultural Resource) an Environmental & Social Management Plan (ESMP) need to be prepared for the sub-project. This report presents ESMP for Phase 2 of the sub-project.

The ESMP is prepared according to the approved ESMF for the PTEGP and provides a mechanism to address the anticipated adverse environmental and social impacts during construction and operational phase of the proposed work scheme. Objectives of the ESMP are to:

- Identify project's adverse impacts, suggest environmentally friendly and socially acceptable control measures to avoid, eliminate or reduce their adverse impacts;
- Provide environmental management plan and facilitate implementation of control measures;
- Propose the institutional arrangements required to implement the ESMP and define responsibilities of different parties of the project (proponent, contractor and supervision consultant);
- Develop an environmental and social monitoring plan to ensure the mitigation measures are implemented during the sub-project execution and timely corrective actions are taken where required;
- Provide Waste Management Plan for the sub-project;
- Communication Plan for the sub-project;
- Develop training plan for project execution team; and
- Provide Emergency Plan to ensure there is a protocol in place in case of

emergency conditions e.g., fire outbreak, collapse in building, and accidental spill of chemicals or fuel etc.

1.5 METHODOLOGY OF ESMP

Methodology for environmental and social studies for PTEGP is already defined in the ESMF of the project. While the relevant forms/checklists to be adopted for E&SS and ESMP have been provided in the following sections of the project ESMF:

- Chance Find procedures has been provided in **Annexure-10** of ESMF (as **Annexure A** in this report i.e. ESMP).
- Environmental and social screening checklist has been provided as **Annexure-B**.

The data required for completing above mentioned forms/checklist has been obtained from both primary (field visit/s, consultations, project engineering document/s, designs etc.) and secondary sources (literature including documents/ reports/ papers/ dissertations/ encyclopedias both available online and in printed format/s etc.).

Stakeholder's consultations have been conducted with relevant persons and organizations during the site surveys and consultation sessions conducted mainly during February 2023 and July, August and September 2023 according to WB and Punjab Environmental Protection Agency (EPA) guidelines. Moreover, relevant applicable legislation and policies have been reviewed according to the scope of the sub-project.

The baseline data was analyzed to identify potential environmental impacts of the project. A risk- based methodology was adopted to identify high risk activities and suggest their mitigation measures. Where possible, eliminating the risk by altering the scope of work, method of executing work activities etc. rather than minimizing the risk with control measures. However, where the risk cannot be managed during design phase of the project, environmentally friendly and socially acceptable control measures are proposed to mitigate the adverse impacts of proposed work scheme during construction and operational phase of the project.

1.6 OUTCOMES OF SUB-PROJECT SCREENING

The initial screening for the whole sub-project (Phase 1 and 2) has been completed and it shows that a site specific Environmental and Social Management Plan needs to be developed to execute the proposed work scheme in safe and environmentally friendly way. The ESMP should include an outline of safeguard plans (solid waste management plan, traffic management plan, Health and Safety Plan etc.), site specific plans should be developed by the contractor before commence work on onsite. It is vital to keep on board the local community and stakeholders of the project throughout the project cycle i.e., during design, construction and operational phase of the project by conducting meaningful stakeholder and public consultation.

No land acquisition or resettlement impacts are envisaged for Phase 2 of the sub-project. Other possible social impacts e.g., adverse impact on livelihood, obstruction in public movement, extra pressure on existing welfare facilities etc. will be addressed through the implementation of ESMP. Most of the anticipated adverse impacts of the sub-project are construction related e.g., dust; noise, waste excavated spoil etc. are localized and temporary nature and can be mitigated through implementation of ESMP.

On the other hand, the project will leave significant permanent positive environmental and social impacts in shape of improved drainage system (for foul sewer and storm water), safer electric supply system, improved waste management operation, better aesthetics to attract tourist in the area due to beautification and rehabilitation of infrastructure and therefore generate small/local business and job opportunities.

2 APPLICABLE REGULATORY AND LEGAL FRAMEWORK

Based on findings of the sub-project screening and stakeholder consultation, applicable national/provincial legislation, regulations, EPA guidelines, World Bank Operational Policies and guidelines are provided in this section.

2.1 NATIONAL AND PROVINCIAL LEGISLATIVE FRAMEWORK

The 1973 Constitution of Pakistan had included the subject of Environment Pollution and Ecology in the concurrent legislative list. The parliament and provincial governments were empowered to formulate necessary laws under article 142. The Federal Environmental Ministry was established for promulgation of the Environmental Protection Ordinance of Pakistan in 1983. It was the first comprehensive legislation prepared in the country. In March 1992 Pakistan prepared National Conservation Strategy (NCS), which provides a broad framework for addressing environmental concerns in the country. The Pakistan Environmental Protection Act was enacted on 6th December 1997, repealing the Pakistan Environmental Protection Ordinance 1983. The Act stands at the apex of statutory law on environmental issues in Pakistan and takes precedence over all preceding federal and provincial legislations in setting nationwide environmental standards and in laying down policies and procedures under the Pakistan National Conservation Strategy.

In April 2010, National Assembly amended the Constitution of Islamic Republic of Pakistan 1973. Among the changes introduced by the Constitution (Eighteenth Amendment) Act 2010 is one having effect on environmental protection legislation of the country. Under the 18th amendment, the subject of environment and natural ecology is devolved to the province government from the federal government. Punjab Law Department has issued Gazette notification of the **Punjab Environmental Protection Act 1997 (Amendment) Act, 2012** as a result of the 18th Amendment. Consequently, the responsibility to legislate upon and regulate the environment and natural ecology vests in the provinces. Punjab province has enacted the Punjab Environmental Protection (Amendment) Act, 2012, adopting the Pakistan Environment Protection Act, 1997, a federal legislation, to the framework of the province. This has allowed the Provincial Government to constitute its own Environment Protection Tribunal and appoint its members.

2.2 OTHER ENVIRONMENTAL RULES AND REGULATIONS

Other environmental Rules & Regulations of Pakistan include:

- Environmental Tribunal Rules, 1999
- Review of IEE & EIA Regulation, 2022
- Certification of Environmental Laboratories Regulation, 2000
- Provincial Sustainable Development Fund Board (Procedure) Rules, 2001
- Environmental Samples Rules, 2001
- NEQS SMART Rules, 2001
- Pollution Charge Rules, 2001
- Environmental Tribunal Rules, 2012
- Punjab Environmental Protection Administrative Penalty Rules, 2013
- Punjab Hospital Waste Management Rules, 2014

2.2.1 Environment Protection Agency

The Pakistan Environmental Protection Council (PEPC) and Provincial Environmental Protection Agencies (EPAs) are the primary organizations responsible for administering the provisions of the Pakistan Environmental Protection Act.

Under the provision of the Act, provincial EPAs are responsible to manage the environmental concerns of their respective provinces, which is in this case is EPA Punjab. The provincial EPAs can frame environmental regulations tailored to the requirements of their provinces, provided these regulations meet or exceed the minimum standards set by EPA. They are also required to review and approve environmental studies of development projects undertaken in their respective provinces, including those projects implemented by federal agencies.

2.2.2 National Environmental Policy, 2005

It aims to protect, conserve, and restore the environment in order to improve quality of the life of citizens through sustainable development and resource conservation.

2.2.3 Punjab Environmental Protection Act, 1997 (Amended, 2012 & 2017)

The Punjab Environmental Protection Act, 1997 (Amended, 2012 & 2017) is comprehensive legislation and provides the legislative framework for protection, conservation, rehabilitation and improvement of the environment. The 'environment' has been defined in the Act as: (a) air, water and land; (b) all layers of the atmosphere; (c) all organic and inorganic matter and living organisms; (d) the ecosystem and ecological relationships; (e) buildings, structures, roads, facilities and works; (f) all social and economic conditions affecting community life; and (g) the interrelationships between any of the factors specified in sub-clauses 'a' to 'f'. The notable points of the law are:

No proponent of a project shall commence construction or operation unless he has filed an IEE/EIA with the Provincial Agency designated by the Provincial EPAs an EIA, and has obtained an approval:

- Establishment and formation of the Punjab Environmental Protection Council (PEPC);
- Prohibition of certain discharges or emissions;
- Punjab Environmental Quality Standards (PEQS) for wastewater, air emissions and noise; and
- Provincial Government can issue notices and enforce them to protect the environment.

In the recent amendment of 2012, legislative powers related to environment and ecology are given to provincial governments from the Federal government. The provinces are required to enact their own legislation for environmental protection. Other amendments include increasing the penalties for violations.

For the proposed Project, Environmental Protection Department (EPD)/Environmental Protection Agency (EPA), Government of the Punjab (GoPb) is the concerned authority. The capability of regulatory institutions for environmental management is ultimately

responsible for the success of environmental assessments and that development projects are environmentally sound and sustainable.

Subject to the provisions of this act, and the rules and regulations, no person shall operate a motor vehicle from which air pollutants and noise are being emitted in an amount, concentration or level which is in excess of the Punjab Environmental Quality Standards, or where applicable the standards established under clause (g) of subsection (1) of section 6 of the act.

This act will be elicited during construction and operational phase due to use of motor vehicles that produces air pollutants and noise.

2.2.4 Punjab environmental protection (Review of Initial Environmental Examination and Environmental Impact Assessment) Regulations, 2022

Punjab Environmental Protection (Review of Initial Environmental Examination and Environmental Impact Assessment) Regulations, 2022 are made under the Section 33 of the Punjab Environmental Protection Act, 1997 and the Punjab Environmental Protection Agency with approval of the Punjab Government. This regulation is applicable to the province of Punjab, Pakistan. The Punjab Environmental Protection (Review of Initial Environmental Examination and Environmental Impact Assessment) Regulations, 2022 provides a legal framework for conducting environmental assessments, provide the basis, criteria and defining the scope of projects subject to assessment in Schedules I and II respectively, and establishing procedures for submitting and reviewing environmental reports for all projects likely to impinge on the environment. Schedules I and II of the said Regulations set out lists of projects that presently require either an Initial Environmental Examination study or an Environmental Impact Assessment report.

The Regulation also defines the roles and responsibilities of relevant authorities and the Agency, and set out the criteria for approving or rejecting projects based on their environmental impact. The Environmental Impact Assessment (EIA) and Initial Environmental Examination (IEE) Regulations are put in place by the Punjab Government to ensure that proposed development projects, industrial activities, or other initiatives take into account their potential environmental impacts.

2.2.5 Punjab Environmental Protection (Motor Vehicles) Rules, 2013

Subject to the provisions of this act, and the rules and regulations, no person shall operate a motor vehicle from which air pollutants and noise are being emitted in an amount, concentration or level which is in excess of the Punjab Environmental Quality Standards, or where applicable the standards established under clause (g) of subsection (1) of section 6 of the act.

This act will be elicited during construction and operational phase due to use of motor vehicles that produces air pollutants and noise.

2.2.6 Punjab Environmental Quality Standards (PEQS), 2016

The PEQS, 2016 specify the

- Maximum allowable concentration of pollutants in municipal and liquid industrial effluents discharged into inland waters, sewage treatment facilities, and the sea.
- Maximum allowable concentration of pollutants (16 parameters) in gaseous

emissions from industrial sources.

- Maximum allowable concentration of pollutants (two parameters) in gaseous emissions from vehicle exhaust and noise emission from vehicles.
- In addition, PEQS has also been issued for drinking water, ambient air, motor vehicle exhaust and noise, municipal and liquid industrial effluents, noise and treatment of liquid and disposal of biomedical waste.

2.2.7 Pakistan Penal Code, 1860

This Act defines the penalties for violations concerning pollution of air, water bodies and land.

2.2.8 Motor Vehicle Rules, 1969

It defines powers and responsibilities of Motor Vehicle Examiners (MVEs). The establishment of MVE inspection system is one of the regulatory measures that can be taken to tackle the ambient air quality problems associated with the vehicular emissions during operation phase.

2.2.9 Pakistan Labour Policy, 2010

Pakistan's Labour Policy aims at attaining its objectives in a manner best suited to the resources of the country and the present state of economy. Equitable adjustment of rights between workers and employers should be ensured in an atmosphere of harmony, mutually beneficial to workers and the management. It prohibits the use of Child Labour. The Punjab Labour Policy 2018

The Punjab Labour Policy 2018 put emphasis on effective implementation of labour standards, social dialogue, improvements in workplace safety, living wages, child/bonded labour, awareness raising, excellence in labour inspections regime and imparting quality technical trainings through well-improved Training Centers. Section 3.10.5 of this policy addresses Construction Workers. This policy recommends legal coverage for the workers engaged in construction industry and will ensure that their legal rights and benefits are protected through vigorous inspection.

2.2.10 The Bonded Labour System (Abolition) ACT, 1992

According to this act, forced labour is any type of work or kind of service in which someone engages involuntarily and under implied coercion a manifest threat of a party or oppression measures. The bonded labor can exist in following forms under different situations:

- Bonded labor in exchange for advance/an amount of money given before services are rendered, received by a person or his family.
- Bonded labor as a consequence of some social or customary obligations.
- Bonded labor in exchange of an economic benefit/consideration received by a person or his family,
- Bonded labor of a guarantor in exchange for debtor who was unable to pay off his debt.
- Bonded labor is prevalent in agriculture sector, brick kilns, domestic work and begging.

2.2.11 The Land Acquisition Act, 1894

It is the key legislation that has direct relevance to resettlement and compensation in Pakistan. For the acquisition of land, the above-mentioned Act, rules and regulations are followed whether the acquisition is for Government of Punjab or any other agency. The LAA is, however, limited to a cash compensation policy for the acquisition of land and built-up property, and damage to other assets, such as crops, trees, and infrastructure. The LAA does not consider the rehabilitation and resettlement of disrupted population and the restoration of their livelihoods.

2.2.12 Pakistan Antiquities Act 1975 and Punjab Antiquities Amendment Act, 2012

The current Antiquities Act 1975 (amended in 1990), redefined as ancient any object that is at least 75 years old. The Act relates to the protection, preservation and conservation of archaeological/historical sites and monuments. It prohibits construction (or any other damaging) activity within 200 feet of such sites unless prior permission is obtained from the Department of Archaeology and Museums. The Antiquities Act also binds the project proponent to notify the department anything of archaeological value be excavated during project construction.

2.2.13 Walled City of Lahore Act, 2012

The Walled City of Lahore Act 2012 provides guidelines for the conservation, planning, development, management and regulation of walled city of Lahore.

The walled city of Lahore is under the jurisdiction of Walled City of Lahore Authority (WCLA). WCLA will have to follow all codal formalities before initiating infrastructure improvement in coordination with TMA, WASA and LESCO for infrastructure improvement.

2.2.14 Employment of Child Act, 1991 and Punjab Restriction of Employment of Children Ordinance, 2016

Article 11(3) of the constitution of Pakistan prohibits employment of children below the age of 14 years in any factory, mine, or any other hazardous employment. In accordance with this article, the ECA 1991 disallows such child labor in the country.

2.3 INTERNATIONAL LAWS/TREATIES

Pakistan is signatory to a number of international conventions and protocols relating to the environment. The list of international conventions/protocols signed and ratified by Pakistan is given below:

- Ramsar Convention on Wetlands
- Convention on Migratory Species (CMS)
- Convention on International Trade in Endangered Species (CITES)
- Convention on the Law of Seas
- Vienna Convention on the Protection of Ozone Layer
- Montreal Protocol on Ozone Layer Depleting Substances
- Basel Convention on the Control of Trans boundary Movement of Hazardous Waste
- Convention on Biological Diversity (CBD)
- United Nations Convention to Combat Desertification

- United Nations Framework Convention on Climate Change (UNFCCC)
- UNESCO World Heritage Convention
- Kyoto Protocol
- Rotterdam Convention on Prior Informed Consent (PIC) for certain hazardous chemicals and pesticides
- Cartagena Protocol on Biosafety to the CBD
- Stockholm Convention on Persistent Organic Pollutants (POPs)

2.3.1 UNESCO World Heritage Convention

Pakistan is a State Party to the World Heritage Convention. State Parties agree to identify and nominate properties on their national territory to be considered for inscription on the World Heritage List. When a State Party nominates a property, it gives details of how a property is protected and provides a management plan for its upkeep. They are also expected to protect the World Heritage values of the properties inscribed and are encouraged to report periodically on their condition.

2.3.2 World Bank Operational Policies

World Bank Operational Policy 4.01 (Environment Assessment)

The major objective of this policy is to address all activities which may potentially cause negative environmental and social impacts and to suggest safeguard instruments accordingly. Under this policy, projects are categorized as “A, B, C” depending upon their impacts, severity, nature and frequency.

Category “A”: Significant or irreversible impacts

Category “B”: Reversible or moderate impacts that can be mitigated

Category “C”: Minimal impacts

Under PTEG Project, World Bank will not finance any Category A sub-project. If the sub-project classified as category A project then the project will be either dropped or replaced with a Category B or C sub-project.

Environmental and Social Management Plan (ESMP) will be prepared for Category B project and for Category C sub-project no further study E&S study require beyond E&S Screening process.

World Bank Operational Policy 4.11 (Physical Cultural Resources)

World Bank assist countries to avoid or mitigate adverse impacts on physical cultural resources from development projects that it financed. This policy addresses physical cultural resources, which are defined as movable or immovable objects, sites, structures and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic or other cultural significance.

World Bank Operational Policy 4.12 (Involuntary Resettlement)

OP 4.12 sets out the Bank’s policies relating to involuntary taking of land and involuntary restrictions of access to legally designated parks and protected areas and

resettlement of population disrupted by the project. The priority of the policy is the avoidance of displacement of the population; however, if it is unavoidable, it should be kept to a minimum. The policy provides guidelines for conducting census surveys, preparing resettlement action plans and reporting procedures.

Identified adverse environmental and social impacts pertaining to the proposed rehabilitation/improvement of historical sites are mild to moderate because the nature of envisaged impacts is temporary, localized, and reversible and can be mitigated. The sub-project is classified as category B. No land acquisition and resettlement are required for Phase 2 of the sub- project. Possible livelihood issues which may arise due to the project execution will be addressed through preparation and implementation of ESMP.

3 PROJECT DESCRIPTION

3.1 OVERVIEW

Bhatti Gate is one of the historic thirteen gates of Walled City of Lahore in District Lahore. Its entrance is located on the western wall of the Old City. It is one of the two oldest entry points into the Walled City which controlled the only major north-south thoroughfare during Ghaznavid period. It is named after Great Bhatti Rajput Warriors. When Emperor Akbar expanded the city eastward and divided it into nine districts, Bhatti Gate and its bazar marked the boundary between Mubarak Khan in the east, and Talwar in the west. The approach road leading from the gate is lined up with a stretch of Shahrah-i-Pakistan, South of Circular Road to Bhatti gate. The gate was rebuilt in the British era.

Bhatti Gate is located on the southern side of the Walled City. This part of the Walled City was nicknamed the Chelsea of Lahore, because of its polished gentry. Many edifices of historical and architectural value are present in this zone, which shows the cultural and historical significance of this area. The main trail running through this area is the Bazaar e Hakkima (the mall of the healers). It is famous for Unchi Masjid, Bazaar e Hakkima and its close vicinity to the Shrine of Data Gunj Bakhsh. The shrines of Pir Jhanday Shah and Billian Wali Sarkar also lies behind this gate. The Faqir Khana Museum is also situated here in the historical Faqir Haveli. The national poet of Pakistan Dr. Muhammad Allama Iqbal stayed here during the time he was studying in the Government College. The beautiful Wajid Ali Shah Haveli is also in this area. This was also the home of a famous wrestler Kala Maro Pahlawan. The Indian singer Mohammad Rafi was born and bred here. Every year during Muharram the Zul-Jinnah procession passes through this gate to reach Karbala Camay Shah. This area is a gourmet's heaven. You can find the best breakfast stalls here which sell Halwa Puri, Siri Paye (Cows Brain and Hoofs) and Lassi (churned yogurt drink) here. Besides this Qatlambas (fried pancakes) are specialties of Bhatti. The area inside the gate consists of narrow roads. It is congested and thickly populated; however, it is famous in the city and even in country for its traditional cuisine and taste of food.

Apart from the deteriorated conditions of historical buildings the infrastructure of the area also needs attention. Existing open drains are damaged and collect sewage from and surrounded shops and houses. Open drains penetrate in the foundation of buildings, causing seepage and damaging the foundation, resulting in collapse of building and reducing its life. These open drains are also used as a garbage/solid waste disposal point thus resulting in decrease of water carrying capacity of these drains causing nuisance, environmental issues and spread of diseases. Solid waste is rampant everywhere. There are heaps of wastes which attract rodents, flies and disease vectors. During rain, storm water and sewage overflow from the drains and spread solid waste. The project envisages the reconstruction of existing networks by replacing the existing pipelines and inserting into the existing network using modern materials and technologies, which will shorten the construction time, installation and significantly increase the period of operation of the network at the sites. The hanging electrical wires give an untidy look to area, disrupt commercial activities, create social upheavals and

leads to an unpleasant environment. Therefore, infrastructure rehabilitation and improvement is the need of hour to use the tourism potential of the area and made it a favorite tourist destination.

Bhatti Gate is one of the historic thirteen gates of the Walled City of Lahore, the Gate is located in front of Data Darbar. In order to get first-hand information, the project area was visited, and the findings are as follows: -

3.1.1 Main Trail

Main Trail of Bhatti Gate has both sides shops of different trades, i.e., Milk, Sweets, meat, chicken, Grocery, Hukkahs, crockery stores and many more. It is the busiest road with bituminous surface, open drains on both sides along the road for wastewater have been provided. Water Supply through G.I pipelines has existed. There are shops of different sizes on both sides of the trail, encroachment is a common feature.

The main bazaar of Bhatti Gate is home to the residence of Allama Iqbal and renowned streets such as Koocha Faqir Khana, Sheesh Mahal Ghatti, Moti Tibba, Gali Muhammad Judge Latif, Faqir Khana Museum, Mubarak Haveli, Naqsh School of Arts and Gali Molana Rohi, among others.

3.1.2 Streets

There are in total fourteen streets of different sizes mostly narrow under the subjected project, seven streets on both sides some streets are very long, and some streets are short. Some streets have open drainage system and in some streets the drains are covered with concrete slabs. For example in L-1 Street Faseel road, L-4 Mohalla Pat Rangan, R-1 Gujjar Gali, the drains are covered with concrete slabs. Whereas in L-2 street Mohalla Islam Khan, L-3 Dawa Khana Rar Kareem, L-5 Rajpot Galli, R-5 Galli Dr. Muhammad Din the drains have an open drainage system. Water supply is catered through G.I pipes in these streets; habitants have complained the contaminated water. Buildings in the streets are mostly used for residential purpose, small shops on ground floor, few godowns along with some shops of eateries etc. The details of the streets are given in **Table 3-1**.

Table 3-1: Details of Streets in the Subproject Bhatti Gate to be rehabilitated

Sr.	Streets on Left & Right side of Main Trail	Length of Street (Meter)	Width of Street (Meter)	Name of Mohalla / Area Attached with the Street and Type of Street Surfacing
1	L-1	223	6.75	Faseel Road – Asphalt
2	L-2	113	4.00	Mohalla Islam Khan – Asphalt + PCC
3	L-3	25	1.50	Dawa Khana Rar Kareem – Brick Tile Flooring
4	L-4	83	3.00	Mohalla Pat Rangan – PCC
5	L-5	7	1.40	Rajpot Galli – Brick Tile Flooring
6	L-6	110	3.00	Tavella Sheikhoo – Brick Tile Flooring

7	L-7	210	5.50	Gujjar Galli – PCC
8	R-1	55	5.50	Gujjar Galli – PCC
9	R-2	191	3.25	Mohalla Orangzaib – PCC
10	R-3	34	7.00	Mohallan Jalotian Street 2 – PCC
11	R-4	37	2.00	Mohallan Jalotian Street 1 – PCC
12	R-5	22	2.00	Galli Dr. Muhammad Din - Brick Tile Flooring
13	R-6	20	1.25	Galli Javahrian – Brick Tile Flooring
14	R-7	342	3.00	Kocha Shah Anayait – Brick Tile Flooring

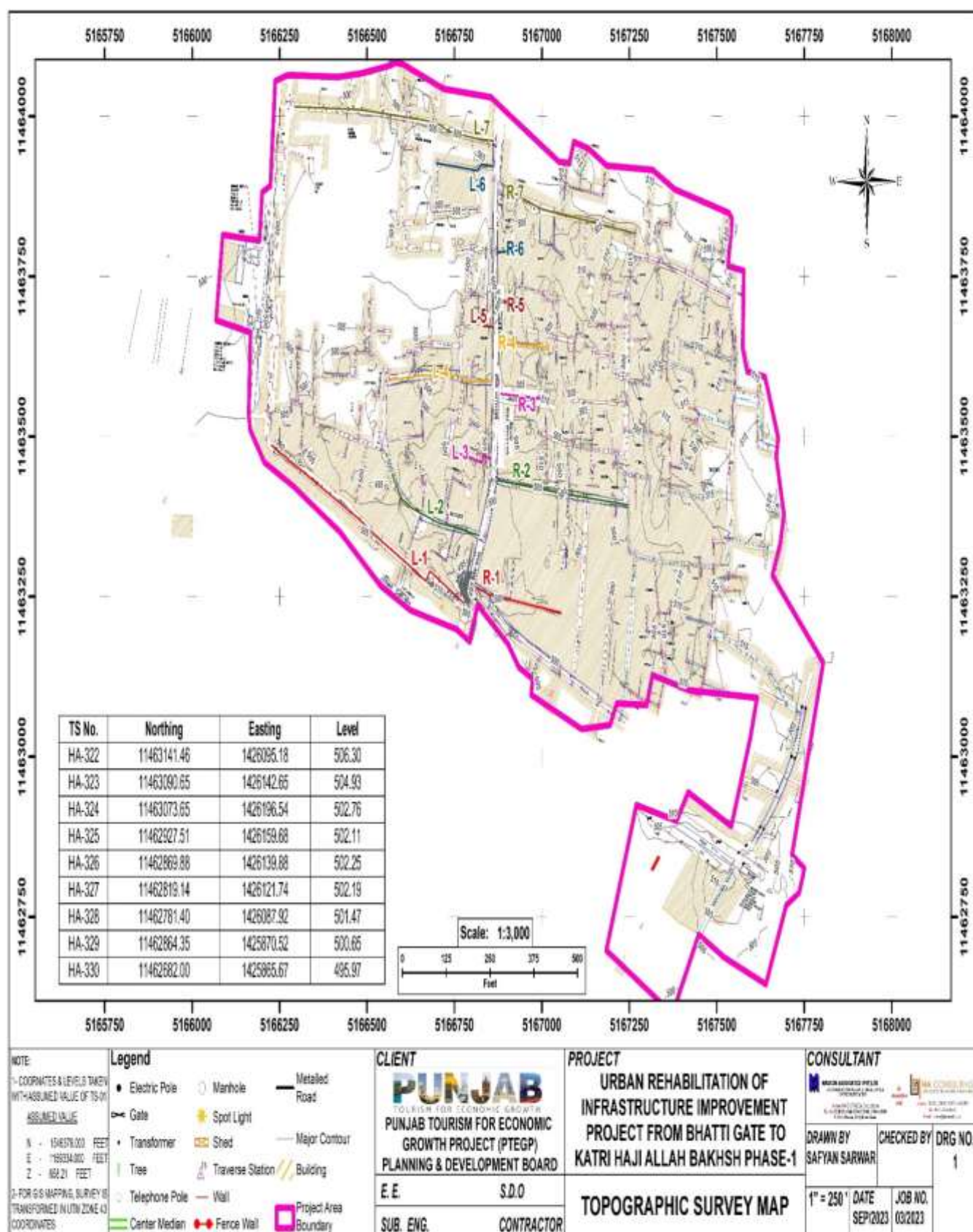


Figure 3-1: Details of Streets in the Subproject Bhatti Gate to Be Rehabilitated

Figure 3-1 shows the details of Streets in the Subproject Bhatti Gate to be rehabilitated. Mohallah Jalotiyaan Street 1 and street 2 are a part of phase 2 Bhatti gate project. These are present on right side of Right side of Main Trail. The length of street 1 is 37 meters and its width is 2.00 meters while the length of street 2 is 34 meters and its width is 7.00 meters. Both are made of PCC material. The house of Dr. Allama Muhammad Iqbal is located opposite to Muhallah Jalotiyaan. But now the house has been converted into the office of a local music band. Mohallah Jalotiyaan is considered an important locality due to residences of known and educated personalities over here.

Mohalla Islam Khan is located as the second street on Left side of Main Trail. The length of this street is 113 meters, and its width is 4.00 meters. It is made up of PCC+ Asphalt material. Mohalla Islam Khan is the most ancient residential area of Muslim community in Bhatti Gate. It is said that the residents of this area converted to Islam on the preaching of Hazrat Ali Hajveri Data Ganj Baksh (R.A). Mohalla Islam Khan derived its name from Islam Khan—a known Muslim personality of the area.

Mohallah Patrangan is located as the fourth street on Left side of Main Trail. The length of this street is 83 meters, and its width is 3.00 meters. It is made up of PCC material. Mohallah Patrangan got its name after many cloth dyers once lived there. In the old days the streets were named after famous castes, personalities or occupations of the residents.

Koocha Shah Inayat is located as the seventh street on Right side of Main Trail. The length of this street is 342 meters, and its width is 3.00 meters. It is made of Brick Tile Flooring material. Koocha Shah Inayat is located near Oonchi Masjid and attributed to the name of Great Sufi Saint Hazrat Shah Inayat Qadri (R.A). Shah Inyat used to live here during the last days of Mughal Era. He was spiritual Pir of Baba Bulleh Shah. When Bulleh Shah came from Kasur to conciliate his Pir, he became the disciple of Hazrat Sha Inayat in the same mosque. He used to sit in the stairs of Oonchi Masjid.

3.2 PROPOSED INTERVENTION

Given the length of the street, its integral surrounding areas and the finesse of the work needed for its rehabilitation, a phased approach to development has been designated by the Clients. The Bhatti Gate Area has been divided into 4 Phases.

Phase 2 is designated as the area for this present consultancy.

WCLA has provided some salient aspects of the Project Area of Bhatti Phase-1, which are identifiable as East-1 and East-2, West and Main Trail as shown below:



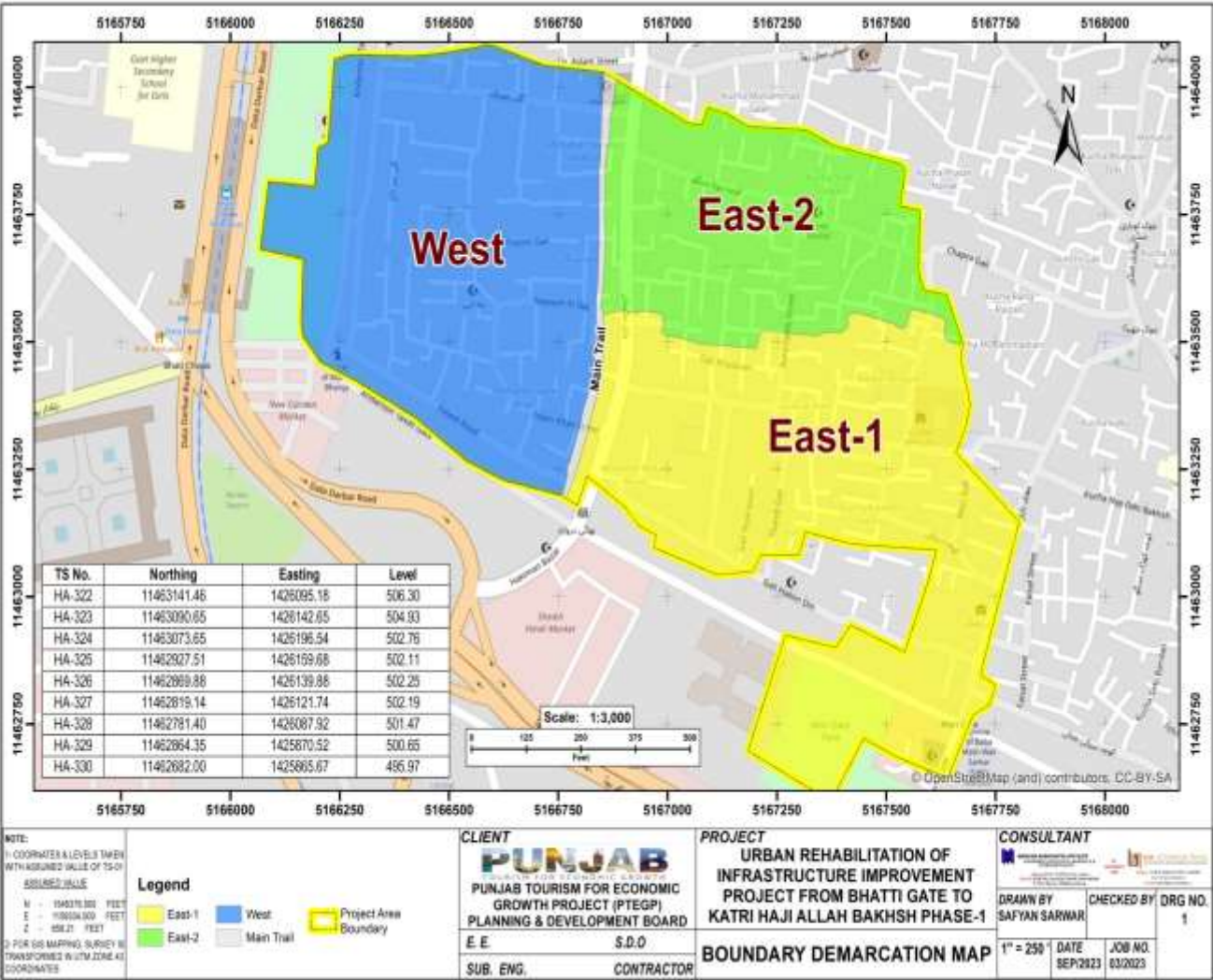


Figure 3-4: Demarcation MAP of Bhatti Gate Area

The scope of work of the sub-project is further divided into two phases, based on proposed physical interventions i.e.

Phase 1 – Conservation of Historical Buildings/Monuments, relocation of water supply filter plant, and Development of Car Park

Phase 2 – Infrastructure Improvement Work in the Project Area

This ESMP will be aligned only to infrastructure improvements suggested under phase 2 of the sub-project. A separate ESMP has been prepared for the Phase 1 activities.

3.2.1 Phase 2 Proposed Intervention

Proposed physical interventions are described below in section wise.

Section 1. Main Trail

- Street Surfacing
- General Works
- Water Supply System
- Sewerage System
- Storm Water Drainage System
- Sui Gas
- Electrical Work
- Telecom

Section 2. West Part of the Site – Infrastructure Improvement Work on East Side

- Street Surfacing
- General Works
- Water Supply System
- Sewerage System
- Storm Water Drainage System
- Sui Gas
- Electrical Work
- Telecom

Section 3. East Part 1 of the Site – Infrastructure Improvement Work on West Side A

- Street Surfacing
- General Works
- Water Supply System
- Sewerage System
- Storm Water Drainage System
- Sui Gas
- Electrical Work
- Telecom

Section 4. East Part 2 of the Site – Infrastructure Improvement Work on West Side B

- Street Surfacing
- General Works
- Water Supply System
- Sewerage System
- Storm Water Drainage System

- Sui Gas
- Electrical Work
- Telecom

3.3 PHASE 2 PROPOSED INFRASTRUCTURE IMPROVEMENT

Improvement of infrastructure facilities like water supply, fire hydrant system, domestic sewerage, storm water sewerage, electrical work, illumination work, gas, telecommunication and street surfacing will be done in phase 2 of the project. Civil works of the infrastructure improvement would include but not limited to during the execution of work:

3.3.1 Existing Water Supply

The water supply and wastewater drainage system of walled city area is managed by Water and Sanitation Agency (WASA) Lahore. Underground water supply system is available in the whole sub-project area. WASA Lahore was established by Lahore Development Authority during 1976 for the planning, designing, development and maintenance of water supply, sewerage and draining system in Lahore. WASA utilize groundwater source of the area for feeding Lahore water supply system and have installed about 600 groundwater pumping tube wells across Lahore city. Tube wells are the main source of portable water in the sub project area. These tube wells are directly connected with the water supply pipelines. There are no water reservoirs or disinfection measures. The Lahore city has approximately 600 tube wells (WASA Record)¹ drawing drinking water from the aquifer below the ground. The walled city is supplied with water from various tube wells from Circular Garden. Presently there are 30 tube wells but only 10 are functional. The water supply system is supported by tube- wells, pumps, pipelines, and reservoir. They are generally in poor condition with minimum regular maintenance. The practice of illegal connections is a major source of contamination in water supply systems that ultimately affects the health conditions of the residents living within the WCL. The nearest WASA water supply tube well is located on N5 main road west of the Bhatti Gate area. The water distribution system is opened at three intervals i.e., from 04:00 to 08:00, from 13:00 to 15:00 and from 17:00 to 20:00, making a total time of nine hours daily. Due to lack of water pressure, the consumers are left with no choice other than using water pumps to pull potable water directly from the supply line to their overhead water tanks. This practice results in negative pressure in pipes that contaminates the water by sucking impurities from the old deteriorated pipes. Cast iron (CI) pipes were used for distribution of water during the later decades of the 19th century. In quite recent years cast iron pipes have been replaced at various places by ductile iron (DI), with asbestos or fiber cement pipes below the ground and hot dipped galvanized steel pipes above the ground level (AURECON 2009b).

The WCL has no separate system for wastewater disposal. The foul sewage collection and conveying system within most of the sub-project area is not covered and comprised on open sewerage channels. These open sewer channels (also called “*Nali*” in local language) are partially covered, particularly at front of main entrance of houses or shops. This joint system has given rise to accumulation of solid waste in the existing sewer pipes which in turn is choking the system. The water extraction depth varies from 700 to 800 feet. Underground sewerage system available at few places in main street (Mail Trial) area only. Sewage conveying channels (Nalis) also collect storm water during rain and

¹ WASA, Office Record of Directorate General Water and Sanitation Agency, Lahore

eventually falls in the main open concrete and brick lined drain located just outside Bhatti Gate. On the northern area of the WCL, a drain starts at Masti Gate and flows toward the north-east corner of the WCL, where it is connected with the Greater Lahore drainage system. No Treatment Plant is installed in the proximity of the WCL. All the effluent is collected and thrown in the River Ravi that has become severely polluted by such irresponsible measures.

Replacement of water and house terminals, electricity wires and transformers, Sui gas meters and telephone cables will be carried out without dismantling of existing amenities; therefore, supply interruptions are not foreseen. It is possible to switch off the water supply/electricity/gas only at the time of carrying out works on connection to be reconstructed and during emergencies.

3.3.2 Proposed Water supply system

Keeping in view the existing water supply and sewerage system limitation new design of water supply system is proposed for Bhatti Gate phase 2. It consists of design of water supply system for the Bhatti Gate phase-2 Project Walled City, Lahore. The main features of the water supply system include the following:

- i Water Demands
- ii Water Source
- iii Overhead Reservoirs
- iv Water Distribution System
- v System Appurtenances
- vi House Connections

Design Criteria for Water demands of the proposed project is generally based on the criteria adopted by WASA Lahore. However, being a posh scheme, certain improvements like water metering, construction of Over Head Water Tank have been suggested in the design of water supply, sewerage and drainage system.

3.4 Domestic Water Demand

3.4.1 Population

An accurate estimation of the residential population is an essential pre-requisite for provision of services in the project area. According to the census held in 1998, persons per house are 7 in Lahore. This is an average value and also includes highly congested areas. For planned societies persons per house are commonly less in average. For Congested areas like Walled city population density is high as compare to the whole city. The Walled City of Lahore covers an area of 256 ha with a population of 200,000. Average persons per house are 15 in walled city. Bhatti Gate consist of approximately 155 kanal area consist of 870 households in boundary of the project phase-2.

Table 3-2: Population Estimation of Project Area

No of Plots/ Apartments	Persons per apart /Plot	Population
870	15	13,050

Total	13,050
-------	--------

Table 3-2 shows estimation of ultimate population for the project area. Estimated ultimate population for the Bhati gate walled city Project area is approximately 13050.

3.4.2 Water Source

The development of ground water system is recommended for Bhati Gate Area. The water can be pumped directly to overhead reservoirs proposed within the site of the Project area i.e Mori Gate park through the proposed tube well. The water source is developed on the basis of maximum day demand. This includes per person water consumption in residential areas. Keeping in view the characteristic of the development of the scheme, the criteria adopted is 50 gallons per capita per day (Inception report, Mascon JV HA associates, 2023).

3.4.3 House Connections

Metered house connections shall be provided for each house to avoid road cutting in future. Polyethylene pipe shall be laid before the construction of road and shall be connected with ferrule on main water lines. Each house shall be connected with a separate ferrule. This will also avoid damage to main pipe lines.

Over Head Water Tank

Over Head Water Tank (OHWT) has been proposed to facilitate in hourly variations of water demand, to cater the demand in case of failure of pump or in case of emergency. Keeping in view these factors, the capacity of overhead water tank is taken equal to four to six hours storage of average day demand and one to Two-hour Storage for Fire Fighting.

Total OHWT Storage Provided = 04 to 06 hours Capacity of OHWT Provided = 100,000

Gallons Number of OHT Provided = 01

The civil works under this head includes:

- Earth work excavation
- Excavation of trenches in all kinds of soil except cutting rock for water supply pipelines, complete in all respects
- Removal of old broken pipes
- Laying of pipes, cutting, jointing by approved Chemical at site, testing



Figure 3-5: Preliminary Layout Plan of Water Supply System

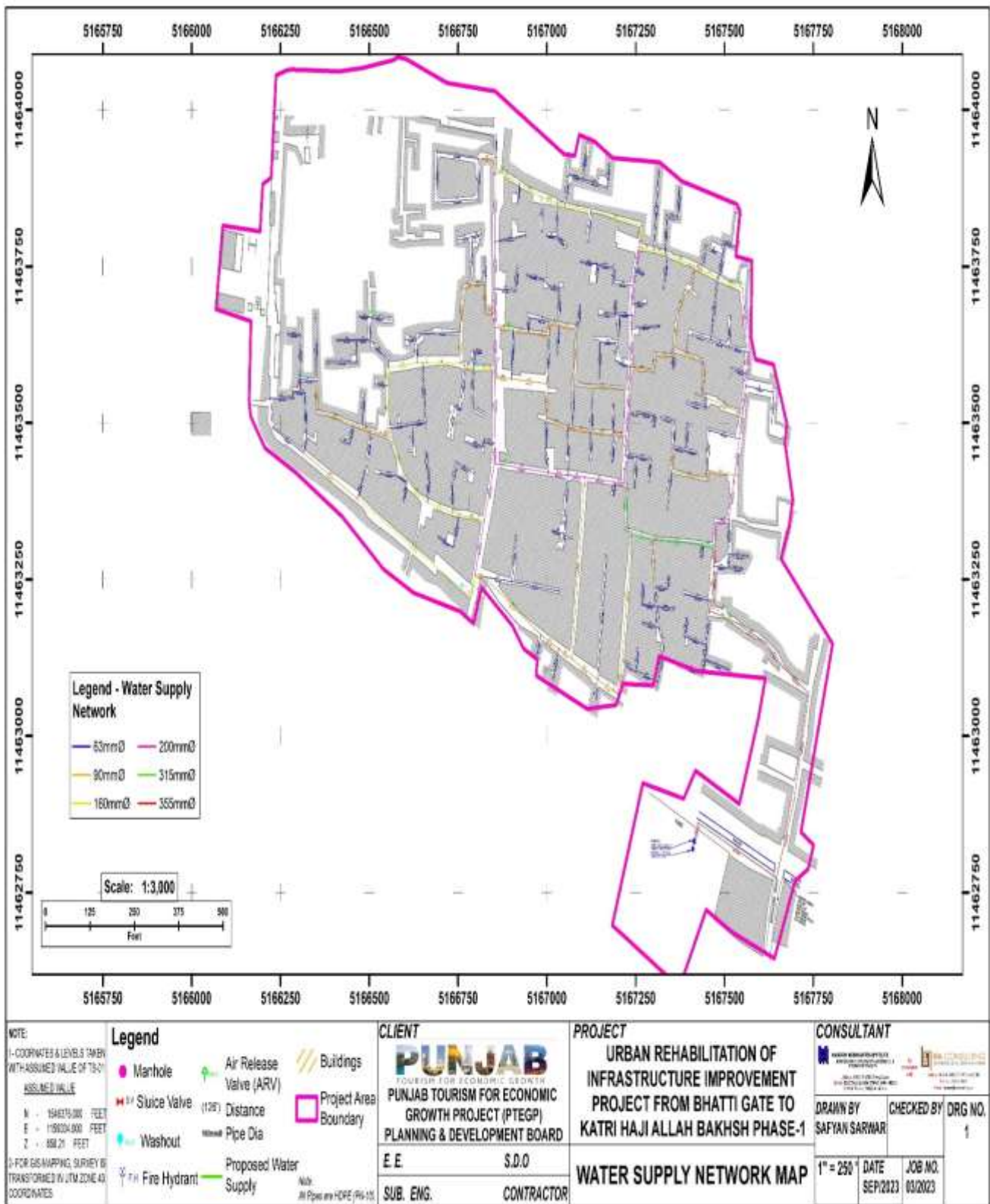


Figure 3-6: Water Supply Network Map

- HDPE pipe, Providing and installing of valves, Joints and Construction of brick masonry (1:4) sluice valve/ flush valve chambers
- Re-filling of trench
- Construction material loading/un-loading
- Disposal of waste pipes
- Water supply house connections- Providing and installing house connection, commissioning of water meter of 20 mm size, Providing and laying of G.I. pipes

3.4.4 Fire hydrants

- Providing, installing and testing Pillar Type Fire Hydrant, Model FHP-002 having 150mm (6") main barrel diameter, 1 No.

3.4.5 Sewerage system

Keeping in view of the existing water supply and sewerage system limitation, a new design of sewerage system is proposed for Bhatti Gate phase 2. The client plans to separate the domestic sewer and wastewater system. As during the heavy rains, the combined sewer overflows. That combined water collects in the drain outside the Bhatti Gate as a pond and ultimately infiltrated or naturally evaporated. Also, Bhatti gate lies at the lowest gradient of WCL and serves as the catchment area due to presence of Drain outside its gate. During heavy rains the area is flooded with rainwater and the inhabitants suffer a lot.

The design objective is to evolve a sewerage system, which can be operated with minimum maintenance for design life of the project and is hydraulically capable of handling the sewage of the proposed project in cost effective manner. The design parameters are discussed in the succeeding paragraphs. The minimum diameter of pipes to be used shall be 6 inches due to small width of the street availability of less workability.

3.4.6 Location of Sewer

Location of sewer is shown in Road Cross-sections.

3.4.7 Cover to Sewer

The minimum Soil cover over the crown of pipe shall be 2 feet for 6 inches pipe and 3 feet for larger diameter from the finished grade level. However, where it is not possible due to certain limitation such as existing Sui gas pipeline level or to connect the proposed sewer with the outside trunk sewer etc, concrete cradle will be provided to the pipe.

3.4.8 Sewage Collection System

Based upon above design criteria the sewage collection system has been designed. A minimum size of "6" sewer is proposed. These lateral sewers will be connected to sub-

mains and trunk sewers. The maximum size of trunk sewers comes out to be “24” diameter which shall be ultimately taken to sewage disposal point. Gravity sewers are designed at minimum self-cleaning velocity. The proposed layout of the entire sewerage system is shown in sewerage design drawings. The entire sewage of the project shall have a disposal in the nearby drain passing outside the project area.

3.4.9 Sewage Disposal

To dispose of the wastewater, a sewage pumping station is proposed. The pumping station is planned to be constructed on state owned land. The existing pumping station (that is under capacity) is located in WASA office which is just approx-0.5 KM away from the proposed phase-II. The proposed pumping station will be constructed in the existing Bhati Gate WASA office. There is sufficient state land available to construct a new pumping station. The availability of state land is confirmed by the implementing agency. **Annexure-C** provides the verification of availability of state land for the proposed pumping station. The depth of the pumping station comes out to be 11 feet. The submersible non clogging type pumps have been proposed for lifting of the sewage. The sizing of wet well shall be based on 10-min detention time for Average Sanitary Flow.

The civil works under this head includes:

- Dismantling and removing of existing G.I./C.I. Water supply lines of under given sizes including fittings such as tees, bends, unions, Gibault joints, sluice peat valves
- Cutting and laying 150 mm (6") Sewer Line, 200 mm (8") Sewer Line
- Fixing DI Manhole Cover 600mm Dia for existing RCC Sewer Manhole Casting of RCC (in approved ratio) manholes for main Drain, Raising/repair work of existing manholes complete for main sewer.
- Excavation and backfilling of the sewerage pipes trenches, with taking care and protection of underground services (i.e., phone networks, electricity networks, etc.)
- Restoration of paths of the streets after sewerage and Manholes rehabilitation
- Bypass by diverting the flow to downstream manhole temporarily till maintaining the manhole. Leveling and compaction work with proper material



3.4.10 Storm water drainage system

In the sub-project area, the storm water is collected combined with the wastewater through an open-lined drainage system. From the side street and streets, it is collected in a drain at the periphery of the WCL that is further drained out into an out fall drain and pumped from Babu Sabu Outfall station. At certain points where the concrete slabs are broken, solid waste along with storm water enters a combined drain that causes various problems of blockage. During heavy rains, the combined sewer overflows and the water collects in the Circular Garden as a pond that is ultimately infiltrated or naturally evaporated. Rainwater Collection pit is already provided with each Manhole with Screens.

The current design does not provide a sustainable solution to emergency overflows. In the event of an overflow the surrounding areas are flooded with raw sewage causing both environmental damage and a public health crisis. The following are the main features of storm water drainage system.

- Lateral Drain – laying of PVC pipe to the designed gradient, jointing and testing laying, jointing and testing of prefabricated PP manhole chambers for drainage,
- Combine system is designed i.e. an allowance is taken to accommodate the storm water flow while designing the sewerage system.
- Because of the limited area, on surface drainage is proposed for minor roads while of major Road (i.e. 100 ROW), storm water drains are provided.
- Gully grating is also provided on roadsides for the collection of storm water flow. Refer drawings for the layout of Gully Grating plan.
- Fixing 100 mm i/d PVC storm water pipe with rubber rings from top roof to street surface.
- Main Drain- uPVC Pipe cutting and laying to the designed gradient
- Providing and laying R.C.C manhole covers
- Providing and fixing Perforated DI Manhole Cover for RCC Storm Water Manhole

3.4.11 Electrical network improvement

The electricity infrastructure a service in the sub project area seems to be serving on an ad-hoc and need based arrangements. The planning component seems to be lacking in electricity infrastructural services in the sub project area. There are three major grid stations named the Fort grid station, Mochi gate grid station and Bhatti gate grid stations from where electricity is provided to the WCL and its neighborhood. These three grid stations are fed from Ravi, Band Road and New Kot Lakhpat 220 kV substations (LESCO Record).

The Fort grid station containing outdoor air-insulated equipment is placed in a fenced compound underneath fabric mesh netting that protects against foreign objects (AURECON 2009c). It is the oldest grid station dating back to 1980. It is fed through the greater Lahore transmission network through an overhead line to Ravi grid station and an underground cable to Bhatti Gate grid station.

Bhati Gate grid station was constructed during 1994-95 and is in good condition. Bhati Gate grid station which is main source of electricity in the sub project area contains outdoor transformers coupled with indoor gas-insulated switchgear. This grid station is connected through two underground transmission lines, one from Fort grid station and the other from Rewaz Garden grid station.

At present there are 11 pole-mounted oil cooled Distribution Transformers erected in the subproject area (8 are of 400kv capacity and 3 transformers of 200 KV capacity, a total of 3800 Kv. load), on the roads wherever some space is available.

In busy and congested areas, transformers are mounted as clusters. Such cluster type arrangement of pole-mounted transformers reflects the unplanned and haphazard approach of the service providers that not only hamper the vehicular and pedestrian traffic flow but also encourage the encroachments by offering a space for day- shops. A variety of electricity meters ranges from older electromechanical meters to latest meters are present in sub project area. These meters are located outside the houses, fixed on the walls to minimize the pilferage of electricity.

The Medium Voltage/ Low Voltage (MV/LV) electrical network that supplies the WCL is not properly and systematically designed for an area of such an important heritage value and is in fact damaging the visual impact of the heritage buildings inside the WCL. The MV (11kv) network is laid down as overhead cable that hangs from various posts, buildings or whatever is available in the streets. Visually it appears to be disorderly and gives the area a messy look, hence damaging the aesthetics of the sub project area.

The proposed civil works and installation for electrical infrastructure improvement are as under:

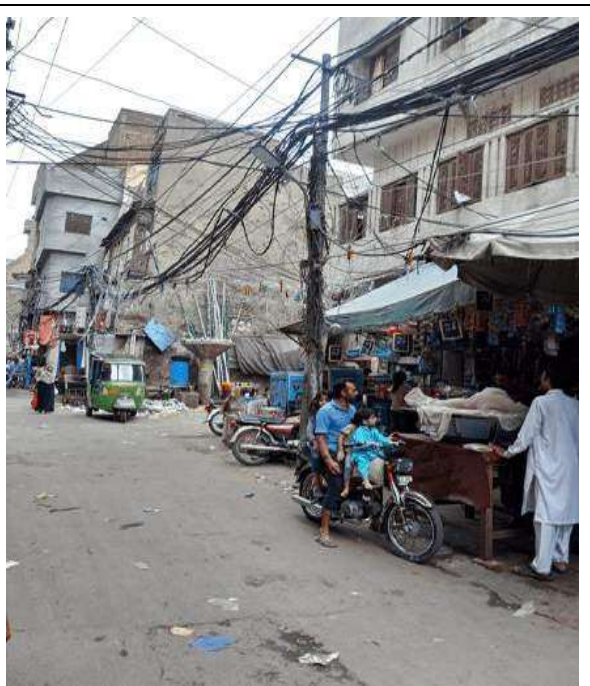
- Installation, testing and commissioning HT (High Tension 11 KV) pad mounted gas insulated RMU (Ring main units) outdoor as per WAPDA Specification,
- H.T. switches, HRC fuses etc., for H.T. Cable connections
- Laying, testing and commissioning of HT XLPE armored cables, laying directly in sand layer in already excavated trenches including cable binding ties for single/Three core cables and provision of warning tape.
- Construction and Preparation of foundation for Pad Mounted Switch
- Construction and Preparation of foundation for Pad Mounted Distribution Transformers
- 9 Distribution Transformers of 630 KVA

Figure3-8: Pictorial View of Project Area

	
Open Drains and Solid Waste Disposal	Open Drain Carry Wastewater of the area to the disposal pumping station
	
Sewerage System with open Gutters	A view of outside of Bhatti Gate during heavy Rain



Cluster Of Transformers on The Main Trail



The open Electric Wires Should be underground



Transformers are placed Haphazardly before houses and in the middle of street



Transformers are placed Haphazardly

Figure3-10: Pictorial View of Project Area

	
The open Electric Wires and electrical pole outside school	No treatment plant the sewage water in WASA office near the sub project site
	
Improvement Required in Waste Management Practices in the Area	

3.4.12 Sui Gas

- Providing, installing and testing of domestic natural (Sui) gas meters and commercial natural (Sui) gas meters according to ANSI standards, accessories and performance requirements against damage due to incidental fall or other mechanical impacts

- Cost of dismantled material making inventory and handing over the SNGPL Ltd. existing material and G.I pipe handing over to the honors.

3.4.13 General Works

- Dismantling cement concrete (P.C.C.) with care protecting adjoining structures i/c removal and disposal of debris from site to an approved dumping area.
- Dismantling of existing brickwork with its surface finishes with care, protecting adjacent surfaces from damage i/c removal and disposal of debris from site to an approved dumping area
- Earthwork excavation in open cutting as per drawings including, dressing to correct section and dimensions according to templates and levels as per drawings and removing surface water, in all types of soil except shingle, gravel and rock.
- Disposal of excavated earth from site.
- Provision for making temporary arrangements for continuity of all services to the houses on streets/roads in Pilot Project during dismantling /laying of service lines and dismantling/ installation of house connections inclusive of all incidental costs, (including pumping of underground water), complete in all respects.
- Providing and fixing Mohalla Name Plate 24"x12" with 3M film of stainless-steel including paint and printing etc.
- Dismantling and removing of existing G.I./C.I. Water supply lines of under given sizes including fittings such as tees, bends, unions, Gibault joints, sluice peat valves etc.
- Dismantling and removing of existing under given Telecom services. Dismantling and removing of existing under given Telecom services.
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3.5 LABOUR REQUIREMENT

It is envisaged that at the peak of the construction activities, up to 200 persons are likely to be employed for the works at site. Approximately 90% of the workforce will be available from the local resources i.e., Lahore city while 10% of labour (particularly skilled labour) may be hired from other parts of the country. The contractor will arrange living place for his migrated work force by renting a house near the project area. A suitable available house for the living of sub-project staff is identified and recommended by WCLA near the project area, the contractor will make an agreement with the owner of the house for renting the place. However, if the contractor prefers different house for their migrated site-based staff, then contractor should assess tap water quality of the house from his own expenses and ensure the tap water meets the required criteria. The project staff must respect local cultural values and the privacy of the community. Project worker's code of conduct (provided as **Annexure-D**) should form a part of the employment contract.

3.6 SUB-PROJECT SURROUNDING AREA

Bhatti Gate is located in the western part of Lahore city near Data Darbar shrine. Data Darbar, the mausoleum of the Sufi Saint Ali Hajweri (also known as Data Sahib Ganjbakhsh) and it is the largest Sufi shrine in South Asia. Bhatti gate is known historically as a center for arts and literature in old Lahore. Well reputed food places are located inside the wall city. Restaurants in the area sell good quality of food at bargain price and are very busy particularly during weekends. Well known heritage and tourist sites Lahore Fort and Badshahi Mosque are located at north of the project area at about 1Km.

3.7 TYPE OF MATERIAL

Following type of material will be required for the proposed work scheme:

- Different types of bricks (burnt brick, burnt bricks in lime mortar) and floor tiles;
- Pre-cast concrete blocks, cement concrete perforated jail, different types of plasters (cement sand plaster, kankar lime plaster);
- Reinforced concrete (cement, sand, aggregate, steel), crush stone aggregates (sub-base+ base, asphalt and concrete material);
- Sheet rolling shutter, small iron works (gusset plates, knees, bends, stirrups, straps, rings etc.) and steel grated doors;
- Water supply pipes and wastewater conveying pipes (storm water and foul sewer);
- Plane and printed Glass;
- H.T. switches, HRC fuses etc., for H.T. Cable connections
- Laying, testing and commissioning of HT XLPE armored cables
- PVC pipes, GRP pipes, HDPE pipe, and cables; and
- Air Cooler /Water Tank and exhaust fan.

3.8 SOURCE OF MATERIAL

The common source of materials required for the civil works is described in below **Table 3-3**.

Table 3-3: Source of Raw Materials

Sr. #	Construction Material	Source
1.	Brick, Floor Tile	Available from brick kiln located in the outskirts of Lahore City, number of Floor tiles suppliers available in the city
2.	Coarse Aggregate	Available from quarries at Sargodha
3.	Crush Stone	Available from quarries at Sargodha and Sakhi Sarwar
4.	Sand	Use Lawrencepur sand from Lawrencepur, District Attock.
5.	Water for preparation of concrete and other utilization at site during construction phase	Available water supply can be used with the permission of WASA Lahore, or the contractor can install his own tube well with the permission of WASA.
6.	Cement	Portland cement is available from cement factories and from local suppliers e.g. Bestway Cement factory, DG Cement Factory, Maple Leaf Cement factory etc.
7.	Reinforcement steel	Grade 60 / Grade 40 reinforcement steel is available from re-rolling mills at Lahore, Karachi, Faisalabad and Multan or from steel supplier based in Lahore with approval of the Supervision Consultant
8.	Wood, Pipes and Glass	Number of suppliers of these material available locally (based in Lahore), approval will be required from the Supervision Consultant.

3.9 PLANT AND EQUIPMENT

It is envisaged that the following equipment and machinery will be required for the execution of the proposed work scheme:

Table 3-4: Type of Plant & Equipment

Sr. No.	Plant and Equipment	Sr. No.	Plant and Equipment
1	Tractors with Water Tankers	10	Concrete Mixers
2	Mini Dump Trucks	11	Diesel Tanks
3	Excavators / Mini Excavator	12	Vehicles
4	Water Bouzers	13	Fence Panels

5	Tractors with Water Tank	14	Scaffolding or working Towers
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Sr.No.	Plant and Equipment	Sr. No.	Plant and Equipment
6	Fork Lifter	15	Cherry Picker
7	Mobile Crane	16	Ladder
8	Generators		
9	Welding Transformers		

3.10 CONSTRUCTION SCHEDULE

From the beginning of the construction to the commissioning of the sub-project phase 2 the construction schedule shall be provided by the construction contractor. However, the job is supposed to be finished within 15 months as per time estimated by PTEGP.

3.11 LABOUR RESIDENCE

Approximately 90% of the workforce can be obtained locally from the sub-project area. However, site based office/accommodation will be required for smooth operation and efficient supervision of the work. Contractor will have rented out house(s) for the site office and work supervision staff, rather installation of camps nearby the sub-project site with complete provision of health care facilities especially first aid. A GRM for labour will be established on site. All site workers will follow code of conduct (attached as **Annexure-D**) and ensure site offices or site workers living do not cause any inconvenience to local community.

3.12 SUB-PROJECT SUMMARY

Details of immediate surrounding area of the project site and salient features of the project are provided in **Table 3-5**.

Table 3-5: Sub-Project Summary

Name of Sub-Project	Total Area	Cardinal Directions	Scope of Work	Total Cost (million)
Urban Rehabilitation and Infrastructure Improvement Project Package – I from Bhatti Gate to Katri Haji Allah Bakhsh (Taveela Shaikhon) Walled City, Lahore	Approx. 77828.35 m ²	East Side: Highly populated residential area West Side: GT Road (N5) and beyond residential structures North Side: Bhatti Gate Residential Area and beyond Badshahi Mosque South Side: Hotels, Restaurants, shops and Data Darbar	Improvement of infrastructure facilities like water supply, fire hydrant system, domestic sewerage, storm water sewerage, electrical work, illumination work, gas, telecommunication And street surfacing	PKR. 1658.0 (Including Both phases 1 and 2)

4 ENVIRONMENTAL BASELINE OF SUBPROJECT AREA

This section provides an overview of the baseline environmental and social aspects of the sub- project area.

The sub-project area comprised of the highly populated Lahore walled city area. The access to the sub-project area is through the historical monument of Bhatti Gate structure. The gate is among 6 remaining gates of Lahore city out of 13 which were demolished during British era.

There are about 1028 number of properties within the sub-project area. High value heritage properties are identified and shown in **Figure 4-1**.



(Source: Developed under PCRMP study conducted for this sub-project).

Figure 4-1: High Value Heritage Sites within the Sub-Project Area

To develop environmental baseline conditions of the sub-project, data collected for the ESMP study conducted for phase 1 of the sub-project was considered. Tap water sample was collected from the house recommended for site office/living for site-based staff. Wastewater sample was collected from the main open drain running next to the Bhatti Gate monument. Tap water and wastewater samples collected on 21 October 2022. 24 hours ambient air quality and noise level monitoring were conducted between 21 and 22 of October 2022. Ambient air quality was monitored next to the Bhatti Gate monument. Noise level monitoring was conducted at two locations within the sub-project area (i) next to the school located close to the Bhatti Gate Monument and (ii) next to the

Health Center located in the sub-project Section East 2. Environmental sampling/monitoring locations are shown in **Figure 4-2**.

The environmental map (**Figure 4-3**) of the area shows main features of the project area, existing plantation area, existing location of transformers, potentially available area for new tree plantation, waste dumping sites etc. New plantation can be carried out at available strips of land along the open drain, main road/street and around the new proposed parking area. The approximate length of available strip of land (currently partially planted) for new plantation is 4km (assuming 1m width of the strip of land, the total area is 4000m²). According to Punjab Forest Department, 328 trees can be planted as linear plantation in one kilometer strip of land. Hence the maximum number of trees (exotic (fruit or colorful) or wooden trees) can be planted within or in the immediate surroundings of the project area is 1312 numbers. The type and thickness of new plantation will be finalized with the collaboration of PHA Lahore and other concern departments including WASA Lahore, LESCO, transport agency etc. ensuring the new plantation does not cause any hurdle in delivery other facilities to the community i.e. wastewater drainage, electric supply, traffic movement etc. It is also recommended to plant around 2000 flowers plant around the proposed parking and sitting area for the beautification in phase 1 of the project.

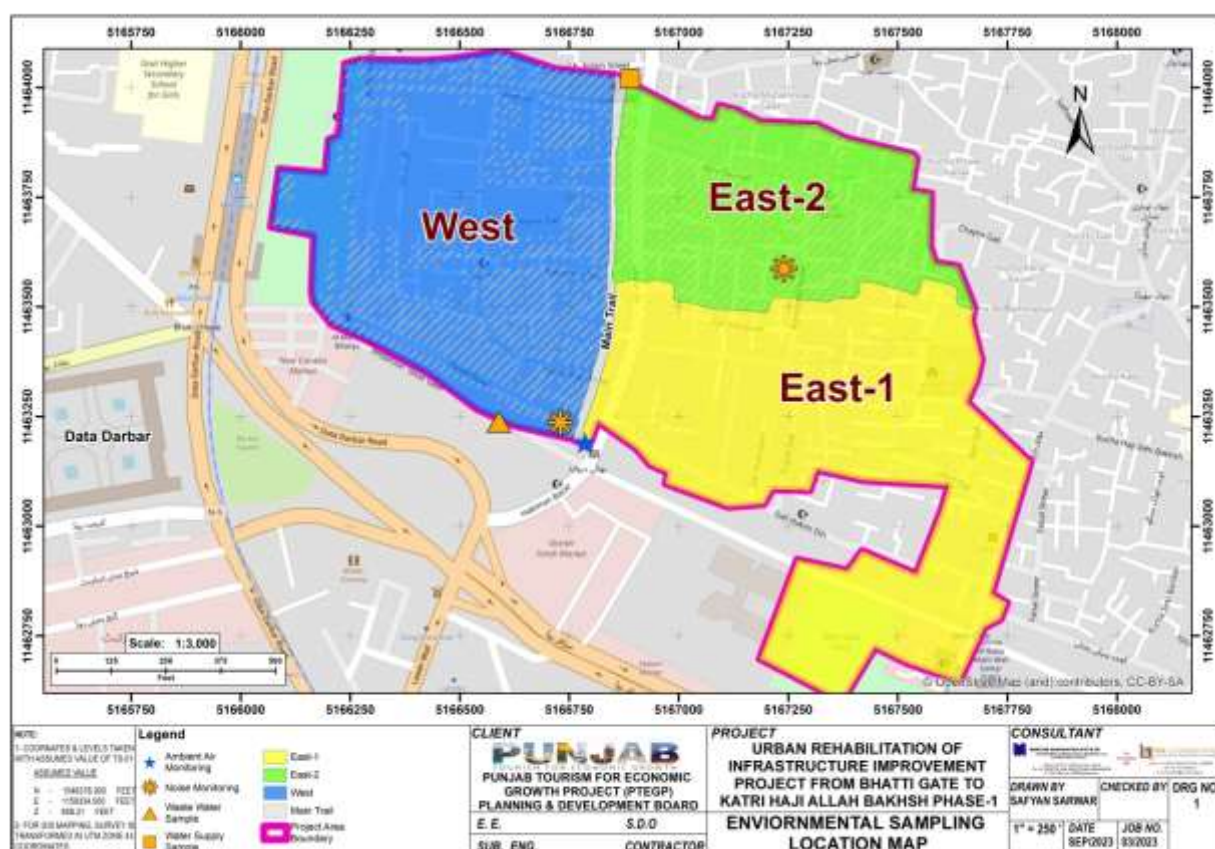


Figure 4-2: Environmental Sampling/Monitoring Locations for Developing Baseline Conditions

(Source: ESMP Report for Phase 1 of Bhatti Gate Rehabilitation/Improvement Sub-project)

4.1 PHYSICAL ENVIRONMENT

4.1.1 Water Quality

Water quality test results are obtained from the ESMP report for phase 1 of the sub-project. Test results are presented in **Table 4-1** and compared with WHO and PEQS for drinking water standards. Microbial contaminations are detected in the water sample and therefore it is recommended to treat the tap water before utilization as drinking water e.g. boil or filter.



Figure 4-3: Environmental Study Area

Table 4-1: Water Quality of Water Supply at Designated Site Office

Sr. No.	Parameters	Unit	WHO	PEQS (Drinking Water Standards)	Results
1.	E Coli	MPN	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	5
2.	Total Coli-form	MPN	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	8
3.	Fecal Coliform	MPN	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample	4
4.	Total Hardness	mg/L	-	<500	35.0
5.	Total Dissolved Solids	mg/L	< 1000	< 1000	297
6.	pH	-	6.5-8.5	6.5-8.5	6.8
7.	Arsenic (As)	mg/L	0.01	≤ 0.05	<0.01
8.	Barium (Ba)	mg/L	0.7	0.7	<0.1
9.	Boron (B)	mg/L	0.3	0.3	<0.1
10.	Cadmium (Cd)^	mg/L	0.003	0.01	<0.003
11.	Chloride (Cl ⁻¹)	mg/L	250	< 250	25.99
12.	Chromium (Cr)^	mg/L	0.05	≤ 0.05	<0.01
13.	Copper (Cu)^	mg/L	2	2	<0.5
14.	Fluoride (F)	mg/L	1.5	≤ 1.5	0.8
15.	Lead (Pb)^	mg/L	0.01	≤ 0.05	<0.01
16.	Manganese (Mn)	mg/L	0.5	≤ 0.5	<0.1
17.	Mercury (Hg)	mg/L	0.001	≤ 0.001	<0.001
18.	Nickle	mg/L	0.02	≤ 0.02	<0.01
19.	Nitrate	mg/L	50	≤ 50	3.2
20.	Nitrite	mg/L	3	≤ 3	1
21.	Selenium (Se)	mg/L	0.01	0.01	<0.005
22.	Zinc (Zn)^	mg/L	3	5.0	<0.5
23.	Sodium (Na)	mg/L	200	-	4.5
24.	Potassium (K)	mg/L	200	-	<1.0
25.	Calcium Hardness	mg/L	-	-	23.0
26.	Magnesium Hardness	mg/L	-	-	12.0
27.	Carbonates	mg/L	-	-	0.3
28.	Bicarbonates	mg/L	-	-	5.1

29.	Calcium (Ca)	mg/L	-	-	1.1
30.	Magnesium (Mg)	mg/L	-	-	0.6
31.	Total Suspended Solids (TSS)	mg/L	-	-	67.0
32.	²⁻ Sulphate (SO ₄)	mg/L	250	-	15.6
33.	Sulphide (S ²⁻)	mg/L	-	-	0.06
34.	Ammonia (NH ₃)	mg/L	-	-	2.5
35.	Alkalinity	mg/L	-	-	7.8
36.	Electric Conductivity	μS/cm	-	-	284
37.	Total Plate Count	CFU	-	-	12
38.	Greases & Oil	mg/L	-	-	Not detected

PEQS: Punjab Environmental Quality Standards

WHO: World Health Organization

(Source: ESMP Report for Phase 1 of Bhatti Gate Rehabilitation/Improvement Sub-project)

Wastewater sample was collected from the open drain on Friday the 21st of October 2022. The drain carries wastewater of the area to the WASA's wastewater pumping station. The test results are compared with PEQS for inland water quality standards. Marginally elevated level of Chemical Oxygen Demand (COD) identified in the wastewater, as shown in **Table 4-2**.

Table 4-2: Wastewater Test Results

Sr. No.	Parameters	Unit	Results	PEQS (Inland Water quality Standards)
1.	Temperature	°C		-
2.	pH ^	-	8.8	6-9
3.	Biological Oxygen Demand (BOD ₅ at 20 °C)	mg/L	79.0	80
4.	Chemical Oxygen Demand (COD)	mg/L	160	150
5.	Total Suspended Solids (TSS)	mg/L	116.0	200
6.	Total Dissolved Solids (TDS)	mg/L	554	3500
7.	Greases & Oil	mg/L	8.55	10.0
8.	Phenolic Compound (As Phenol)	mg/L		-
9.	Chloride (as Cl ¹⁻)	mg/L	135.96	1000
10.	Fluoride (F ¹⁻)	mg/L	0.7	10
11.	An Ionic detergent as MBAs	mg/L		-
12.	²⁻ Sulphate (SO ₄)	mg/L	55.5	600
13.	Sulphide (S ²⁻)	mg/L	0.7	-
14.	Cadmium (Cd)	mg/L	<0.003	0.1

15.	Chromium-Total (Cr)	Mg/L	0.06	1
16.	Copper (Cu)	mg/L	<0.5	1
17.	Lead (Pb)	mg/L	<0.01	-
18.	Mercury (Hg)	mg/L	<0.001	0.01
19.	Nickel (Ni)	mg/L	0.025	1
20.	Ammonia	mg/L	22.2	40
21.	Silver (Ag)	mg/L		1
22.	Zinc (Zn)	mg/L	<0.5	5
23.	Arsenic (As)	mg/L	<0.01	1
24.	Barium (Ba)	mg/L	<0.1	1.5
25.	Iron (Fe)	mg/L		8
26.	Manganese (Mn)	mg/L	0.23	1
27.	Boron (B)	mg/L	<0.1	-
28.	Chlorine (Cl ₂)	mg/L		-
29.	Sodium	mg/L	12.2	-
30.	E-coli	MPN	5	-
31.	Total Coli-form	MPN	5	-
32.	Total Plate Count	CFU	3	-
33.	Calcium Hardness	mg/L	220.2	-
34.	Magnesium Hardness	mg/L	112.0	-
35.	Carbonates	mg/L	0.9	-
36.	Bicarbonates	mg/L	5.5	-
37.	Total Hardness	mg/L	332.2	-
38.	Calcium (Ca)	mg/L	3.5	-
39.	Magnesium (Mg)	mg/L	11.5	-
40.	Potassium (K)	mg/L	1.2	-
41.	Nitrate	mg/L	3.2	-
42.	Nitrite	mg/L	0.5	-
43.	Alkalinity	mg/L	22.5	-
44.	Electric Conductivity	μS/cm	1109	-
45.	Nickel (Ni)	mg/L	0.025	1

(Source: ESMP Report for Phase 1 of Bhatti Gate Rehabilitation/Improvement Sub-project)

4.1.2 Waste Dumping Site

The waste transfer station site is identified next to the main drainage channel at south-west of the project site. Lahore Waste Management Company (LWMC) dump collected domestic waste of the surrounding area at the waste transfer site before it is loaded on heavy dumper and transported to the final disposal sites in the outskirts of Lahore city. The waste transfer site is located outside the project area and has access from the main GT Road. However, the waste transfer site cause bad odour in the area and trash vehicles are observed at the site entrance i.e. Bhatti Gate monument. It was informed by LWMC during stakeholder consultation that it is planned to relocate the waste dumping site outside the Lahore city and currently LWMC is working on it (**Annexure-E**).

4.1.3 Ambient Air Quality and Noise Monitoring

No obvious source of ambient air pollution was identified within the project area, except the identified waste dumping site near the project site entrance. Traffic emission/noise during busy hours is main source of air and noise pollution inside the project area. Open drain and temporary waste storage site, located next to Bhatti Gate monument cause bad odour and nuisance in the area. Dust pollution is common during summer due to persistent dry weather conditions and traffic of the area.

24 hours ambient air quality and noise monitoring were conducted next to the Bhatti Gate monument. Additional point of noise monitoring located next to the health center in the residential area of the Bhatti gate, as shown in the environmental baseline monitoring map (**Figure 4-2**). Ambient air quality and noise monitoring results are presented in **Table 4-3 and 4-4** respectively.

Ambient air quality monitoring indicates that dust pollution and concentration of carbon monoxide in the air are higher than the PEQS levels. Main reasons of these pollution are traffic and dusty environment of the area.

Table 4-3: Ambient Air Quality Monitoring next to the Bhatti Gate Monument

Sr.#	Time (Hours)	CO ₂ (ppm)	CO (mg/m ³)	NO _x (µg/m ³)	SO ₂ (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	O ₃ (µg/m ³)	Pb (µg/m ³)
1.	11:00 AM	390	4.090	18.5	42.0	211	170	14.8	0.72
2.	12:00 PM	392	4.198	27.2	44.0	217	175	14.8	
3.	01:00 PM	395	5.231	23.9	54.0	215	181	15.9	
4.	02:00 PM	394	5.124	27.9	44.0	226	179	16.0	
5.	03:00 PM	397	6.123	28.3	50.0	231	185	16.4	
6.	04:00 PM	402	8.010	29.9	46.5	236	188	16.2	
7.	05:00 PM	405	9.312	29.7	44.0	241	191	15.0	
8.	06:00 PM	410	10.10	29.5	47.0	237	177	15.2	
9.	07:00 PM	412	10.13	31.9	48.5	245	183	15.9	
10.	08:00 PM	404	9.131	32.2	49.0	247	185	15.4	
11.	09:00 PM	401	7.321	32.1	49.3	252	192	15.5	
12.	10:00 PM	402	8.101	27.5	51.2	247	187	14.6	

13.	11:00 PM	385	7.624	25.1	54.0	245	188	14.1	
14.	12:00 AM	373	7.132	22.0	50.5	234	171	14.0	
15.	01:00 AM	364	4.505	19.8	43.0	226	170	13.9	
16.	02:00 AM	365	3.621	18.8	40.0	219	163	13.6	
17.	03:00 AM	359	3.132	16.5	37.0	212	163	13.5	
18.	04:00 AM	355	3.101	15.2	36.0	211	161	13.4	
19.	05:00 AM	353	2.555	15.1	35.0	214	165	13.3	
20.	06:00 AM	352	2.204	16.4	28.5	206	159	13.2	
21.	07:00 AM	357	2.616	17.5	26.5	209	167	13.1	
22.	08:00 AM	363	3.202	19.6	27.5	211	171	13.4	
23.	09:00 AM	368	3.314	22.2	30.0	215	177	13.3	
24.	10:00 AM	376	3.534	22.4	31.3	226	181	13.9	
Average (24-Hours)		382.3	5.339	23.7	42.0	226	176	14.6	0.72
PEQS		--	5 (8-hours)	120 (24- Hours)	120 (24- Hours)	150 (24- Hours)	35 (24- Hours)	130 (1- Hour)	1.5 (24- Hours)

(Source: ESMP Report for Phase 1 of Bhatti Gate Rehabilitation/Improvement Sub-project)

Table 4-4: 24 Hours Noise Monitoring Results

Sr. No.	Time	At Bhatti Gate Monument	At residential Area of Bhatti Gate (near local Health Centre)
		dB (A)	dB(A)
1.	11:00 AM	76.9	75.2
2.	12:00 PM	76.2	74.1
3.	1:00 PM	73.8	70.5
4.	2:00 PM	70.4	70.4
5.	3:00 PM	73.7	72.7
6.	4:00 PM	68.0	67.0
7.	5:00 PM	70.9	68.9
8.	6:00 PM	71.8	71.7
9.	7:00 PM	68.6	68.4
10.	8:00 PM	79.8	75.2
11.	9:00 PM	76.1	73.5
12.	10:00 PM	74.4	74.4
13.	11:00 PM	75.1	75.0
14.	12:00 AM	72.5	70.5
15.	1:00 AM	69.1	65.1
16.	2:00 AM	66.5	62.5
17.	3:00 AM	65.2	59.2
18.	4:00 AM	63.3	54.3
19.	5:00 AM	66.1	56.1
20.	6:00 AM	64.2	64.2
21.	7:00 AM	69.3	68.3
22.	8:00 AM	72.5	71.3
23.	9:00 AM	75.5	74.0
24.	10:00 AM	79.1	73.5
Average		71.6	69.0
Lowest Detection Limit		25	25
(Source: ESMP Report for Phase 1 of Bhatti Gate Rehabilitation/Improvement Sub-project)			

PEQS for noise pollution for commercial areas during day and night times are 75dB and 65dB respectively. 24 hours noise monitoring results in the sub-project area indicate that noise levels within the project area are at higher side mainly because of the traffic and narrow streets and congested living environment.

4.1.4 Climate

Meteorological station. The project area lies in the semi-arid climatic zone and has five well-defined seasons, summer, and rainy monsoon, autumn, winter and spring. The average minimum monthly temperature varies from 7.6°C and 27.4°C and average maximum monthly temperature varies from 18.0°C and 38.9°C. The extreme maximum temperature recorded in Lahore is 48.3°C in the year 1944. The winters are generally mild and short, lasting from November till February. The lowest temperature recorded in Lahore is -2.2 °C, recorded on 17 January 1935. Rainfall is mainly received during the monsoon in late summer and in the winter. The winter rainfall comprises of gentle showers and lasts for a longer period than the summer rainfall, which is usually short and intense and cause urban flooding. Pakistan Meteorological Department reports that during 2022, the monsoon season set on 30th June 2022 over Pakistan, a day earlier of its normal date (1st July) and withdrew during third week of September 2022. On average, July is the wettest month with 176 mm of precipitation. On average, November is the driest month with 9 mm of precipitation. The average amount of annual precipitation is 697 mm. National rainfall for the month of August 2022 was excessively (+243%) above average and stands as record wettest August since 1961. August 2022 monthly rainfall alone exceeded the total normal monsoon seasonal rainfall by 37%. Recently the issue of *Smog* identified in the city every year during early winter. It is envisaged that smog is a combination of smoke and fog in the area.

The graphical representation of the climate data is presented below.

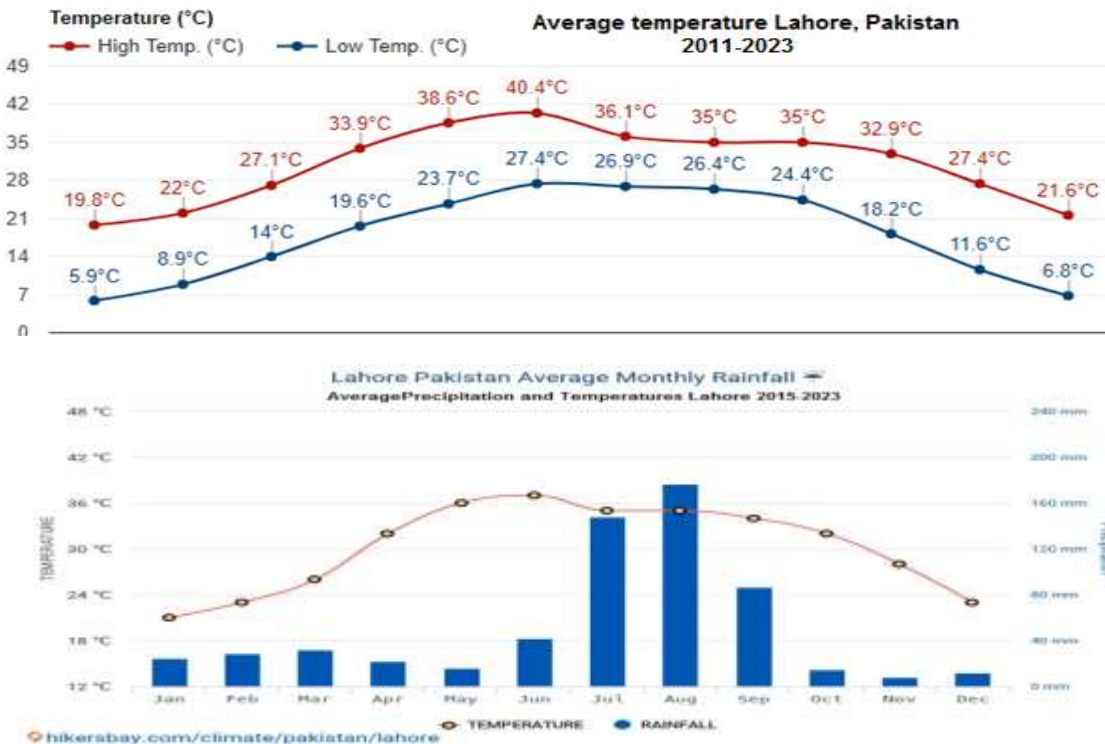


Figure 4-4: Average Precipitation and Temperature in Lahore City Area (2015-2023)



Figure 4-5: Average Wind Speed and Gust in Lahore City Area from 2011 to 2023



Figure 4-6: Average Wind Speed in Lahore in 2023

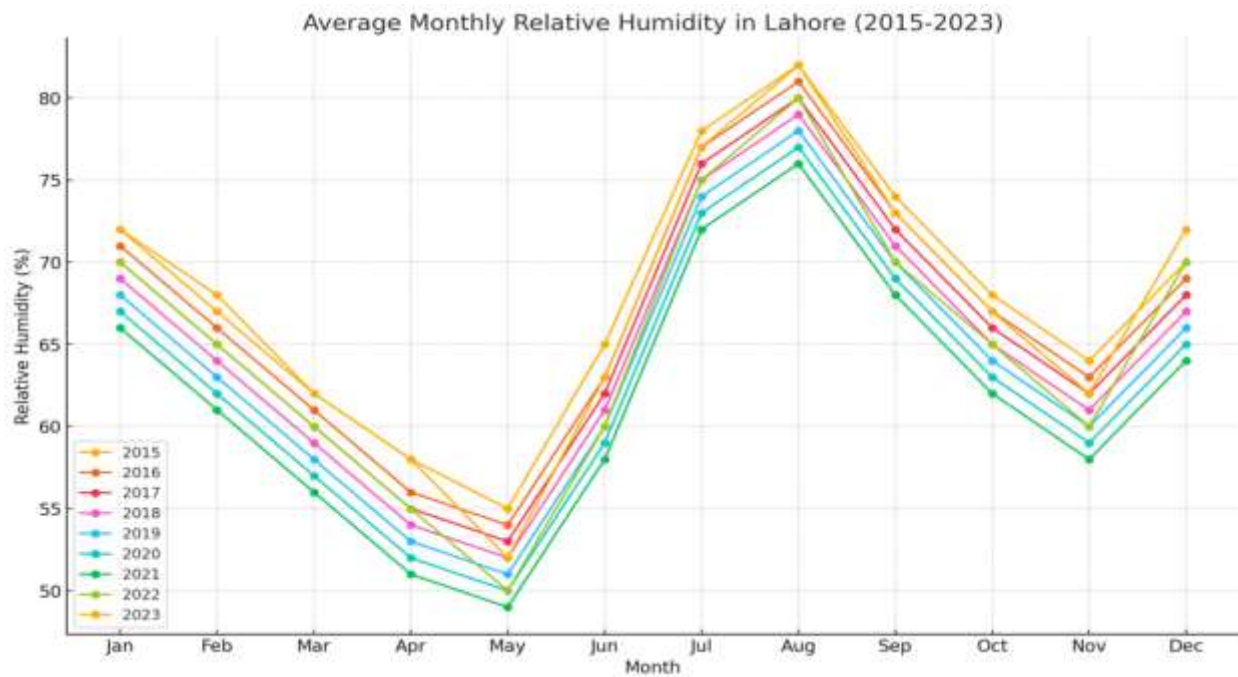


Figure 4-7: Average Monthly Relative Humidity From 2015-2023

4.2 BIOLOGICAL ENVIRONMENT

The sub-project area is comprised of a highly populated urban area and no noticeable wildlife exist in the area. Flora

Type of flora identified in the project area and its surrounding include:

Indian Rosewood/ Shisham trees (*Dalbergia sissoo*), Peepul (*Ficus religiosa*), Neem (*Azadirachta indica*), Java Plum/Jaman (*Syzygium cumini*), White mulberry (*Morus alba*) and Safaida (*Eucalyptus citriodora*) are found in the sub-project area. No protected species were observed. Tree plantation identified along the open drain and proposed car park area. Isolated trees (mostly Peepul trees) are found in the highly populated area.



4.2.1 Fauna

Because the sub-project area is comprised on highly populated area and human activities, there is little wildlife in the sub-project area. The envisaged wildlife of the area identified during site visits and stakeholder and public consultation are presented in **Table 4-5**.

Table 4-5: Fauna of the Sub-Project Area

	Sr.#	Common Name	Scientific Name
Birds	1.	Koel	Eudynamys scolopaceus
	2.	Crow	Corvidae splendens
	3.	sparrow	Passeridae Domesticus
	4.	Parrot	Paleornis torquata
	5.	Bulbul	Pycnonotus jocosus
	6.	Rock Pigeon	Columba livia domestica
	7.	Green Pigeon	Treron vernans
Mammals	8.	Asian House Rat	Rattus tanezumi
	9.	House Mouse	Mus musculus
	10.	Black Rat	Rattus rattus
Amphibian	11.	Frog	Rana Tigrina
	12.	Toad	Bufo bufo
Reptiles	13.	Wall Lizard	Mediodactylus walli

(Source: ESMP Study conducted for phase 1 of the sub-project)

4.3 General Social Environment

4.3.1 Language

Urdu and Punjabi languages are commonly spoken in the community as mode of communication.

4.3.2 Communication

All the houses are connected to the national grid for electricity supply. Telephone line connection and mobile phone networks are available in the area.

4.3.3 Means of Transport

Sub-project area is located in the congested part of Lahore city and very well connected with other part of the city/country through public and government transport system. Lahore Metro bus station (Bhatti Chowk bus station) is located at approximately five-minute walk from the Bhatti Gate monument.

4.3.4 Health Facilities

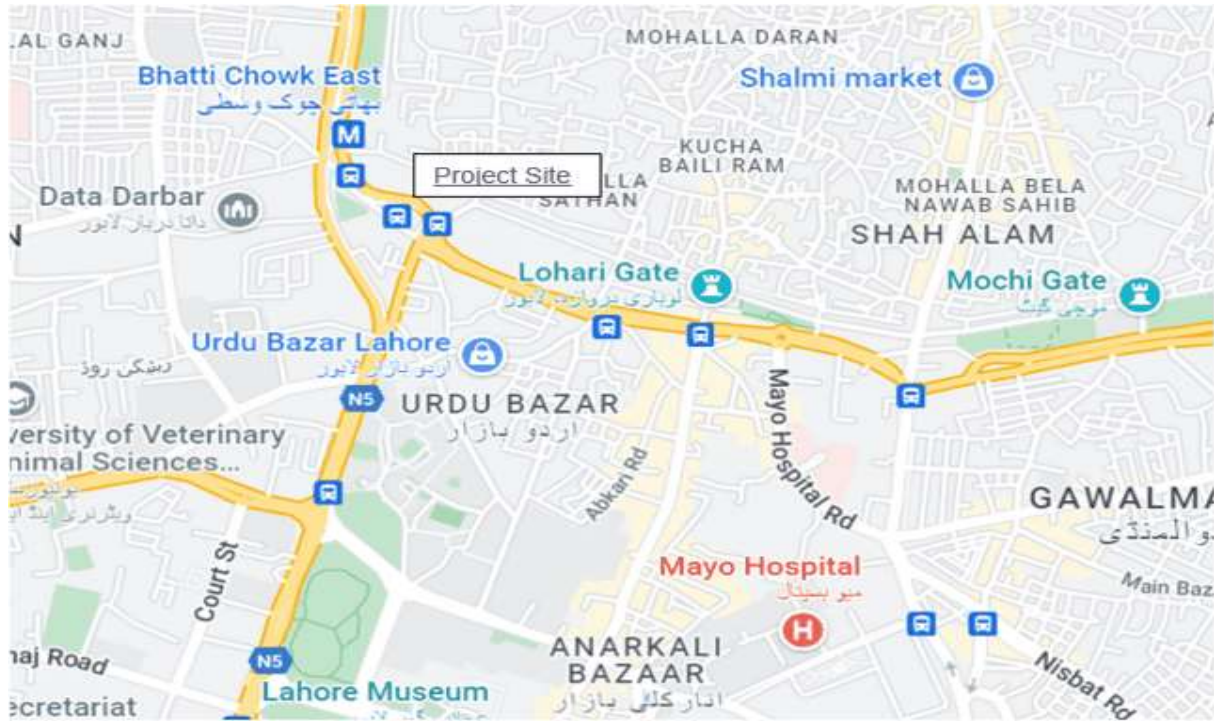
Mayo Hospital and Lady Willington Hospital are main hospitals of the area, in case of any emergency and serious health care needs. There are 2 private clinics present in the

area named Happy Clinic and Hamza Medical. **Figure 4-8 and 4-9** shows hospital's locations respectively.



(Source: ESMP Study conducted for phase 1 of the sub-project)

Figure 4-8: Lady Willington Hospital and Project Site Location Map



(Source: ESMP Study conducted for phase 1 of the sub-project)

Figure 4-9: Mayo Hospital and Project Site Location Map

5 SOCIO-ECONOMIC BASELINE OF SUBPROJECT AREA

5.1 General

This section deals with the socio-economic environment of the Project Area. A socio-economic survey is regarded as one of the most important sources of statistical data on household expenditure and income as well as other data on the status of housing, individual and household characteristics, and living conditions.

The organization of this chapter is as follows: The subsequent sections in this chapter discuss the scope, methodology concerning the survey design, sample framework, survey instrument (questionnaire), analysis, and conclusion.

5.2 SCOPE OF STUDY

The main purpose of the assignment was to conduct a household socio-economic baseline survey covering the proposed subproject area of Bhati gate. The socio-economic survey was carried out during September 2023 with the support of the Client and local enumerators. The objectives of the Socio- economic study are:

- Collect baseline data to prepare estimates of the income, sources of income, asset ownership, incidence, depth and severity of poverty, and associated social characteristics; and,
- Assemble baseline information and data in sampled households' access to and use of public services, such as access to water and sanitation, education, health, etc.

5.3 METHODOLOGY

The survey mainly used quantitative methods and included supplementary qualitative information and analysis, wherever possible. The design of the assessment was limited to measuring the overall socioeconomic condition of the population living in the proposed project area of the Bhati Gate. **Table 5-1** presents a summary of the objectives, key indicators, tools, and survey methods used for data collection.

Table 5-1: Survey Objectives, Key Indicators, and Methods

Sr. No.	Objectives	Key Indicators	Method	Tools
	• Demographic Profile • Occupation • Income of the respondents • Source of income • Expenditures • Asset ownership	• Demographic information (age, education status, health status, work status of household members) • Income levels and sources • Expenditure level • Assets – quantity, value, and ownership • Liabilities-loan amount and sources • Available social amenities (electricity, sewerage, telephone, Sui gas, etc.)	Sample household interviews	Socioeconomic Performance
	• Availability of Social Amenities (access to and use of public services, such as access to water and sanitation, education, health, etc.) • Perception about the proposed project.	• Availability, use, and sources of household facilities (water, sanitation, fuel) • Availability, access, and use of public facilities (education, health, sanitation, civil acts registration, etc.)	Sample household interviews Community Discussions Gender Discussions	Sample household interviews, and General Discussions with local community members

5.4 SAMPLE FRAMEWORK

5.4.1 Sample Size Determination

The sample size calculation was followed for the determination/establishment of socioeconomic baseline and evaluation objectives. The intention was to develop the socioeconomic baseline based on the representative sample size. The size of a sample influences two statistical properties; 1) the precision of our estimates and 2) the power of the study to draw conclusions.

The following objectives were therefore taken as given:

- The sample share from each street was to be roughly proportional to the number of households in the respective street;
- Sample size was determined within the vicinity of the Proposed Bhati Gate area;
- A fair proportion of the sample was taken from the visitors in the proposed project area; and,
- It was tried to make sure that, the sample size would be taken from various categories of respondents within the sub-project area, i.e., residents, business operators, vendors, and kiosk operators within proposed project area.

5.4.2 Sample Selection Process

The entire population residing or working within the proposed project area was considered as the universe of this survey. There are about 1,028 number of properties within the sub-project area. Therefore, a fair representative sample of 410 respondents (40%) was selected by simple random sampling from the respective properties of heritage value in the proposed project area for socioeconomic studies.

5.4.3 Survey Instrument - HH Questionnaire

To achieve the objectives of the survey, the questionnaire used was comprised of two distinct segments.

Segment I- Household Income and poverty: Structured questionnaires were used containing sections on various socio-economic characteristics of the sample households. This segment of the questionnaire included the following sections:

- i. Age, education, and profession of the respondents;
- ii. Demographic composition of household (age and gender distribution);
- iii. Work status of household members;
- iv. Educational achievement of adults including any technical/vocational skills training;

- v. Schooling of children;
- vi. Health status of household members;
- vii. Household income with the sources of income;
- viii. Household expenditure on different needs
- ix. Loans taken from informal and formal sources and, use of loans for different purposes (production, consumption, etc.)

Segment II - Availability, accessibility, and use of public sector social and economic services: The following sections were included in this segment:

- Housing facilities (structure, drinking water, and sources, drainage, electricity, fuel, etc.);
- Availability, access, and use of education facilities;
- Availability, access, and use of health facilities;
- Identification and perceptions of major problems in the household and area.

5.4.4 Data Processing and Analysis

The following steps were undertaken to ensure proper data processing and analysis.

- The collected data/information from the field was computerized;
- A tabulation plan was prepared;
- Data was processed according to a separate category of the indicators for analysis; and,
- All analyzed data was tabulated for interpretation and deriving conclusions and recommendations.

5.5 LAHORE CITY AT A GLANCE

The location of Lahore City is bounded on the North and West by Sheikhpura District, on the east by India, and on the south Kasur District. The River Ravi flows on the northern side of Lahore.

The Shalimar Garden is located next to the Grand Trunk Road, about 5 kilometers (3.1 mi) east of the Delhi Gate of the Walled City of Lahore. The proposed project site falls in Shalimar Tehsil of Lahore District.

5.5.1 Administrative and Political Settings

The Mayor of Lahore is the leader of the municipal government of Lahore (Metropolitan Corporation Lahore) in Lahore, Punjab. The mayor is directly elected in municipal elections every four years alongside nine (09) deputy town mayors. The mayor is responsible for the administration of government services, the composition of councils and committees overseeing Lahore City District Departments and serves as the chairperson for the meetings of the Lahore Council. The mayor also functions to help and

devise long-term development plans in consultation with other stakeholders and bodies to improve the condition, livability, and sustainability of urban areas.

Lahore comprises five tehsils, i.e., Lahore city and Lahore Cantt, Model Town, Raiwind Tehsil and Shalimar Tehsil. While these tehsils are further divided into nine towns, i.e.,

- i. Nishtar Town;
- ii. Gulberg Town;
- iii. Aziz Bhatti Town;
- iv. Allama Iqbal Town;
- v. Ravi Town;
- vi. Shalamar Town;
- vii. Samanabad Town;
- viii. Wahgah Town and
- ix. Data Gunj Bakhsh Town.

Union Councils (UC) are the lowest tier of the local government and the fifth tier of government in Pakistan; in rural areas, UCs are often known as "village councils". The territory represented by a village council usually comprises a large village and surrounding areas, often including nearby small villages. The term "union council" may be used for localities that are part of cities. A village council is an elected local government body headed by a mayor and a deputy mayor.

Tehsil Council is the next tier of local government. About 4 to 5 UCs fall in the Tehsil Council (TC). Tehsil is a sub-unit of the district, which is the highest tier of the local government system, dealing with administrative matters at the district level.

A district is composed of Tehsils and is governed by the Deputy Commissioner (DC). Like other districts of Punjab, the local government system of Lahore comprises UCs consisting of members directly elected by people through an open competition, which is also from the Electoral College for the selection of the members for the next higher tier.

5.5.2 Demographic Characteristics of Lahore District

The total area of the district is 1,772 square kilometers which give a population density of 6,300 (16,000/sq mi) persons per square kilometer as against 2000 persons observed in 1981 indicating a fast growth rate of the district.

The results of the 2017 census determined the population to be at 11,126,285, with an annual growth rate of 4.07% since 1998. Gender-wise, 52.35% of the population are male, 47.64% are female, and 0.01% are transgender. The sex ratio is an important demographic indicator, which is defined as the "number of males per hundred females". According to the census 2017, the Sex ratio is measured as 109.87 percent. Lahore is a young city with over 40% of its inhabitants below the age of 15. **Table 5-2** gives Households, Population Increase, Sex Ratio, and Growth Rates of Lahore District, for

the year 2017.

Table 5-2: Households, Population Increase, Sex Ratio and Growth Rates in Lahore

Households	Population-2017				Population 1998	Sex Ratio 2017	1998-2017 Average Annual Growth Rate
	Male	Female	Transgender	All Sexes			
1,757,691	5,824,131	5,300,931	1,223	11,126,285	6,340,114	109.87	4.07

Source: Pakistan Bureau of Statistics (Census 2017)

5.5.3 Rural and Urban Distributions

According to Census of 2017, the district Lahore falls 100% in the urban area with 1,757,691 number of households.

5.5.4 Religion

The population of the district is predominantly Muslim i.e. 93.9 percent. The next higher percentage is of Christians with 5.8 percent followed by Ahmadis at 0.2 percent. While other minorities like Hindus etc. are very small in number.

5.5.5 Mother Tongue

The mother tongue refers to the language used for communication between parents and their children in any household. Punjabi is the predominant language being spoken by the majority (86.2 percent) of the population of the district followed by Urdu, Pushto and Siraiki were spoken by 10.2, 1.9, and 0.4 percent respectively.

5.5.6 Ethnic Structure

The main castes and groups of the Lahore District are Jatt, Rajput, Malik, Butt, Pathan, Mughal, Sheikh, Gujar, Kombh, and Arain. Besides, there are also village artisans, which include Lohars (blacksmiths), Tarkhan (carpenter), Kumhars (potters), Mochis (cobblers), Machhis (water-carriers), barbers, weavers, etc.

5.6 ECONOMIC CONDITIONS

The economy of Lahore has a diversified base spanning from telecommunication, information technology, the manufacturing industry, engineering, pharmaceuticals, steel, chemicals, and construction material.

5.7 GROSS DOMESTIC PRODUCT

As of 2019, Lahore had an estimated GDP of \$84 billion. As of 2008, the city's gross domestic product (GDP) by purchasing power parity (PPP) was estimated at \$40 billion (projected to be

\$102 billion by the year 2025, with a slightly higher growth rate of 5.6% per annum, as compared to Karachi's 5.5%). The contribution of Lahore to the national economy is estimated to be 11.5% and 19% to the provincial economy of Punjab. As a whole Punjab has a \$115 billion economy making it the first and to date only Pakistani Subdivision of economy with more than \$100 billion at the rank 144.

5.8 INDUSTRY, TRADE AND TRADE CENTERS

Lahore is the second largest financial hub of Pakistan and has industrial areas including Kot Lakhpat and the new Sundar Industrial Estate (near Raiwind). A major industrial agglomeration with about 9,000 industrial units, Lahore has shifted in recent decades from manufacturing to service industries. Some 42% of its workforce is employed in finance, banking, real estate, community, cultural, and social services. The city is the country's largest software producing center and hosts a growing computer-assembly industry.

There are many large industrial units in the district. These units manufacture cotton, woolen, and silk cloths, carpets, and rugs, textile products, leather and rubber foot wears, wearing apparel, pharmaceutical goods, soap, iron and steel products, heating, plumbing, and lighting equipment, hardware, miscellaneous fabricated products, agriculture machinery, engines and turbines, textile machinery, printing machinery, metal working machinery, pumps and compressors, household machinery, water generators, motor generators, transformers, electric fans, communication equipment, cycles, and rickshaws. There are also a good number of printing and publishing units and bodybuilding workshops. Besides, there are units of canning and preservation of food, edible oils, beverages, metal and wood furniture, rubber products, chemicals, glass products, repair of railway equipment, toys and stationery, etc.

The Lahore Expo Centre is one of the biggest projects in the history of the city and was inaugurated on 22 May 2010 and there are various business centers and hubs of commercial activities, i.e., Emporium Mall, Packages Mall, Mall of Lahore, and other markets where customers from all over the country visit.

5.9 EDUCATIONAL FACILITIES

Lahore is an old first-class place of learning in Pakistan. The world-famous and the oldest university of Pakistan i.e., University of the Punjab is located in this city. The pioneer University of Engineering and Technology (UET) is also in Lahore. There has been a significant development in the educational sector of this district. The University of

the Punjab has been extended and its new campuses are constructed along the Lahore branch of Upper Bari Doab canal. This provides an ideal environment for teachers taught in the green lush area surrounded by New Muslim Town, Wahdat Colony, PCSIR Colony, Faisal Town, and Garden Town.

5.10 HEALTH FACILITIES

Ample medical and health facilities are available in the Lahore Metropolitan Corporation area and its suburbs. Shaukat Khanum Hospital is the latest addition to the medical care facilities in Lahore for the most dangerous disease in the country i.e., Cancer. There are also other hospitals of voluntary organizations which provide health coverage to the general public. King Zaid Bin Sultan Hospital is also a very advanced addition to the medical care for Lahore. Among the prominent hospitals are Lahore General Hospital, Lady Willingdon Hospital, Mayo Hospital, Fatima Jinnah Hospital, The Children Hospital, Services Hospital, Ganga Ram Hospital, etc. Besides, a number of private hospitals and medical practitioners, Hakims, and homeopathic doctors are also practicing in the city.

5.11 TRANSPORTATION

Lahore is the provincial capital of Punjab and has higher and better transportation facilities as compared to other areas of Punjab. Lahore's main public transportation system is operated by the Lahore Transport Company (LTC) and Punjab Mass Transit Authority (PMTA). The backbone of its public transport network is the PMTA's Lahore Metro bus and Orange Line train of the Lahore Metro. LTC and PMTA also operate an extensive network of buses, providing bus service to many parts of the city and acting as a feeder system for the Metro bus.

5.12 FINDINGS OF THE SOCIO-ECONOMIC SURVEY

A socio-economic survey was conducted to obtain a detailed understanding and to provide baseline data on the project area in September 2023. This section provides a socio-economic profile of the sampled households. This serves the purpose of being able to establish the socioeconomic baseline status of the sampled households within the proposed project area. The visual evidence of the study is given as **Figure 7-1**.

5.13 DEMOGRAPHIC STRUCTURE OF HOUSEHOLDS

This section provides information and data on the demographic structure of household members.

5.13.1 Gender Composition of Household Population

The socio-economic survey was carried out to understand the demographic and socio-economic characteristics of the population in the project area. According to the survey of sampled households, the male population was high as compared to the female

population in the project area. On average the male population was 52% compared to the 48% female population among the sampled families. As per the survey, the household size was 6.7 persons per household. The detail of the population of sampled households is given in **Table 5-3**.

Table 5-3: Gender Compositions of Household Population

Total Respondents	Population and Family Size				Total Population	Average Household Size
	Male	%	Female	%		
410	1431	52	1329	48	2760	6.7

Source: Socio-economic Survey

5.13.2 Age Group of the Respondents

Age is another important demographic characteristic that has a bearing on employment and mobility. A study of the distribution of members of households by age will throw some light on the type of strategies that may be helpful in raising their income and employment.

About 7% of the respondents were between 18 to 25 years of age, while 8% were between 26 to 35 years of age & 34% of the respondents were between 36 to 45 years of age group and 51% were above 45 years of age group respectively which were engaged in various kind of activities to earn their livelihood like shopkeepers, running hotel, mechanic, private jobs, business, and daily wages labor. The data regarding the distribution of respondents by age categories are presented in **Table 5-4**

Table 5-4: Age Group of Respondents

Age Composition of Respondents			
Sr. No.	Frequency Distribution	Number	Percentage (%)
1	18-25	29	7
2	26-35	33	8
3	36-45	139	34

Sr. No.	Frequency Distribution	Number	Percentage (%)
4	Above 45	209	51
Total		410	100

5.13.3 Educational Status of Respondents

A person could read a newspaper or a journal of the same standard and could write a simple letter in any language defined as literate in the Census of 1998. Education is one of the key factors in assessing the socio-economic condition of any area and is a more contributing factor than income for uplifting the living standards in society. The literacy rate is a barrier to limited educational infrastructures.

Based on the sample survey (**Table 5-5**), 5% of the respondent population was illiterate and 95% were literate. In terms of education distribution, out of the literate population, 7% of the respondents got their education till primary level (five years of schooling), 14% of the respondents have the education up to middle level (8 years of schooling), and 39% & 20% of the respondents were matriculated and intermediate respectively. However, 10%, 3%, and 2% of the respondents were graduates, engineers, and technical diploma holders respectively.

Table 5-5: Educational Status of the Respondents

Sr. No.	Educational Status	Number	Percentage
1	Illiterate	21	5
2	Primary	29	7
3	Middle	57	14
4	Metric	159	39
5	Intermediate	82	20
6	Graduation	42	10
7	Engineer	11	3
8	Technical Diploma	9	2
Total		410	100

5.13.4 Mother Tongue of the Respondents

The dominant language in the project area was Punjabi. Based on the sample survey, 78% of the respondents were Punjabi speaking, while 15% of the respondents were Urdu speaking and 7% are Pashto Speaking as shown in **Table 5-6**.

Table 5-6: Mother Tongue of Respondents

Sr. No.	Mother Tongue	Number	Percentage
1	Punjabi	320	78
2	Urdu	60	15
3	Pashtu	30	7
Total		410	100

5.13.5 Ethnic Structure of Respondents

Relating to large groups of people classed according to common racial, national, tribal, religious, linguistic, or cultural origin or background ethnic minorities ethnic enclaves. The survey findings revealed that Malik and Rajpoot were the major ethnic groups residing in the project area with a ratio of 32% and 23% respectively. While Mughal and Butt with a ratio of 19% and 8%. Arain, Jutt and others were also residing in the area in almost equal proportions. **Table 5-7** depicts the ethnic structure of the sampled households in the proposed project area

Table 5-7: Ethnic Structure of Respondents

Sr. No.	Mother Tongue	Number	Percentage
1	Malik	132	32
2	Rajpoot	94	23
3	Mughal	78	19
4	Butt	33	8
5	Arain	16	4
6	Jutt	16	4
7	Gujjar	8	2
9	Others	33	6
Total		410	100

5.13.6 Professional Status of Respondents

Household income could be the best indicator to assess the actual socio-economic situation of the target communities. Most of the respondents living nearby the project area were associated with the profession of shopkeeping, some of them were doing business, private jobs, hotel jobs, and daily wage labor to earn their livelihood.

Occupations have been categorized based on the primary source of income. The sample survey revealed that the majority of the respondents i.e. 47% were shopkeepers, followed by 19% and 17% associated with business and private jobs respectively, while 4% were running their hotels in the area. Moreover, 6% of respondents were housewives and 3% of the respondents were associated with different government jobs.

Table 5-8 below shows the occupation of the respondents.

Table 5-8: Professional Status of the Respondents

Sr. No.	Professional Status	Number	Percentage
1	Shopkeeper	194	47
2	Business	79	19
3	Private job	71	17
4	Hotel	16	4
5	Govt Job	11	3
6	Housewives	23	6
7	Any Other (Labor, Student, Work Abroad)	16	4
Total		410	100

5.13.7 Average Monthly Income

During the socioeconomic survey of the households, it was observed that the household income of 16% of respondents was up to 25,000 per month, whereas 19% were earning between the ranges of 25,001 to 35,000 per month and 32% of respondents were earning between 35,001 to 45,000 per month. However, 18% and 15% of the respondents were earning between 45,001 to 55,000 and above per month respectively.

Table 5-9 shows the average monthly household income of the surveyed respondents.

Table 5-9: Average Household Monthly Income

Sr. No.	Distribution	Number	Percentage
1	Up to 25,000	66	16
2	25,001 to 35,000	79	19
3	35,001 to 45,000	131	32
4	45,001 to 55,000	73	18
5	Above 55,000	61	15

Total	410	100
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5.13.8 Average Household Monthly Expenditures

Household expenditure depends on the earnings of the households. 22% of respondents reported their monthly household expenditure as up to 25,000 due to their low income. However, 20% of the respondents reported their expenses within the range of 25,001 to 35,000 per month. Whereas 27% of respondents reported their monthly expenditures between the ranges of 35,001 to 45,000 to fulfill their family needs, while 18% of the respondents were expensing between 45,001 to 55,000, while 13% of the surveyed respondents spend above 55,000 to fulfill their monthly outlays. The information relating to the household expenditure in respect of the sample population is shown in **Table 5-10** shows the average monthly expenditures of the surveyed respondents.

Table 5-10: Average Household Monthly Expenditures

Sr. No.	Distribution	Number	Percentage
1	Up to 25,000	92	22
2	25,001 to 35,000	83	20
3	35,001 to 45,000	111	27
4	45,001 to 55,000	72	18
5	Above 55,000	52	13
Total		410	100

5.13.9 Family System of Respondents

A family is a social institution organized to meet certain essential societal needs. It is a group consisting of parents, with or without children and relatives, united by bonds of love and affection and sharing common social activities. The joint family consists of people of three or more generations including at least grandparents, parents, and children. A nuclear family is one that consists of the husband, wife, and unmarried children.

During the socioeconomic survey of the respondents, it was observed that the majority of the respondents, i.e., 66% were living within a joint family system, while 34% of the respondents were living in a nuclear family system. The information relating to the family system in respect of the sample population is shown in **Table 5-11**.

Table 5-11: Family System of the Respondents

Sr. No.	Type	Number	Percentage
1	Joint	270	66

2	Nuclear	140	34
Total		410	100

5.13.10 Ownership Status of Houses

Housing is a major element of people's material living standards. It is essential to meet basic needs, such as shelter from harsh weather conditions, and to offer a sense of personal security, privacy, and personal space. Good housing conditions are also essential for people's health and affect childhood development. Further, housing costs make up a large share of the household budget and constitute the main component of household wealth.

Regarding the ownership of houses, findings of the study indicated that 87% of the surveyed respondents owned their houses, whereas 13% were living in rented houses. Detail of the ownership of the houses is given in **Table 5-12**.

Table 5-12: Ownership Status of Houses

Sr. No.	Status	Number	Percentage
1	Self-Owned	355	87
2	Rented	55	13
Total		410	100

5.13.11 Construction Type of the Houses

The Housing conditions of the respondents have been analyzed according to the construction type of houses in which they were residing. These are categorized as Pacca houses, Semi-Pacca houses, and Katcha houses. The house or building constructed with concrete and/or bricks falls in the pacca category. House or building constructed with burnt bricks and mud comes under the semi-pacca category, whereas houses constructed with un-burnt bricks and mud, or temporary wooden poles are categorized as the katcha category.

83% of the respondents were living in their Pacca houses, while 16% of the respondents were living in Semi – Pacca houses, and none of the respondents were living in Katcha houses. Details of housing condition are given in **Table 5-13**.

Table 5-13: Construction Type of the Houses

Sr. No.	Type	Number	Percentage
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1	Pacca	340	83
2	Semi-Pacca	70	17
3	Katcha	0	0
Total		410	100

5.13.12 Access to Social Amenities

Social infrastructure and amenities are key to creating sustainable communities. This assessment sets the spaciousness of a household's dwelling, household amenities like availability of electricity and modern appliances, nature of access to water, fuel for cooking, and type of sanitation facilities available as primary indicators for assessing the standard of living.

The result of the survey revealed that 100% of the households had the facility of electricity, school, hospital, and sewerage whereas, telephone/mobile was available to 99% of respondents and the facility of water supply and sui- gas was available to 98% and 93% of respondents respectively. However, the facility of the water filtration plant was available to 58% of the respondents. The information in respect of access to social amenities is given in **Table 5-14**.

Table 5-14: Access to Social Amenities

Sr. No.	Facilities	Number	Percentage
1	Electricity	410	100
2	School	410	100
3	Hospital	410	100
4	Gas	400	98
5	Water Supply	381	93
6	Sewerage	410	100
7	Telephone / Mobile	405	99
8	Water Filtration Plant	238	58

5.13.13 Source of Drinking Water in the Project Area

Drinking water, also known as potable water, improved drinking water is water safe enough for drinking and food preparation. Access to a safe drinking water supply is not only a basic need and a precondition for a healthy life but is also a basic human right. The quality of water is directly linked to the quality of health. The amount of drinking water required to maintain good health varies, and depends on physical activity level, age, health-related issues, and environmental conditions.

The findings of the survey indicated that 15% of the households had the facility of the drinking water inside their home in the shape of a public water supply, 27% of the

respondents used hand pumps and electric water pumps, while the majority (58%) fetch drinking water outside of their homes from water filtration plants. The details of the facility of drinking water are given in **Table 5-15**.

Table 5-15: Source of Drinking Water in Project Area

Sr. No.	Source of Water	Number	Percentage
1	Public water supply	62	15
2	Hand Pumps/Electric Motor	110	27
3	Filtration plant	238	58
Total		410	100

5.13.14 Satisfaction Level with Quality of Drinking Water

The findings of the survey revealed that 67% of the respondents were satisfied with the drinking water quality, while 33% of the respondents were not satisfied with the water quality level. A detail of the satisfaction level of the respondents with the water quality is given in **Table 5-16**.

Table 5-16: Satisfaction Level with Water Quality

Sr. No.	Opinion	Number	Percentage
1	Yes	275	67
2	No	135	33
Total		410	100

5.13.15 Credit Utilization of the Respondents

The findings of the survey revealed that only 3% of the respondents availed the facility of credit for their personal use, while 97% of the respondents did not take loans from any formal or informal source. Detail of credit utilization is given in **Table 5-17**.

Table 5-17: Credit Utilization of Respondents

Credit Utilization of the Respondents			
Sr. No.	Obtained Credit	Number	Percentage
1	Yes	12	3
2	No	398	97

Total	410	100
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5.13.16 Prevalent Social Issues and Suggestions of the Respondents

The proposed project area is currently facing many social issues like other parts of Lahore city, and the discourse on the problems needs lots of time and effort. But some of the social problems above need an active approach and actual actions to hold. In the absence of this, the social problems of the project area continue to delay from making significant growth. The respondents provided suggestions to cope with above mentioned social issues which are summarized in the Chapter 7, Stakeholder Consultations.

6 IMPACTS AND MITIGATION

This Chapter assesses the potential environmental and social impacts of the proposed subproject on the environment and community. Also provided in the Chapter are the subproject-specific mitigation measures to minimize if not eliminating the potentially negative impacts, to ensure that the proposed interventions do not cause environmental and social impacts beyond the acceptable levels.

6.1 ENVIRONMENTAL SAFEGUARDS PROCESSING STEPS

Implementation of the ESMP after its preparation will require the following steps closely linking with activity planning, design and implementation steps.

- Step 1: Screening of Projects for impacts
- Step 2: Inclusion of Environmental Specifications and Environmental and Social Management Plan in Supervision Consultant/Contractor(s) bidding documents
- Step 3: Compliance and Monitoring

6.2 ENVIRONMENTAL & SOCIAL SCREENING

Environmental & Social Screening (E&SS) for the proposed work scheme was completed during October 2022. The scope of work of the sub-project was designed such that there is no land acquisition impact of the sub-project. Possible adverse impacts mainly related to construction hazards will be addressed through implementation of ESMP. It is envisaged that the construction related adverse impacts of the project are localized, temporary in nature, reversible and can be mitigated. As per findings of the site visit, desk study and discussion held with stakeholder and public members, following World Bank operational policies are triggered in phase 2 of the proposed project:

- OP 4.01 Environmental Assessment; and
- OP 4.11 Physical Cultural Resources.

No permanent or significant adverse environmental or social impact anticipated pertaining to this sub-project. Envisaged adverse environmental impacts are related to the construction activities and they are localized and temporary in nature. Environmental and social checklists completed for the sub-project is provided as **Annexure-B**.

6.3 FINDINGS OF E&SS

Following are findings of the E&SS study:

- World Bank's operational policies OP 4.01 (Environment Assessment) and OP 4.11(Physical Cultural Resources) are triggered for phase 2 of the proposed sub-project. No land acquisition requires for the phase 2 of the project activities. A robust Grievances Redress Mechanism (GRM) process should be explained to the project staff and local community. A complain register should be maintained on site and available for inspection anytime on site.
- Anticipated adverse environmental impacts of the sub-project are associated with construction work activities carrying out in the highly populated urban area and at some places close to the historical buildings. The environmental impacts of the above-described infrastructure improvement and rehabilitation project are expected to be of manageable, temporary and of local impact typical for civil works as they are related to the general construction activities on already known and urbanized locations.
- Social risk is assessed as moderate as the planned civil works will be site-specific with less impacts beyond the footprint of the existing rehabilitation (no land acquisition or horizontal expansion of existing facilities).
- Risk related to labor influx is minimal as the local labour will be hired for the subproject. Regular operation and functioning of the inhabitants of Bhatti Gate area may be interrupted during the planned works as the area is thickly populated and the roads and streets are narrow so the users/ beneficiaries may face problems while going to their workplaces and/or during replacement of the utilities like electric network, Sui gas and Sewerage system. Comprehensive H&S work plan need to be developed and implement by the contractor during construction phase of the project. Environmentally friendly, socially acceptable and financially feasible control measures should be derived and presented in the ESMP. The ESMP should implement on site by the contractor and supervised by supervision consultant with additional supervision by PTEGP. Based on the E&SS study it can be concluded that according to the World Bank Operational Policy OP 4.01, the project is classified among the projects that are likely to have potential, limited adverse environmental and social impacts for which the

development of a full-scale ESIA is not required and can be classified as category B project. The proposed project will not have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. Environmental impacts of the project shall be analyzed, and mitigation measures proposed for expected negative impacts, along with an Environmental Social Management and Monitoring Plan.

- The execution of the sub-project will not involve any tree cutting. New plantation should be carried out in the project vicinity.
- The sub-project could benefit greatly from the experiences of the Social Mobilization team, WCLA to gain support of the local community and maintaining GRM.

6.4 ASSESSMENT OF POTENTIAL IMPACTS AND GENERIC MITIGATION

The positive and potentially negative impacts identified in the project ESMP are assessed in detail in the subsections below for the proposed project of rehabilitation and infrastructure improvement of Lahore walled city area from Bhatti Gate to Katri Haji Allah Bakhsh. The specific mitigation measures for sub-project impacts have also been provided hereunder.

6.5 POSITIVE SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACTS OF SUBPROJECT

Most of the subproject's environmental and social impacts will be beneficial, including improvement of infrastructure facilities like water supply, fire hydrant system, domestic sewerage, storm water sewerage, electrical work, illumination work, gas, telecommunication and street surfacing etc. The beneficial impacts of both, the interventions and the institution capacity building and investment preparedness components of the sub project are described briefly hereunder:

- The infrastructure will be upgraded / improved to modern standards.
- The project has been designed for the improvement of tourism-enabling infrastructure, enhance tourism assets, and strengthen destination management for sustainable tourism hence increasing the tourism potential of the area.
- Employment generation for the businesses is also envisaged from the proposed subproject as the workforce may commute with ease and comfort.
- Health of the public is expected to improve as the sewerage will not be

accumulated along the streets as well as garbage free road will improve the sanitation of the area.

- By adding road safety features in the design, vulnerable road users and children will benefit and feel more secure.
- The subproject itself is expected to directly generate several jobs, particularly during the construction phase.

6.6 IMPACTS AND MITIGATION MEASURES

The temporary impacts associated with construction activities are traffic congestion, dust emissions, water/groundwater contamination, soil contamination, solid waste management, noise pollution, traffic management, occupational and community risks with regards to health and safety and restriction of access for commuters including residents and businesses

6.6.1 Subprojects Siting

Following is a description of impacts on each social and environmental aspects along with the specific mitigation measures:

6.6.2 Land Acquisition and Encroachments

According to the social survey, the sub project area is residential cum commercial. No significant adverse environmental or social impact of the sub-project is anticipated. Land acquisition will not be required for the phase 2 of the proposed work scheme. On the other hand, the project will accommodate thousands of people visiting the historical part of the Lahore City. In result of the proposed sub-project, the overall archeological values of the area will be enhanced and health & safety conditions of the area for local community and visitors will be improved by converting electric supply and drainage systems to underground or safe conveying system. This will encourage tourism activities in the area and subsequently boost local economy and help in poverty alleviation. Subproject area interventions will be planned on existing alignment of road, which is the property of provincial government, and therefore no land acquisition is involved.

6.7 MITIGATION MEASURES

There is very limited number of street vendors as the streets are too narrow to do any business. However, there are some street vendors, but the shops are mostly located in their homes. They have usually deputed a room of their house as a shop and its entrance is in their homes. There are many street vendors on main trail, construction

activity may temporarily affect their business but by applying and following careful mitigation measures, the impacts can be minimized.

6.7.1 Business Disruptions and Access Restrictions

Major social concerns and conflicts during the construction activities will arise if all the stakeholders are not adequately informed, consented and taken into confidence about the project or its schedule of operations, before the commencement of project activities.

- The loss of businesses in the Parking Area, i.e., A Tea Stall and a Bird breeder and seller. These two impacted households have been assessed in ARAP of Bhatti Gate Phase 1 and will be compensated accordingly by the PMU.
- Nuisance to local community and shop vendors is envisaged due to access restrictions and business disruptions.
- If the proposed construction site is not appropriately cordoned off to restrain outsiders from entering the site, issues of trespassing and safety of trespassers may arise.
- Conflicts between commuters due to traffic congestion may arise if traffic management is not in place.

Mitigation Measures

- Extensive consultation with stakeholders will be carried out as per the plan described in **Table 7-6** and their feedback concerns and input will be taken into account in the project execution as was done during the planning.
- The two impacted households running their business in the parking areas will be relocated to an alternative (please see ARAP for more information) place. In addition, replacement cost and with allowances will be provided to these affected persons.
- Ensure safe and continuous access to all shops and residences during construction. Movement of construction material to the project sites should be planned in a way that it will not hamper major transport activity e.g. during nighttime or early in the morning when the local trips are minimum. However, care must be taken at residential locations and the transfer of material should not be done during late hours.
- It is suggested that the work in the streets should be done in stages to avoid

access restrictions and business disruptions.

- The traffic plan will be prepared in consultation with the construction contractor. supervision consultant. PTE, WCLA (see details in Section 6.8).
- Provide alternative traffic arrangement/detours, if necessary, so that traffic can be distributed and move on different roads; and ensure that public/residents association is informed about such traffic diversions.
- Diversions signs will also be placed.
- A site plan showing the subproject area and planned interventions, and a tentative schedule of construction activities will be displayed prominently in the area.
- Leaflets on road diversions and traffic rerouting will be disseminated to residents, nearby shops and institutions.
- Designated temporary parking places will be provided during the construction phase.

6.7.2 Gender Based Violence (GBV)

Potential Impact

- I. In the society, female plays important role in managing household as well as in income earning activities, but they face various challenges to get access to educational institutions and employment opportunities due to cultural bindings, economic vulnerability and lack of facilities.
- II. According to Pakistan Demographic and Health Survey (PDHS), 2017-18, 28 percent of women of Pakistan age 15 to 49 have experienced physical violence, six percent have experienced sexual violence, and seven percent experienced violence during pregnancy. Three in ten women who have ever experienced physical or sexual violence sought help to stop the violence, yet 56 percent never sought help nor told anyone.
- III. During survey, consultations with females were conducted at individual and at group levels to get their apprehension regarding the project activities and suggestions to mitigate the relevant impacts. During gender consultations in the project area, it was observed during gender consultations that no gender based violence prevailed among the consulted women. Unequal distribution of work and unequal pay structure against same work leads to gender discrimination which

may lead to gender based violence in future. Hence; during construction phase gender based violence might arise due to discrimination made against women by unequal work distribution and unequal pay structure. Men and women are equally supposed to apply for jobs related to project activities. No discrimination will be made in this regard. However, sexual harassment against women might occur as a consequence of mixing of men and women at the construction site, and moving on the roads, bus stops and markets. Educational institutions near the project alignment are also sensitive regarding gender issues because mobility of female students and female staff may be disturbed due to labor force indulge in construction work. This impact is negative in nature during construction stage.

Mitigation Measures

- i. With the effective measures and monitoring, the risk of gender violence could be minimized by adopting the following mitigation measures:
 - Awareness should be created among the females at individual and community levels about the constructions sites;
 - During the timing of educational institutions workers should not be allowed to crowd in the surroundings;
 - Alternative routes for pedestrian should be provided to avoid mixing of women with workers;
 - Gender protection act should strictly be enforced during the construction activities in the project area, and monitor the implementation through field staff and district level structure;
 - Raise awareness among the communities of the potential risks of GBV, and establish response services in the communities that can respond to instances of GBV (particularly those related to issues of labor influx);
 - The Contractor should make sure that no discrimination is made on the basis of gender while hiring of workers. Complete SOPs should be formed and implemented by the contractor regarding working women at site. Implementation on these SOPs should be monitored by the implementation Consultants;
 - Provisions of gender disaggregate bathing, changing, and sanitation facilities; and
 - Contractor should take proper measures to address and resolve issues relating to harassment, intimidation, and exploitation, especially in relation to women.

6.7.3 Air Quality Deterioration

The use of heavy construction machinery operated on diesel can generate exhaust emissions including SO₂, NO_x, Smoke and Particulate Matter (PM₁₀). Similarly, rehabilitation of water main sewerage network including excavation will generate dust

emissions. Removal of old Sui gas meters, telecommunication lines, resurfacing of road and laying of utility lines requiring excavation and exposed surfaces may also result in increased dust emissions. Furthermore, rerouting of traffic and diversions may lead to traffic congestion on road, resulting in increased dust and exhaust emissions from vehicles. Another possible cause of air deterioration is handling and transportation of cement, mortar, concrete, other dusty materials, and handling and storage of aggregates in concrete plants. However, these impacts will be temporary and localized.

Mitigation Measures

Different options are available to control dust and exhaust pollution. They are listed below:

A. Dust Containment Measures

PVC Laminated Polyester Fireproof Mesh Sheet (with small mesh size) which is easily available in the local market should be installed at least 8-10 ft. in height from existing ground level to contain dust inside the construction site. It is suggested that the construction on section/street should be commenced in sections, therefore, not whole track needs to be covered. Also, work on subproject alignment will be planned as per detailed construction plan.

The exposure of construction workers to dust should be minimized by provision of dust masks and mandating the workers to wear them.

B. Dust Reduction Measures

- Water should be sprinkled daily to wet all the exposed surfaces.
- Use of water suppression for control of loose materials on paved or unpaved road surfaces. Oil and oil by-products is not a recommended method to control road dust¹.
- Truck loads should be covered with tarpaulin.
- Construction site including soil and material piles at the site should be barricaded to avoid material escape, generation of dust.
- Ready-mix can be used in the stages of the project wherever and whenever required and deemed appropriate.
- Road construction operations should be carefully planned and scheduled and when the traffic movement is minimal e.g. early morning.
- Careful handling and working under moist conditions and monsoon season will be avoided as much as possible.

C. Exhaust emission reduction measures

Construction machinery and vehicles should be properly tuned and kept in good working condition, minimizing exhaust and vehicular emissions. It should be ensured that exhaust from these equipment and vehicles comply with relevant PEQS.

Excessive engine idling should be discouraged and machinery causing excessive pollution (i.e. visible clouds of smoke) should be banned from sites.

Open burning of solid wastes, whether hazardous or nonhazardous, is not considered good practice and should be avoided, as the generation of polluting emissions from this type of source cannot be controlled effectively.

6.7.4 Noise

During the construction works, noise will be generated from the operation of machinery, project-related vehicles and material transport. These activities will cause discomfort to residents, shops, and pedestrians and may contribute to the existing noise pollution in the subproject area. The following table shows the noise levels of different construction equipment that will be used during Year 1 subproject interventions.

Table 6-1: Typical noise levels of construction equipment (noise level in dB (A) at 15 m)

Clearing		Structure Construction	
Construction Equipment	Noise Level In dB (A)	Construction Equipment	Noise Level In dB (A)
Bulldozer	80	Crane	75-77
Front end loader	72-84	Welding generator	71-82
Jack hammer	81-98	Concrete mixer	74-88
Crane with ball	75-87	Concrete pump	81-84
Excavation and Earth Moving		Concrete vibrator	76
		Air compressor	74-87
Construction Equipment	Noise Level In dB (A)		
Bulldozer	80	Pneumatic tools	81-98
Backhoe	72-93	Bulldozer	80

Front end loader	72-84	Cement and dump trucks	83-94
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Clearing		Structure Construction	
Dump truck	83-94	Front end loader	72-84
Jack hammer	81-98	Dump truck	83-94
Scraper	80-93	Paver	86-88
Grading and Compaction		Landscaping and clean-up	
Grader	80-93	Bulldozer	80
Roller	73-75	Backhoe	72-93
		Truck	83-94
Paving		Front and end loader	72-84
Paver	86-88	Dump truck	83-94
Truck	83-94	Paver	86-88
Tamper	74-77	Dump truck	83-94

(Source: U.S. Environmental Protection Agency, Noise from Construction Equipment and Operations. Building Equipment and Home Appliance. NJID. December 31, 1971)

Mitigation Measures

Different options are available to control noise pollution. They are listed below:

A. Noise Containment Measures

- PVC Laminated Polyester Fireproof Mesh Sheet as discussed in the earlier section will be used with hard barricade to reduce the noise levels and check the noise levels outside the barricade periodically for different type of construction activity through a hand-held noise meter.
- High noise activities should cease between 22:00 and 06:00 hrs.

B. Noise Reduction Measures

- Equipment and vehicle noise can be reduced at source by regular maintenance & repair of construction machinery and equipment.
- Mufflers or silencers should be mandatory to be equipped by all project-related vehicles.

6.7.5 Storm water drainage

The monsoon period starts from May, lasts till August and can be prolonged till September. Therefore, if the interventions start immediately, there will be chance of flooding of existing road during rain because no drainage system exists along the subproject alignment.

Mitigation Measures

- Storm water channels/side drains as included in the design (as shown in the below figure) should be constructed earlier to reduce flooding.
- The proposed drain during construction should be barricaded to avoid falling of a person inside the trench.
- Awareness programs for the public will be initiated to avoid throwing garbage in the proposed storm water drains during construction.
- Signs will be posted over the drains to disseminate the information.

6.7.6 Surface and Ground Water Quality

Spills from construction equipment fuel, construction vehicles during construction may resulting in contamination of groundwater in conditions like post-monsoon season; Inadequate storage at construction site and disposal to nearby areas of waste material will result in contamination of land, nuisance to the public, pedestrian and residents.

Also, the relocation of electric poles includes pole mounted oil filled transformers which may have chance of oil spillage.

Mitigation Measures

- Coordination with LESCO/WAPDA should be ensured during the relocation of transformers and an HDPE lining must be put beneath the transformer mounted poles to avoid soil contamination.
- It will be ensured that the wastes generated from construction activities should be stored in a proper interim location onsite which should be adequately barricaded and covered to avoid ingress of storm water. The location of the onsite waste storage site will be selected by Supervision Consultant as per detailed construction plan.
- Excavation material /civil works related solid waste should be disposed to Lakh-Oder Landfill site.
- There will be no labor camp for residing the workers as local labor will be hired.

Also, the contractor will rent out a building instead of establishing a labor camp. It will also serve as the shelter for labor during construction and provision of water. Therefore, no generation of wastewater will be envisaged.

- The rehabilitated sewerage network will be connected to existing WASA network outside the subproject area. The municipal wastewater normally complies with the municipal wastewater discharge limits of PEQS and therefore it can be connected to the sewerage system.

6.7.7 Utilities

The existing pole mounted transformers will be replaced by HT pad mounted gas insulated RMU transformers outdoor as per WAPDA Specification. The new transformers will be installed before the cutting of electricity and relocation of existing wires will be done one by one to avoid long electrical interruption.

Currently the sewerage system laid along the subproject road and adjacent streets is deteriorated and damaged and the sewage gets accumulated at some portions of the road. Also, the existing manholes are choked. Therefore, the rehabilitation of sewerage lines as well as relocation of existing manholes will not have an impact on the community. However, there is a chance that the overflowing sewage from choked sewerage system may get accumulated at the construction site.

Mitigation Measures

- Relevant utility institutions such as LESCO and WASA, PTCL, SUI Northern Gas Limited will be well-informed and taken on-board before and during the commencement of any activities and their recommendations should be well-incorporated.
- While working near water mains, WASA will be taken on board and site engineers will be present at the site.
- Water supply should be cut down during rehabilitation and connecting of new water supply lines to water main as well as working near the water main.
- Communities along the subproject road will be pre-informed and consulted while cutting down these utilities.

6.7.8 Waste Management Plan

A. Solid Waste Management

The Waste Management Plan (WMP) addresses the management of all solid and liquid refuse, including hazardous and non-hazardous waste, produced during the construction phase of this sub-project. The WMP aims to provide guidelines on waste reduction, segregation, collection, and disposal practices in accordance with

international best practices, to avoid deterioration of the natural environment and negative impacts on the health and safety of communities in the Project Area. The waste hierarchy presents waste management stages commencing with the most preferable option to the least preferable option. Waste prevention is the most preferred option, followed by reuse, recycling, and recovery including energy recovery and the last option is safe disposal, as shown in **Figure 6-1**.



Figure 6-1: Hierarchy of Waste Management

(Source: <https://environment.ec.europa.eu/>)

This section describes the waste disposal plan for the waste produce from project activities during the construction phase of the sub-project. Envisaged main types of waste to be generated from the project activities include:

- Domestic waste;
- Construction waste;
- Fuel, oils, and chemicals;
- Packing waste; and
- Used or damaged batteries.

Domestic waste and construction waste will be the main type of waste generated from the site office and construction activities. Domestic waste contains high percentage of readily degradable hydrocarbon which gives bad smell on decomposition, especially in hot and humid environment. Construction waste classified as inert waste which could be problematic to dispose of. It is recommended to collect the domestic waste and construction waste separately. The Contractor should adopt 3 Rs (reduce, reuse and recycle) approach in waste management process for the sub-project.

B. Domestic Waste

- All the waste generated at site office(s) should be collected and bagged. Periodic

waste collection should be arranged with the local authority for disposal.

- Contractors can send bagged domestic waste to the waste transfer station located southwest of the project site. The waste transfer station belongs to Lahore Waste Management Company (LWMC) and only receives domestic waste. LWMC transfers the collected domestic to the final disposal location outside Lahore city.
- Burning of waste at site is strictly prohibited.
- Biodegradable bags should be provided at site for waste collection and disposal.
- Separate bins should be provided at the site for collection recyclable waste (paper, glass, cans, plastic bottles etc.), green waste (compostable, kitchen or garden waste) and other domestic waste.

C. Other Non-Hazardous Waste

- Excavated soil.
- Trimmings of steel.
- old broken pipes, G.I./C.I. Water supply lines of under given sizes including fittings such as tees, bends, unions, Gibault joints, sluice peat valves
- Metals, wood, cement sacks, sand and gravel, cut off cables, cut off pipes, garbage from daily activities of workers.
- Wasted or faulted materials including conductors, insulators, pipe fittings, etc.
- Excavated spoil or demolition waste (pieces of brick/tile or concrete pieces etc.) can be used as fill material provided it meets required engineering criteria. But if it needs to be disposed of then ensure it is transported to the designated dumping site safely.
- The construction waste dumping site should be agreed with the supervision consultant, preferably in the outskirts of Lahore city. The Contractor and supervision consultant will ensure that the waste disposal site or temporary waste storage area on site will not affect natural drainage of the area and cause water ponding, flooding etc.
- Extra material (aggregate, brick, cement etc.) should be sent back to the supplier as soon as possible.
- No waste should be buried at site.
- Packing waste can be recycled, if it comprises on cardboard or other recyclable material, if not then send it to the agreed waste dumping site.
- Recyclable waste e.g., pieces of steel, brick etc. can be collected by the recycling contractor. Waste containing sharp pieces of glass or nails should not use as fill material on site, as it could damage the newly installed pipe work etc.

D. Special Waste

- Special waste should be handled as hazardous waste and collected in suitable container/bags, keep at within the purpose-built temporary storage area and send of site to authorized disposal site. Waste fresh concrete, empty chemical/fuel container, used batteries, medical waste or excavated contaminated soil can be

classified as special waste.

- Hazardous wastes in this project could be old transformers, old Sui gas meters, old Telecom wires, concrete washout, spent welding materials, solvents, paints, adhesives, asphalt spills, concrete spills, spilled oils from the operation and maintenance of the construction machinery and gaseous emissions from the construction machinery engines. Hazardous waste must be disposed of keeping in view the waste hierarchy discussed above.
- All pipes made up of asbestos cement if discovered during rehabilitation, will be handled, transported and safely disposed to the designated landfill site through EPA certified hazardous waste contractor hired by Contractor.
- Construction Contractor's HSE Plan shall clearly include a section on Asbestos Management that will ensure disposal in a manner that keeps the material in predominantly whole pieces to be considered non-friable. Sanding, sawing, grinding, chipping, or the use of power tools shall not be allowed. The asbestos containing pipes will be kept wet during removal and wrapped in plastic to avoid escape of asbestos fibers into the air.
- Segregation of ferrous metal, non-ferrous metal and plastic: This separation is generally carried out after shredding and followed by mechanical and magnetic separation process.
- Recycling/recovery of valuable materials: E-waste fractions after segregation consisting of ferrous and non-ferrous metals are further treated. Ferrous metals are smelted in electrical arc furnaces, non-ferrous metals and precious metals are smelted in smelting plants.
- Treatment/disposal of dangerous materials and waste: Shredder light fraction is disposed of in landfill sites or sometimes incinerated, CFCs are treated thermally, Poly Chlorinated Biphenyl (PCB) is incinerated or disposed of in underground storages, Mercury (Hg) is often recycled or disposed of in underground landfill sites.
- Site specific risk assessment for handling and disposal of special waste should be completed by the contractor and approved by the supervision consultant.
- All site workers handling special waste should have the necessary training(s) and use appropriate PPE according to the risk assessment or health & safety plan of the project.
- Special waste should be carried in suitable carrier vehicles to the disposal site.

E. Waste Segregation

All hazardous waste if found shall be segregated from nonhazardous wastes at the point of generation of waste. During construction phase, suitable containers with following color coding shall be kept collecting and segregate common wastes at all facilities:

Waste material	Color code
Concrete/	Blue

Campsite Debris	
Metal	Green
Plastic	White
Oily Rags	Black
Used Oil	Red
Rubbish/Trash	Yellow

F. Recycling

Recycling and reuse minimize the quantity of waste requiring disposal. Some of the wastes can be reused within the construction site while others can only be recycled (Table 6-2). There is a great recycling potential for few of these wastes in the recycling market of Lahore. Waste shall be sold to the third-party contractors/ companies, who have proper recycling facilities.

Contractor will suggest/recommend recycling of the paper, glass, plastic wastes in their respective processing units. Iron/steel waste would be sent to re-rolling mills.

Table 6-2: Waste management options (different categories)

S#	Waste Type	Category	Disposal Options
1	Excavation Material	Non-hazardous	Reuse for backfill or sell to third party Contractor.
2	Construction including Scrap debris	Non-hazardous	Recycle, reuse or sell to third Party contractor
3	Metals	Non-hazardous	Store cuttings in designated area for reuse. Remove surplus materials and use them at other sites, where feasible.
4	Concrete	Non-hazardous	Store unused concrete reuse. Recycle, reuse or sell blocks for to third later party contractor.
5	Bricks	Non-hazardous	Reuse for footings and broken bricks.
6	Plastic and vinyl	Non-hazardous	Recycle, reuse or sell To third party contractor.
7	Corrugated Cardboard	Non-hazardous	Recycle, Reuse or sell to third party contractor
8	Woods	Non-hazardous	Recycle
9	Empty Drums and Containers	Non-hazardous	Disposed them off through recycler.
10	Oily Rags (Used)	Non-hazardous	Dispose to Sanitary Landfill.

	Paint (Waste and Waste Paint, Drums Rollers/ Brushes)	Hazardous	Handled and disposed through incineration via EPA certified waste contractor hired by Contractor
11	Sanitary Wastewater	Non-hazardous	Treat wastewater in septic tanks before disposal.
12	Trash	Non-hazardous	Segregate glass, metal, plastic from trash. Recycle all recyclable items. Designed landfill.
13	Pipes containing Asbestos	Hazardous	Handled and disposed through landfill via EPA certified waste contractor hired by Contractor.

The Waste Tracking Form, attached below shall be used to record this information by the Contractor, while waste is being dispatched outside construction site. It is the responsibility of Punjab EPA certified waste contractor to assign a suitable person to sign off the record of waste tracking before the waste is dispatched outside.

G. Waste Tracking Form

Location of Generation:	
Reporting Team:	
Submitted by (Name):	
Submitted on (Date):	
Waste	Disposal Location
Excavation Material	
Concrete	
Bricks	
Metal	
Card board	
Tiles	
Plasterboard	
Wood	
Wires	
Bitumen	
Green waste	
Drums and	

Containers (Empty)	
Oil Contaminated Soil	
Paint Waste	
Sanitary Wastewater	
Sludge	
General Trash	

Checked and Signed: _____ Dated: _____

H. Liquid Waste Management

There will be no labor camp for residing the workers as local labor will be hired. Also, the contractor will rent out a building instead of establishing a labor camp. It will also serve as the shelter for labor during construction and provision of water. Therefore, no generation of wastewater will be envisaged.

Wastewater generated from the contractor's work area during construction phase of the project will be disposed of by connecting the local existing wastewater disposal system with the approval of concern authority i.e. WASA Lahore. If required, wastewater testing should be conducted as per the requirement of WASA.

Spill Kit (sandbags, absorbing pads, shovels and plastic bags/container for carrying contaminated soil or liquid) should be provided in case of accidental spills or leakage. Loading and unloading of the material on site should be managed by a trained banksman. Material Safety Data Sheets (MSDS) or Control of Substances Hazardous to Health (COSHH) sheets should be available on site.

6.8 TRAINING PLAN

The environmental and social training will help to ensure that the requirements of the ESMP are clearly understood and followed by all project personnel. The primary responsibility of providing this training to all project personnel will be that of the contractor and Supervision Consultants. The training will be given to the site workers, working at different levels (manager, supervisor, labour etc.) and stages of the project, i.e., construction and operation stage. Tentative training plan of 20 sessions which will be finalized before the commencement of the project by the supervision consultant is given below:

Table 6-3: Proposed Training Plan

Trainee	Trainer	Contents	Schedule
All Site Workers	Contractor's Site/Project Manager	Site Inductions – All site workers should be inducted for the site. The sensitive areas, i.e., designated heritage sites, should be informed to the trainees. Chance Finds Procedure should be briefed to the trainees. Site rules e.g. speed limit, break timing, rest area, waste handling practice etc. should be explained to the site workers. Only inducted person(s) should allow to work on site.	Before the trainee work on site (4 session each session contains no more than 50 person)
Contractor's: Managerial supervising staff Consultants:	Environment Specialist PTEGP, Environment Specialist of	Environmental and social aspects of the area, key finding of the EA; Mitigation measures;	Before the trainee commence supervising
Managerial staff and Engineers	supervision consultant	key elements of ESMP and its implementation on site. Using Fire Extinguisher correctly (type of fire extinguisher for different types of fire, how to inspect and use it).	work on site (2 session)

Drivers	Environmental Manager of Contractor, Environment Specialist of Supervision Consultant	HSE Plan, Road Safety, Road Restrictions, Vehicle Restrictions, Defensive Driving, Vehicle Reversing Rules, Social and Cultural Values of the area (no loud music, avoid horn near school, hospital etc.).	During construction stage session)
Capacity Building of Local Community	Environmental Specialist from PTEGP with collaboration of LWMC	Waste Practices Management	During construction stage sessions)
Capacity Building of Local Community	Social Safeguard & Gender Specialist from PTEGP, Social Mobilization Wing and WCLA	Community development including women skills training	During construction stage sessions)

6.9 TRAFFIC MANAGEMENT

It is anticipated that carrying out of rehabilitation of existing public amenities work may result in partial or full closure of the road/street during construction. The project area is very congested, thickly populated and the main trail and aligned streets are too narrow. Furthermore, there are schools located in the project area so the students may face problems especially during the opening and closing hours of school. Respective alternative Traffic management Plan will need to be developed in such cases.

The proper sign with alternative traffic management scheme will be visibly paced during the rehabilitation works. Before entering the construction site, a traffic scheme must be installed, and on the sides of the access roads - the corresponding road signs. The speed of movement in the work area should not exceed 5 km/h. It is envisaged to develop an optimal scheme for the movement of construction equipment and to limit the speed of its movement. To avoid an increase in the density of traffic flow in the Project area, the residents will be informed through the local media (local cable T.V, loudspeakers in mosques). The owners of vehicles will be informed in the same way about the possible complications of traffic congestion; however suitable billboards will be places at the project site as well as suitable places like turning points in streets or on

main trail. To reduce the discomfort of the population during work, the work shall be performed only during daylight hours (from 8^o to 21^o or as agreed with the public). During cultural events (Eid or any Mela), which may be held nearby, the work will be suspended for the duration of the action. Before carrying out works which need the closing of streets or road sections, the public of the city will be informed in advance, and the alternative traffic management plan will be determined.

It is the Contractor's contractual obligation to prepare and submit the Traffic Management Plan, and get its approval from the supervision consultant, traffic police, PTEGP and WCLA and implement it on site. The plan should be available for the public in the local library i.e Punjab Public Library which is about 0.75 Km away from the project site and at the project site office. The plan should also be disclosed in the local newspaper. The suggestions made in this section should be incorporated by the Contractor in the preparation of the Traffic Management Plan.

- Traffic management plan will be introduced to manage smooth flow of vehicular traffic and to avoid traffic jam and long queues.
- Traffic management plan will also cater the pedestrian movement.
- Sign postings, warning signs, diversion signs and barriers will be installed to alert the public of all potential hazards including limited access to construction sites.
- Ensure safe and continuous access to all shops and residences during construction. Movement of construction material to the project sites should be planned in a way that it will not hamper major transport activity e.g. during night time or early in the morning when the local trips are minimum. However, care must be taken at residential locations and the transfer of material should not be done during late hours.
- Enforce the maximum speed limit for site traffic to 5 km/hour or otherwise specified different limits by the supervision consultant.
- It is suggested that the work in the streets should be done simultaneously e.g. first the Right Side streets Gujjar Galli, Mohalla Jalotian, Galli Dr. Muhammad Din, Galli Javahrian and Kocha Shah Anayait that is currently in bad shape and closed due to sewerage and garbage accumulation will be rehabilitated and then the left carriageway will be rehabilitated from Faseel Road, Islam Khan, Dawa Khana Rar Kareem, Mohalla Pat Rangan, Rajpoot Galli, Tavell Sheikhan, Mohalla Chomalla or vice versa.

6.10 HEALTH, SAFETY AND ENVIRONMENT

Objectives: The HSE objectives include but are not limited to the following:

- To anticipate and avoid all possible injuries or fatalities during the execution of the project.
- To ensure all personnel employed on the Project are competent to carry out their designated safety tasks
- To develop positive health, safety and environmental protection attitude and perceptions at all levels of the project organization and create safety and environmental awareness in general
- Implement training programs that support the achievement of the Contractor's staff and personnel's competency in relation to health, safety and environment
- Complete the project without incurring any significant property damage to the adjacent permanent structures or temporary facilities
- Complete the project without causing unnecessary risks and damage to the surrounding environment
- Implement a hierarchy of communication forums that ensure that HSE concerns are raised and addressed at all levels of the organization
- Introduce methodology of motivating "good" safety and environmental performance
- Continuous monitoring and improve HSE performance

A. Site HSE Rules: The following HSE rules must be strictly followed:

- Task specific HSE orientation sessions before starting work
- Wearing of personal protective equipment
- Follow the message and instructions displayed on HSE notice boards at site
- Be aware of emergency assembly points and escape routes
- Promptly report all accidents to the concerned authority
- Maintain appropriate barricades as required
- Never temper with electrical cables and appliances
- All temporary structures should be designed, construct and supervise during construction phase of the project by a competent person (qualified and have relevant experience) e.g. scaffolding, temporary access path to the shops/houses, installing safety net for catching accidental drop of worker, material, tools etc.) or arrangements at working at height (using ladder or working tower or cherry picker)
- The construction site should be designated as "NO SMOKING" area
- Vehicles must be driven at designated routes and drivers must have driving license for the class of vehicle they are operating
- Vehicles shall only be parked in designated parking areas



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6.11 LABOR ISSUES

- The construction of civil works such as road rehabilitation, utility works, etc. poses an inherent risk of injury to labor from accidents.
- Poor housekeeping practices will lead to stagnant water as breeding grounds for insect vectors (causing malaria etc.).
- Hazards from handling equipment, ergonomic stress, lifting heavy materials etc. may cause injury to the labor.

Mitigation Measures

Site-specific labor health and safety hazards are also critical to identify based on job safety analysis or comprehensive hazard or risk assessment. Health and safety management planning should include the adoption of a systematic and structured approach for prevention and control of physical, chemical, and biological health and safety hazards. Use of PPE should be made mandatory. Only trained and experienced crane, forklift, etc. operators should be hired. Contractor shall ensure that Job Hazard Analysis (JHA) is performed prior to commencing jobs. It shall also be ensured that the JHA is reviewed after the following:

- Whenever work is stopped

- Every time work conditions, or the job scope changes
- Persons working the job shall review and acknowledge the JHA by their signature

6.11.1 Crane and Lifting Operations

For all Crane & Lifting Operations Contractor shall ensure full compliance with standard operating procedures. Contractor shall develop a site-specific pre-lift checklist which includes the following at minimum:

- Crane rigging capacity adequately for load
- Condition of slings
- Rigging condition adequate for load
- Area of swing or travel unobstructed
- Multiple crane use
- Power line approach distance maintained
- Stability and footing
- Taglines and spotters
- Illumination and weather
- Signal operator
- Job hazard analysis and other permits

All lifting and rigging activities shall be supervised and conducted by a competent person or team, CC shall maintain a lifting gear registry for all lifting gear on-site inclusive of a listing of all lifting gear, copies of equipment certificates (manufacturer, safe working load, serial number) and the inspection/recertification frequency.

6.11.2 Forklifts and Non-Road Vehicles

Contractors should ensure forklift and non-road vehicles are fit for purpose and operated according to manufacturer's requirements. Only competent operators are permitted to operate forklifts and non-road vehicles.

At minimum, all forklifts and non-road vehicles shall be equipped with following equipment:

- Seat belts
- Horn
- Emergency Brake
- Wheel chock
- Labeled Controls
- Fire Extinguishers
- First Aid Kit
- Back-up Alarm
- Scaffolding

Contractor is responsible to establish periodic inspection, certification and recertification

program for scaffold works. Only qualified workers are authorized to erect, inspect and certify scaffold. All scaffolds should have a guardrail system on each open side, up to the access point. It should be equipped with toe boards having suitable access ladder.

6.11.3 Over-exertion

Over-exertion, and ergonomic injuries and illnesses, such as repetitive motion, over-exertion, and manual handling, are among the most common causes of injuries at construction site.

Mitigation Measures

Recommendations for their prevention and control include:

- Workers will be trained with lifting and materials handling techniques before the construction of the project, including the placement of weight limits above which mechanical assists or two- person lifts are necessary.
- Work site layout will be planned to minimize the need for manual transfer of heavy loads.
- Tools will be selected, and workstations would be designed to reduce force requirements and holding times, which promote improved postures, including, where applicable, user adjustable workstations.
- Administrative controls, such as job rotations and rest or stretch breaks will be implemented into the work processes.

6.11.4 Slips and Falls

Slips and falls on the same elevation associated with poor housekeeping, such as excessive waste debris, loose construction materials, liquid spills, and uncontrolled use of electrical cords and ropes on the ground, are also among the most frequent cause of lost time accidents at construction site.

Mitigation Measures

Recommended methods for the prevention of slips and falls from, or on, the same elevation include:

- Good housekeeping practices, such as the sorting and placing loose construction materials in established areas away from foot paths, would be implemented.
- Excessive waste debris and liquid spills will be cleaned up regularly.
- Electrical cords and ropes will be located in common areas and marked corridors.
- Slip retardant footwear will be used.

6.11.5 Struck By Objects

Construction activities of the project may pose significant hazards related to the potential fall of materials or tools, as well as ejection of solid particles from abrasive or other types of power tools which can result in injury to the head, eyes, and extremities.

Mitigation Measures

Techniques for the prevention and control of these hazards include:

- Maintaining clear traffic ways to avoid driving heavy equipment over loose scrap.
- Temporary fall protection measures in scaffolds and out edges of elevated work surfaces would be used, such as handrails and toe boards to prevent materials from being dislodged.
- Appropriate PPE such as safety glasses with side shields, face shields, hard hats, and safety shoes, would be worn.

6.11.6 Moving Machinery

Vehicle traffic and the use of lifting equipment in the movement of machinery and materials on a construction site may pose temporary hazards, such as physical contact, spills, dust, emissions, and noise.

Heavy equipment operators have limited fields of view close to their equipment and may not see pedestrians close to the vehicle. Center-articulated vehicles create a significant impact or crush hazard zone on the outboard side of a turn while moving.

Mitigation Measures

Techniques for the prevention and control of these impacts include:

- The location of vehicle traffic, machine operation, walking areas, and controlling vehicle traffic will be planned and segregated using one-way traffic routes, establishment of speed limits, and on-site trained flag-people wearing high-visibility vests or outer clothing covering to direct traffic.
- The visibility of personnel will be ensured using high visibility vests when working in or walking through heavy equipment operating areas as well as training of workers to verify eye contact with equipment operators before approaching the operating vehicle.
- Inspected and well-maintained lifting devices will be used that are appropriate for the load, such as cranes, and securing loads when lifting them to higher job-site elevations.

6.11.7 Other Site Hazards

Construction of site may pose a risk of exposure to dust, hazardous or flammable materials, and wastes in a combination of liquid, solid, or gaseous forms.

Mitigation Measures

- Only authorized personal should be allowed at the construction site
- Identify and minimize, so far as reasonably practicable, the causes of potential hazards to workers, including communicable diseases such as HIV/AIDs and vector borne diseases;
- Avoid stagnation of water and initiate drainage/cleanup of stagnant water;
- Provide for the provision of appropriately stocked first-aid equipment at work sites;
- Provide for appropriate personal protective equipment (PPE) to minimize risks, such as but not limited to appropriate outerwear, boots and gloves; safety helmets;
- Provide training for workers for the use of PPE;
- WB Group's Environment, Health and Safety (EHS) Guidelines (attached at the end of this document) will be implemented;
- No bonded and child labor will be permitted at site;
- Labor laws will be followed including Minimum Wage, Protection against harassment of women, Work Hours, Overtime Payment.
- Laborers will be trained on appropriate interaction with local people especially women.
- Include procedures for documenting and reporting accidents, diseases, and incidents; and
- All safety precautions will be taken to address safety hazards for the nearby community. These precautions may include safety/warning signage, safety barrier around the construction site.
- Lighting provided for labor during nighttime work should be adequate but spotlights that should not create nuisance to nearby local residence.
- The contractor will include appropriate clauses to protect the environment and public health. The sub-project ESMPs will be included in the bidding document.

6.12 HARASSMENT OF WOMEN IN THE WORKPLACE

A Code of Conduct at the Workplace will be developed by contractor to provide protection and safety to women against harassment.

6.13 EMERGENCY RESPONSE PLAN

One purpose of HSE Plan is to describe responsibilities in preparation for response to and recovery from and reasonably foreseeable incident.

In the event of any emergency the In-charge Site HSE/Environment Officer or a

member of the HSE team shall take the following actions:

- Shall attend site of incident; assess the situation and issue directions to the concerned parties and to the Fire Fighting Team in case of fire
- Ensure that message about the incident have been communicated to Site Manager / Environment Manager of the Contractor
- Evaluate the scale of the incident and decide whether additional resources are required to deal with it adequately
- Liaise with site supervision staff for withdrawing any working permits
- Liaise with site supervision staff for the mobilization of any plants and equipment necessary for dealing with the emergency
- Limit access to the area with barriers, or other means to prevent unauthorized access
- Co-ordinate the re-instatement measures following stabilization of incident
- Maintain the records of the incident/ accident and prepare a full report of the event
- Take prompt and appropriate actions for defined events such as serious illness/injury, fatality etc.

6.13.1 Health, Safety and Hygiene

The measures should include:

- Initial medical examination of all employees of the Contractor to verify their fitness for work
- Provide a group insurance cover to the workers and labour on site or in the camp, against accidents, mishaps or loss of life on duty
- Monthly talks on occupational health
- Provision of qualified medical personnel and adequate medical facilities to the staff
- First Aid trainings
- Provision of hygienic food to the employees
- Provision of drainage, sewerage and running cold and hot water in office buildings and camp areas
- Good housekeeping practices should be ensured at site office(s), construction sites and other contractor facilities (material or plant & equipment yard etc.)

6.13.2 Security

Security measures should include:

- Provision of Identity Card to the employees/site workers
- Regular attendance and a controlled time keeping of all employees
- Proper checking of visitors
- 24 hours security at site office(s), site workers living area and working area.
- Restriction of un-authorized persons to the residential/offices and work areas

- Restriction of carrying weapons or illegal objects, drugs etc.
- Provision of boundary walls / fences with proper exits to office and residential areas

The risk of accidents such as building collapse, event of fire, road accidents after the proposed control measures are low to medium because the proposed work scheme only involves the rehabilitation of existing infrastructure. However, because the project site located in the highly populated area and overall environmental emergency response method will be used to develop site specific Emergency Plan:

- Obtain an early warning of the emergency conditions to avoid/minimize adverse impacts on human health and the environment of the area.
- Safeguard personnel to prevent injuries or loss of life
- Minimize the impact of such event on the environment by mitigating the potential for escalation and containing of the hazards
- Site In-charge should have permanent mode of contact (e.g. mobile phone or walkie talkie) with the HSE officer.
- Contact name and number of the HSE officer should be available in the site office and displayed on the site office notice board.

It is the responsibility of the Contractor to provide at least one First Aider during working hours on site to handle emergency conditions and accidents. The Contractor should also get a hospital on panel for critically injured persons. The First Aid provider at the working area will perform the following duties.

- i. Keep all necessary first aid medicines and bandages in the first aid box at every time
- ii. Replace the medicines before their expiry dates
- iii. Provide first aid to the injured in the event of accident
- iv. Report any accident / incident to the Health & Safety Manager or environmental manager immediately for necessary action
- v. Call ambulance in case of any serious emergency
- vi. Emergency sirens should be installed at the work area and at site offices/residence to inform the site worker about emergency. The operation of the siren will be controlled by the HSE officer or his nominated person. The designated assembly area should also be marked and informed to site workers.

7 STAKEHOLDER CONSULTATIONS

7.1 CONTEXT

Meaningful stakeholder consultation is widely recognized as an essential precursor for managing the perceived socio-economic risks of a development project and enhancing social sustainability. The Bank's Operational Policy and Bank Procedures (OP/BP 4.0) emphasize the importance of involving stakeholders early in the planning process and thereby making them part and parcel of the development process.

This section identifies the project stakeholders for the Urban Rehabilitation and Infrastructure Improvement Project and the details of the consultation process that was carried out with stakeholders. Feedback from both Project-Affected Parties and Other Interested Parties is presented and analyzed. Tools and methods of stakeholder engagement, information disclosure activities and monitoring arrangements are outlined in a Sub-Project specific Stakeholder Engagement Framework.

7.2 CONSULTATION OBJECTIVES

Effective stakeholder engagement enhances project beneficiaries' role from "participants" to "enabling agents" that proactively provide insights to project planning and implementation. The stakeholder consultation process for this project has been designed to enhance the role of stakeholders and thereby contribute towards project success and sustainability. The specific objectives of the stakeholder engagement exercise carried out for the Urban Rehabilitation and Infrastructure Improvement Project are:

- Facilitate and encourage interaction with project's beneficiaries, including project-affected parties and other-interested parties to encourage project acceptance, sustainability and ownership
- Adopt an inclusive, participatory and transparent approach towards stakeholder engagement that provides opportunities for engagement with relevant stakeholders of all backgrounds, regardless of gender, race, ethnicity, age, disability, income-class and ability
- Inform all stakeholders regarding the project, context and objectives, salient design features and potential social and environmental consequences
- Benefit from the local knowledge for enhancing strategic interventions for public space design and infrastructure improvement
- Identify specific community concerns and suggestions about proposed designs and develop solutions to ensure satisfactory results.

7.3 STAKEHOLDERS IDENTIFICATION AND ANALYSIS

The major stakeholder groups involved in consultation process at ESMP stage are divided into two types:

7.3.1 Primary Stakeholders

Primary stakeholders include all those who are situated along the project course. As there are four parts of the project site i.e. Main Trail, Western part of the site, Northeastern and Northwestern part of the site. These stakeholders include informal occupiers, shopkeepers, and mobile vendors of the main trail and residents of the remaining three project sites.

7.3.2 Secondary Stakeholders

Stakeholders who have stakes in the sub-project include the relevant Local Government departments, utility companies, non-governmental organizations and civil society organizations active in the area. The detailed list of all stakeholders is shared in **Table 7-1**.

Table 7-1: Stakeholders for the Sub-Project

Primary Stakeholders	Secondary Stakeholders
Residential Areas • Adjacent areas of the project site i.e. Mochi Gate Commercial Areas/Units • High-density of small-medium sized auto- mechanic and repair shops, marriage lawns, small and large eateries, mobile vendors and hawkers and the like outside the main gate of Bhatti. Education Facilities • The education institutions of the area Health Units • There is one private clinic in the area. Transporters (Major Stops) • The rickshaw and Mazda transporters outside the main Bhatti Gate. Areas of Worship • Mosques and a <i>Mandir</i> (a Hindu Temple)	Local Government Departments/Offices • WASA • UC Offices • Punjab Environmental Protection Agency Utility Companies • LESCO • Sui Northern Gas Pipeline (SNGPL) Non-Governmental Organizations • Akhuwat • Urban Resource Center • Academia and Subject Experts

7.4 STAKEHOLDER ENGAGEMENT

Essential details of the project were disclosed to both project-affected and other-interested parties through a variety of communication tools. A one-page project brief was developed that provided the project context, objectives, location and proposed interventions. The project brief was accompanied by an A4 size map of the project area to facilitate understanding of the project location and potential impacts.

The consultation team used consultation meetings as another mechanism to personally communicate the project details and expected outcomes to the project-affected parties including male and female residents, business owners, social service providers, and public transport drivers. Community consultations were conducted in Urdu and helped stakeholders better understand and assess the potential benefits and risks of the project.

For the other-interested parties, a detailed presentation regarding the project background and principles, location, design specifications and potential impact and opportunities was given to relevant Local Government Representatives, utility companies and NGOs at their respective offices. The presentation provided these stakeholders a clear illustration of the proposed project activities and enabled them to examine the pros and cons of the proposed interventions based on their subject knowledge and expertise.

7.5 STAKEHOLDER CONSULTATIONS

A series of stakeholder consultations were conducted with both project-affected and other-interested parties. The consultation tools and the stakeholders identified reflect the diverse range of stakeholder interests in the subproject area. Pre-designed questionnaires were used to conduct both Focus Group Discussions (FGDs) and Semi-Structured Interviews. Specific questionnaires were designed for each stakeholder group including residents, commercial entities and transporters. The consultation team consisted of a male and female sociologist, an environmentalist, representative of the Design Consultant, and at least one note-taker, male or female depending on the particular circumstances. All FGDs with women were conducted with female team members. The team carried authority letters from the PTEGP, Project Briefs in Urdu, and Project Maps for all the meetings. Moreover, initial corner meetings were held with local leaders including Government representatives and social workers to sensitize the local stakeholders on the importance of the overall project and meaningful consultation for project success and sustainability.

At each consultation meeting, the participants were informed of the meeting purpose and objectives, a round of introductions took place, participants were apprised of the

subproject interventions and potential impacts and stakeholders were invited to share their perspectives, including suggestions for mitigating adverse impacts (if any) and measures to enhance win-win solutions. A complete list of stakeholder's consulted, along with consultation tools and dates for project-affected parties and other interested parties is shared in **Tables 7-2 and 7-3**, respectively.

Table 7-2: Stakeholder and Public Consultation

Date	Venue	Participants	Discussion	PMU's Response
10/08/2023	Bhatti Gate Site	Nasir Ali Muhammad Ihsan Najib Ullah Sheikh Liaqat Zubair Muhammad Khalid Muhammad Hassan Muhammad Saleem Razia Bano Arooj Atiya Bano M/S HA Consulting JV M/S Mascon Associates(Pvt.)Team Mr. Yousaf Abidi (CEO Mascon Associates) Engr.Farhan Sajid Wajeeha Ashraf (Environment Specialist) Engr. Abid Farooq Engr. Irfan Kibzai Mr. Masharab Ali Khan Mr. Aqib Ali (Lawyer) (Three sessions on site)	Most of the respondents, who were residing this place since many generations were of the view that the project should be implemented as soon as possible. Most of them were unhappy about the existing infrastructure facilities. The recent incident of burning of a household was talk of town and some of them were saying that it may be due to old and worn out electric network. They were also unhappy about the stagnant water at Main trail during the rains and want improvement in sewerage system and storm water collection system. They envisaged that this project will not only improve the outlook of their area but also enhance the quality of life as well. They emphasized that though this area is rich in historical diversity and have a great tourism potential but people avoid coming here due to lack of cleanliness, unpleasant aesthetic environment and poor infrastructure conditions. They were hopeful that after improvement of infrastructure facilities the economic	The consultant's team enlightened the public about the project and informed them that the rehabilitation works are going to start soon i.e. first half of 2023. They were also briefed about the economic and aesthetic and benefits of the project.

			activities would be increased, and they will be benefited from it.	
23/08/2022	WCLA Office	Najam Us Saqib – Director Conservation Walled City Lahore Authority Hamza Shoib – Assistant Director Walled City Lahore Authority	• The scope of work was discussed with WCL team. Limitation of determining the scope of infrastructure work at early stage of the project was explained by the WCLA team. It was informed that the scope of infrastructure work depends on different factors including electricity load requirement for particular street, current conditions and presence of sewage system, street and building structural conditions etc. • WCLA's team shared their previous experience of similar kind of work they have conducted in past. • Comments from World Bank on initial submission of ESS was shared and discussed with WCLA. • WCLA informed about the available suitable building near work area for setting up the project site office.	• PMU highlighted the importance of robust and effective safe system of work need to be emplace for managing the construction activities on site as this project site includes residential area, which is different to other previous projects completed by WCLA (comprising on commercial area). • It was agreed that all site workers will follow the project specific code of conduct to minimize risk of causing any inconvenience to local community due to the presence of the staff or execution of project activities in the area. • PMU informed that work timings will be scheduled with consultation of local

				community to minimize social Disturbance from work activities.
25/08/2022	LESCO Office Data Darbar, Lahore	Muhammad Rizwan – Xen LESCO Afzal Shah – Technical Assistant	- The participants appreciated the proposed scheme of underground electrical system of the project area and informed that many accidents take place due to hanging wires in the past. - The terrain is a combination of narrow and wide passages. Requirement of Comprehensive H&S plan was highlighted.	PMU responded that Site Specific Health & Safety Plan will be prepared and implemented during construction phase of the project.
25/08/2022	WASA Office Data Darbar, Lahore	Hafiz Raheel – Director Ravi Town WASA Ghulam Mustafa – SDO City WASA Umair Musood – SDO Drainage WASA	- The proposal of converting open sewerage channels into underground sewerage pipeline in the area was very much appreciated. - Covering open drain with fixed concrete slab may cause problems for maintaining and periodic de- silting the drain. - Open drain located just outside the Bhatti Gate can be covered but it should be moveable cover for cleaning and maintenance purpose.	- PMU informed that open drain cover design will be finalized with the collaboration of WASA. - An open drain will be dredged before covering the drain for developing car park area. The dredged material should be dispose-off in the outskirt of Lahore city with other dredged material from drains located in Lahore city.

16/08/2023	Govt. Victoria Girls Higher Secondary School Androon Mori Gate,Lahore	Rukhsana Khushi – Principal 2 Senior Subject Teachers Mst. Abida Parveen Mst.Nusrat	• The scope of work of the project was explained to the Principal. The sub-project was very much appreciated. • An early start for the project was demanded. • The school is the only higher secondary school for the girls in the project area and owned a very beautiful building. • SOPs to be followed and care must be taken during construction stage of the project.it must not cause hindrance to the movement of the students and teachers. • 3) Mobility and safety of kids.	• The consultant's team informed that SOPs are to be followed during construction stage of project. • Display of sign boards, proper information about the work activities will be discussed with the community and timely information disclosure will be maintained. • Alternate routes and safety plans will be incorporated in the ESMP of the project. It will bind the contractor to take all safety measures such as placing safety barriers, and cordoning off the area. • 4) The contractor shall ensure the safety of children and respect the norms of the area.
	Haveli Haji Choudhary Bashir Ahmad Kamboh		• The infrastructure of the area is in worse form. Heaps of solid waste can be seen everywhere. I cannot find suitable matches' for my	• The infrastructure will be improved and solid waste management will also be done in a

	Govt. Contractor		daughters due to poor hygiene conditions of the area. We are thinking of leaving the area for a better environment as many of the old inhabitants left the place due to similar reasons. But their emotional attachments are with this area and often they express their wishes if the area was in good condition they would never leave the place.	proper way. • This project will surely improve the aesthetics and people will come to this area to enjoy the beauty of the area as tourists and visitors.
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Table 7-2: Consultation with Local Community

Sr. No	Participant	Date	Observation/Feedback	Remarks by PMU-Team
1	Muhammad Saleem House owner and Business owner	20-08-2023	Solid waste is a big issue. Old, worn-out hanging wires/cables pose a great threat to our lives and business. The wiring should be underground. The construction, shifting of amenities and replacements should not cause hindrance to our business and everyday life affairs.	SWM will done in a proper way and ESMP would be implemented during construction phase of the project. It was assured that the construction and digging process will be carried out after negotiating schedule with the local community and the contractor will be bound to provide the alternate routes, and diversions with proper signage under an elaborate management

				plan(ESMP)
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2	Business owner (Food Business)		He showed apprehensions about disruption of gas supply and electrical cut downs during rehabilitation of Sui Gas and Electrical Network improvement component.	The PMU Team informed that electrical and Gas supply would be continued during the project. However if there would be phased disruption of these supplies, they will be well informed through media and contractor.
3	Madrassah Incharge		The open drains in the area should be covered as they have become breeding grounds for rodents and mosquitoes: furthermore people throw solid waste into the open drains that choke the sewerage system and cause public health nuisance.	Improvement of infrastructure facilities like water supply, fire hydrant system, domestic sewerage, storm water sewerage are part of project so all the issues will be addressed.
4	Business owners		Existing open drains are damaged and collect sewage from and surrounded shop houses. Open drains are used as a garbage/solid waste disposal point thus resulting in decrease of water carrying capacity of these drains	The consultants' team explained that the goal of project is to improve sanitation conditions, provide clean drinking water, and improve living conditions through solid waste management, Behavior change, and capacity building for the sustainability of the project.

5	House wife		Recently fire broke out in a house possibly due to short circuit and it caused loss of lives so there is dire need for infrastructure improvement.	Installation of fire hydrant system will improve the facilities of the area and may be helpful in reducing such type of incidents in future.
6	Business owners		Construction in the major areas will affect the business activities as we outsource the raw material for business from different areas.	The contractor will intimate before the construction via notices and public announcements so raw material can be stored in sufficient quantity also a traffic management plan will be prepared. Furthermore, there is alternate access to Bhaati area through Taxali area which can also be utilized for transportation of raw material.

8	Business owner		Is it possible to carry out the project activities after business timings?	The project will initiate work from dead end alleys away from the commercial center. Once the work is started near business activities the contractor will negotiate timings and alternate routes with local business owners.
9	House owner Business owner		If there is conflict between the on the ground labour force and the local residents or business community who will look after that matter.	Site supervisor will be present to deal with such conflicts. If the community is dissatisfied with the onsite conflict resolution, They can register their grievance through the Grievance Redress Mechanism (GRM). The information regarding GRM will be displayed in the project area.
10	House owner			The PMU Team briefed that community will continue getting water supply during the proposed activities (Phase-I). However, in case water supply is interrupted for short hours, locals will be Notified before and so they can store water.

7.6 PUBLIC & STAKEHOLDER GROUP CONSULTATION

A group consultation session with stakeholder and public members was held near the project site at Lahore Fort on 10th November 2022. Member of civil society and representative of different departments including Local Government, LWMC, politician, local school owner, AKCSP, WCLA and PTEGP attended the session. Proposed work scheme and their potential benefits and challenges of executing the work scheme were discussed in the meeting. The meeting minutes of the session and list of attendees are attached as **Annexure-F**. A synopsis of the concerns raised in the meeting and their replies by PTEGP and WCLA are provided in below table:

Sr.No.	Social Issues Raised by Respondents	Suggestions to resolve the issues
	Findings of the survey revealed that poverty was the major issue of the community residing in the project area. Respondents were of the view that the poverty rate has increased from 30 percent to 40 percent over the past 10 years. They added that due to low income and increased expenditures, they are not able to get sufficient life needs, like sufficient food, proper medicine, live able housing conditions, learning, and clothing needed to live.	• The respondents were of the view that government should concentrate on job creation. • The jobs creation will help local people to get more earning opportunities, resultantly it will reduce poverty; • Respondents were of the view that if all adults completed even secondary education, we could cut the poverty rate to great extent. Education develops skills and abilities, corrects some of the imbalances that come out of marginalization, and decreases both risk and vulnerability.
	Inflation and unemployment are the main issues faced by the population of Pakistan. The survey findings revealed that most of the people living and working around the proposed project area belonged to lower middle and poor community which suffers more with the rising inflation and unemployment. They were of the view that in an inflationary environment, unevenly rising prices inevitably reduce the purchasing power of the local consumers. Respondents of the survey added that unemployment is a serious issue, particularly when someone is living in urban settings. It creates	• They asked to raise the minimum wage rate which is comparatively very low with compare to the inflation ratio in our country; • Pay equity should be supported and implemented, particularly by the private sector; • Education and training is a long-run strategy to make the workforce more employable and to raise the level of labor productivity. • Respondents suggested that the decentralization of industrial activity is necessary to reduce unemployment. If industrial activities are centralized in one place, there will be fewer employment opportunities in underdeveloped areas. So

	negative effects on the unemployed as they are jobless and suffer from worse prospects. Moreover, the respondents were of the view that increased unemployment affected the physical, mental, and psychological health conditions of the individuals.	government should adopt such policies which encourage the decentralization of industrial activity.
	Many of the respondents complained about the insufficient and improper educational facilities in the government educational institutions near the proposed project area as well as in the surroundings. They were of the view that inadequate provision of facilities and materials to mainstreamed public schools is leading to poor academic performances of students. They added that lack of facilities limits the ability of the students to achieve various learning and extra curricula activities. Moreover, lack of facilities has a negative impact on teachers' job satisfaction, which undermines their motivation to teach. Furthermore, they explained that our professional and vocational streams are not aligned with the employment requirements of the country.	• The provision of free education in schools, colleges, and universities by the government can play a major role in reducing the level of illiteracy by getting more people to school; • There is a need to equip the local schools with modern education facilities; • Provide equal education opportunities to women; • Promote education training and professional development for women;
	Many of the respondents complained about the improper health facilities in the government hospitals working in the area. Respondents were of the view that it is the responsibility of the government to prevent and treat illness, and to provide proper health facilities like health centers, hospitals, and laboratories for	• Access to health care is very essential, it must be within reach of every citizen. • The government can provide free treatment to the poor through the public health system. • Provide testing at affordable rates to the patients; • Free medical check-up camps should be arranged to aid all sections of our society. • The healthcare facilities need to be

	testing, ambulance services, blood bank, and so on for all people. These services should be within the reach of every patient as well as healthcare facilities need to be improved in every government hospital.	improved in the local government hospitals. The respondents appreciated the initiative of the government regarding the provision of health cards to marginalized community members.
	During the socioeconomic survey, respondents were of the view that the urban infrastructure such as water supply facilities, sewerage, and drainage systems have not been improved to cope with the development and expansion of the area. Particularly, the silted or choked sewer lines and drainage channels are serious hazards to the environment of the project area. The situation aggravates during the monsoon season causing flooding in many places and resulting in not only impediment to traffic and business but also degradation of the sanitary environment.	- Respondents of the survey elaborated that the basic civic amenities which are necessary to live a respectable life are water supply and sanitation, drainage, streetlights, collection and disposal of solid waste, and maintenance of public places; - They described that improvement in providing civic amenities for the citizens is urgently needed. Drinking water supply throughout the day is required but currently, the supply is on an intermittent basis in the daytime. - There is a need to pay special concentration to the collection and disposal of sewerage and solid waste. There are many problems and complaints about choking underground drain, thereby sewerage water spilling all over on the roads and streets, especially in the monsoon season. Underground and surface drain needs special cleaning and attention. - Proper collection, disposal, and treatment of solid waste in the city are not satisfactory. There is a need to make improvements in these areas. - Maintenance of streetlights should also be taken care of. - Maintenance of all public places is required on a timely basis - The encroachment over government land and road area must be stopped. - Government must build, maintain, and upgrade extensive transport, power, water, sewage, and telecommunication networks, to keep up with the demands of economic

		development and population growth of the project area. This infrastructure is necessary to continue the progress of society and improve living standards.
	Gender discrimination is the unequal or disadvantageous treatment of an individual or group of individuals based on gender. Sexual harassment is a form of illegal gender discrimination. The respondents were of the view that gender discrimination is also deeply rooted in our society in the education and employment sectors. Judgment against gender has remained a major social problem in Pakistan. As a result, women are often left out of the economic and educational sectors. They described that there are many social problems for girls and women, including forced or early marriages, public harassment, acid attacks, and rape.	• Participants were of the view that gender is of key importance in defining the power, privilege, and possibilities that some people have, and some people do not have in a given society. It affects progress towards equality and freedom from discrimination. • Gender equality can be achieved just by holding everyone to the same standard; • Need to create awareness about fundamental rights of gender; • Gender equality prevents violence against women and girls. It's essential for economic prosperity. Societies that value women and men as equal are safer and healthier.
	The Respondents appreciated the scope of the proposed rehabilitation works. They envisaged that this project will not only improve the outlook of their area but also enhance the quality of life as well. They emphasized that though this area is rich in historical diversity and has a great tourism potential, but people avoid to come here due to lack of cleanliness, unpleasant aesthetic environment and poor infrastructure conditions. They were hopeful that after improvement of infrastructure facilities the economic activities would be increased, and they will be benefited from it.	Community participation is an integral part of the ESMP process, and all efforts will be made to sensitize the community about the ongoing developments.

	The project area is thickly populated and a number of commercial and residential activities are performed. Electricity and water supply should not be disrupted.	It was informed that the scope of infrastructure work depends on different factors including electricity load requirement for particular street, current conditions and presence of sewage system, street and building structural conditions etc. Care will be taken to perform the rehabilitation works in phases/intervals and community will be informed through media and local channels (contractor, Masjid) about disruption of any utilities.
	Any work initiated in the city is left for many days and the contractors usually runs off. The current project is being executed as 'Emergency Works' and the contractor shall be supervised and the activities shall be Immediately completed.	The Contractor shall implement ESMP and health & safety on site during execution of the work. A communication plan will be prepared and implement during construction phase of the project and an integrated approach will be adopted in execution of the work on site in safe and environmentally friendly and socially acceptable manner. Concerned WCLA informed that the infrastructure improvement work design will be finalized with the collaboration of concern department.
	Mixing of sewage and potable water in lines. All the sewer lines are old and punctured. Manhole covers are missing in most of the streets. Manhole covers shall be provided where they are missing and new covers with heavy weights shall be provided to ensure they do not get removed from there.	Once the leaked pipes are replaced, the mixing of water and sewage will be resolved. The old sewer lines are being replaced under the current project. Manholes will also be provided.

7.7 DISCLOSURE OF SUBPROJECTS INFORMATION

The sub-project ESMP will be uploaded on the project websites, hard copies shall be sent to all institutional stakeholders. The sub-project ESMP will be disclosed internally within the Bank. Before start of physical works on the subproject, the sub-project ESMP

executive summary will be translated in local languages and communicated to all primary stakeholders including local communities, transporters, UC offices and businesses in the neighborhood and will be uploaded on the PIU website.

7.8 LESSONS LEARNT AND GAPS IDENTIFIED

Phase 1 of the project identified some gaps, and some lessons were learnt during the planning and execution phase. These lessons learnt and gap identified are discussed as follows:

- The project proponents must ensure timely execution to minimize the physical mobility of the local community.
- The GRM must be active at the site level and the project level.
- Special consideration must be given to the privacy of the females during working time.
- The contractor must cordon off the dig up areas for the safety of the public in general and the children in particular.
- The schedule for the construction activities must be shared with the local community, schools' administration etc.



Consultation with Women at Haveli Haji Choudhary
Bashir Ahmad Kamboh



Consultation with Local Shop keepers



Consultation with Residents and Business Owners



Consultation with Principal of School



Consultative meeting with SDO LESCO

Taking View of local resident



Consultation with Females of the sub project area

Consultation with Locals



Consultation with Locals

Consultative meeting with Mr. Nouman Youas
Assistant Director Environmental Protection

	Department
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Figure 7-1: Pictorial View of Stakeholder & Public Consultation

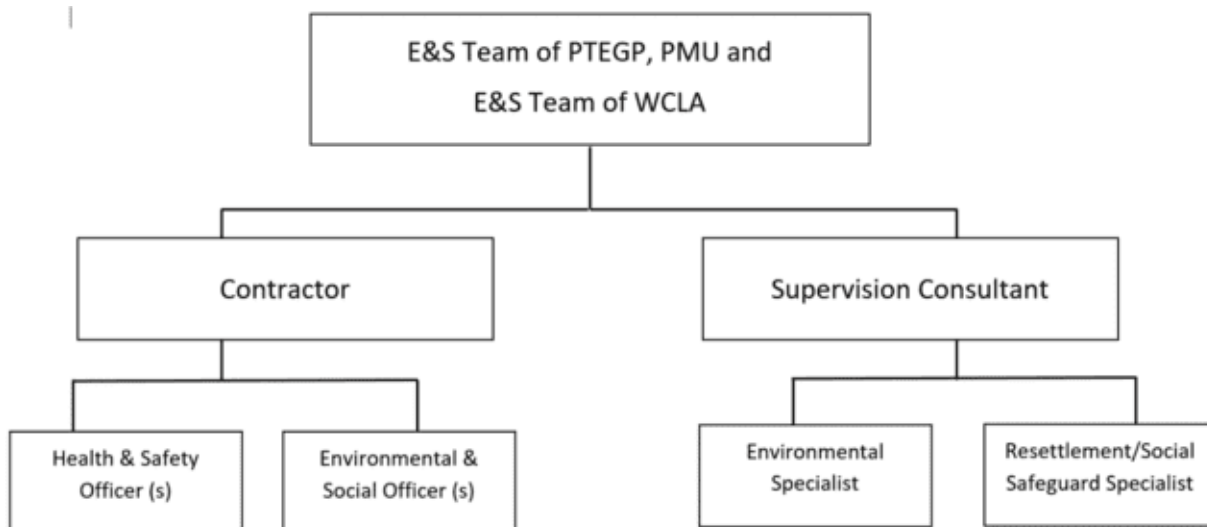
8 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

8.1 MITIGATION MEASURES AND IMPLEMENTATION PLAN

This section outlines the potential environmental impacts, and their associated mitigation measures of the proposed sub-project. It also assigns the responsibilities for implementation, supervision and frequency of suggested mitigation measures. Ensuring that there will be no unacceptable adverse impact on the heritage sites, adjacent buildings to pit/trench areas and residential buildings of the area during construction phase of the project, additional control measures are presented in **Annexure-G**.

8.2 INSTITUTIONAL SET-UP FOR IMPLEMENTING ESMP

PMU is overall responsible for the implementation of ESMP and PD-PTEGP will look after for overall implementation in letter and spirit through the Contractor and the Supervision Consultant. The Construction Supervision Consultants will review and approve site specific plans as per the requirement of the ESMP e.g. Traffic Management Plan, Waste Management Plan, HSE Plan etc. by the contractor before the commencement of the physical works at the site. The Construction Supervision Consultant will also supervise implementation of ESMP and site specific plans. Supervision Consultant will appoint a dedicated, qualified environmental and social team. The contractor and Construction Supervision Consultant team will respond to the E&S Team of PTEGP, PMU and WCLA. Recommended organizational structure for managing environmental and social aspects of the project during construction phase is presented below:



The subproject-specific mitigation plan prepared on the basis of impact assessment discussed in the previous section is presented in **Table 8-1**. This subproject ESMP shall form part of the project contract specifications.

8.3 MITIGATION PLAN

The mitigation plan, being a key component of ESMP, includes measures to mitigate potential negative impacts and enhance its positive impacts during construction phase of the Sub- project. The contractor will be responsible for the implementation of ESMP in the field. The contractor will ensure that ESMP is implemented fully and is integrated into the project implementation. The Contractor will do this in co-operation with executing and implementing agencies and local community of the subproject.

In case the contractor fails to implement any part of EMP, PMU, PTEGP will reserve the right to get it done at the cost of the contractor. The cost of any such work will be determined by the Construction Supervision Consultants and will be adjusted from amount due to the contractor. The contractor will also be responsible for communicating with and training of project staff in the environmental and social aspects and implementation of the ESMP. The contractor will develop the Health, Safety, and Environment (HSE) Plan and ensure he has a suitable site team to implement the ESMP and HSE plan on site in their true spirit. .

8.4 MONITORING PLAN

Monitoring Plan is also associated with mitigation plan during the different stages of the Sub- project. It ensures that mitigation measures are being effectively implemented. The monitoring of the Sub-project is imperative for implementation of the ESMP. The officials from EMP, PMU, and PTEGP will carry out the monitoring at the field level on a continuous basis. The contractor and Construction Supervision Consultant team will respond to the E&S Team of PTEGP, PMU and WCLA.

8.5 MONITORING MECHANISM

Safeguards implementation monitoring is an essential tool for testing whether the adopted environmental and social management measures are meeting their stated objectives. Two complementary methodology approaches are being applied to monitor the proposed actions under the ESMP:

- **Compliance monitoring:** which checks whether the actions proposed by the ESMP have been carried out by visual observation, photographic documentation and the use of checklists prepared for the ESMP.

- **Effects monitoring:** which records the consequences of program activities on the biophysical and social environment; as applicable, these effects are repeatedly measured by applying selected indicators.

The plan also defines the monitoring mechanism and identifies a set of verifiable monitoring parameters to ensure that all proposed mitigation measures laid down in the ESMP are completely and effectively implemented.

Monitoring will be carried out to ensure that the mitigation plans are regularly and effectively implemented. It will be performed at two levels. At the PTEGP, the environmental team will do ESMP compliance monitoring to ensure that the mitigation plans are being effectively implemented. At the Contractor's level, the Environmental monitoring checklist will be filled on weekly basis by their Environmental Manager.

8.6 REPORTS

The Contractor will submit weekly compliance monitoring checklist and PTEGP E & S Wing will submit quarterly and annual monitoring reports as well as a final report of the Sub-project based on safeguard implementation status. The distribution of periodic reports is given below:

Table 8-1: Distribution of Periodic Reports about E&M and Monitoring Plan

Distribution of Periodic Reports	Prepared by	Reviewed by
Weekly	Contractor	E&S Team of PTEGP, PMU and WCLA
Quarterly	Supervision Consultant with the support of environment and social officer	E&S Team of PTEGP, PMU and WCLA
Annual	Supervision Consultant with the support of environment and social officer	E&S Team of PTEGP, PMU and WCLA
Final	Supervision Consultant with the support of environment and social officer	E&S Team of PTEGP, PMU and WCLA

8.7 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

The **Table 8-2** presents environmental mitigation and monitoring plan during the design phase and **Table 8-3** presents mitigation measures of each environmental effects and monitoring parameters with responsibilities defined separately for each aspect during the construction phase.

Table 8-2: Environmental Mitigation and Monitoring Plan during Design Stage

S#	Environmental Effect A	Potential Significance B	Pre-Construction Measure(s) Mitigation C	Mitigation Responsibility D	Monitoring Parameters E	Monitoring Responsibility G
1.	Preference for construction material that do not contain hazardous materials	Medium	Include provision in the bidding document that discourage use of hazardous construction materials especially asbestos	Supervision Consultant PTEGP WCLA	Tender documents	Supervision Consultant PTEGP WCLA
2.	Preparation specific plans of site	Medium	Contractor to prepare site specific plans. These plans would include site specific ESMP, traffic diversion plan and any other necessary for implementation of this ESMP	Contractor	Site specific plans	Supervision Consultant PTEGP WCLA
3.	Compliance with Pakistani environmental regulations and WB safeguard policies and EHS guidelines	Medium	This ESMP to be made part of the bidding/tender documents The bid documents shall comply with all Pakistani laws and regulations and WB EHS guidelines.	Supervision Consultant	Tender documents	Supervision Consultant PTEGP WCLA

Table 8-3: Mitigation Measures of Environmental Effects and Monitoring Parameters with Responsibilities during construction phase

S#	Environmental Effect	Potential Significance	Pre-Construction Measure(s)	Mitigation	Mitigation Responsibility	Monitoring Parameters	Monitoring Responsibility	Cost
A	B	C			D	E	G	
1	Excavation and trenching works associated with this project may lead to increased soil erosion at the project site, especially if construction is done during the rainy seasons.	Medium	- Avoid unnecessary land clearance/excavation. - Contractor will get approval of land clearance and excavation (area and depth) from the supervision consultant before commence work on site.	Contractor	Supervision Consultant PTEGP WCLA	Clear marking of land on site which need to be cleared or excavated. Documentation record of approval from supervision consultant.	Once before start of clearing land or excavation	
			Contractor will ensure that erosion protection measures are taken, such as retaining wall (if required), avoidance of steep and deep excavation etc.	Contractor	Supervision Consultant PTEGP WCLA	Visible signs of any soil erosion Soil exposed to the flash flooding During heavy rain	Weekly and Once after rain	
			- Fence/separate the work place from public area/paths/roads. - Ensure safety reflective signage is display. - Formally inform the local community about the work activities through consultation. - Plan work as per local community's opinions/suggestions. - Ensure that the movement of earth moving machinery (dumper, mini excavator, if used) is limited to the work area. - Avoid excavations within a distance of 500 m to ROW	Contractor	Supervision Consultant PTEGP WCLA	Working areas are marked/fenced	Daily	Cost of fence will be included in Contractual Cost borne by Contractor and will be assessed after finalization of construction plan

			Maintain good housekeeping and send the spoil of site to the authorized dumping station as soon as possible	Contractor	Supervision Consultant PTEGP WCLA	Maintain good housekeeping, arrange frequent collection of spoil/demolition debris for disposal	Daily during construction phase	
			Contractor will ensure that the surface drainage arrangements are in place to control the surface run off, particularly during rainy season	Contractor	Supervision Consultant PTEGP WCLA	Drains are clear and solid waste not dumped in the drains	Check once a week during construction phase	
			Contractor will backfill the excavated area and level the working area as far as possible and as per the satisfaction of the people living or running business next to the work area. Contractor should prepare working area restoration plan and get its approval from the Supervision Consultant.	Contractor	Supervision Consultant PTEGP WCLA	Drains are clear and solid waste not dumped in the drains	Check once a week during construction phase	
			In borrow pits, the depth of the pit shall be restricted upto 5' and the sides of the excavation will have a slope not steeper than 1:4	Contractor	Supervision Consultant PTEGP WCLA	Working areas are marked/fenced	Daily	
			Contractor will maintain the complete documentation for the excavated areas or demolition waste i.e. volume excavated/demolition waste, date of excavation/waste produced, leveling or sending waste of site date after completion of work	Contractor	Supervision Consultant PTEGP WCLA	Site Records	During construction phase	

2	Air Quality deterioration due to dust and exhaust emissions	Medium	PVC Laminated Polyester Fireproof Mesh Sheet (with small mesh size) which is easily available in the local market should be installed at least 8-10 ft. in height from existing ground level to contain dust inside the construction site. This barrier can be added over a hard barricade for the construction site and if provided in double layers with a gap of about 1 inch can reduce the noise substantially. It is evident that the construction on each track will be commenced in sections, therefore, not whole track needs to be covered.	Contractor	Supervision Consultant PTEGP WCLA	Check the Adequacy and Integrity of Barricade and mesh sheet.	Daily	Cost of barricade and PVC laminated sheets will be included in Contractual Cost borne by Contractor and will be assessed after finalization of construction plan
			The exposure of construction workers to dust should be minimized by provision of dust masks and mandating the workers to wear them. Truck loads should be covered with tarpaulin. Careful handling and working under moist conditions and monsoon season will be avoided as much as possible.	Contractor	Supervision Consultant PTEGP WCLA	Ambient Air Quality parameters (SPM, NO, NO ₂ , SO ₂ , PM ₁₀ , CO, PM _{2.5}) – Mobile air quality Van will be used. Vehicular Emissions for Construction Vehicles (Smoke, CO _x , NO _x , PM, Noise) – Mobile exhaust analyzers will be used.	Monthly	Cost of PPE, water spraying, vehicles tuning will be included in Contractual Cost borne by Contractor and will be assessed after finalization of construction plan Rs.35,000 for 8hr ambient air monitoring

						Monitoring conducted as per PEQS/NEQS.		per location, as per column F Rs.10,000 Per vehicle for vehicular emission monitoring, as per column F
			- The exposure of construction workers to dust should be minimized by provision of dust masks and mandating the workers to wear them. - Truck loads should be covered with tarpaulin. - Careful handling and working under moist conditions and monsoon season will be avoided as much as possible. - Ready-mix can be used in the stages of the project wherever and whenever required and deemed appropriate. - Road construction operations should be carefully planned and scheduled and when the traffic movement is minimal e.g. early morning. - Excessive engine idling should be discouraged and machinery causing excessive pollution (i.e.	Contractor	Supervision Consultant PTEGP WCLA	Ambient Air Quality parameters (SPM, NO, NO ₂ , SO ₂ , PM ₁₀ , CO, PM _{2.5}) – Mobile air quality Van will be used. Vehicular Emissions for Construction Vehicles (Smoke, CO, NO _x , PM, Noise) – Mobile exhaust analyzers will be used. Monitoring conducted as per NEQS.	Initially fortnightly and when found within limits to quarterly	Cost of PPE, water spraying, vehicles tuning will be included in Contractual Cost borne by Contractor and will be assessed after finalization of construction plan Rs.35,000 for 8hr ambient air monitoring per location, as per column F

			visible clouds of smoke) should be banned from sites. • Open burning of solid wastes, whether hazardous or nonhazardous, is not considered good practice and should be avoided, as the generation of polluting emissions from this type of source cannot be controlled effectively			The location of air quality monitoring is presented Below location plan.		Rs.10,000 per vehicle for vehicular emission monitoring, as per column F
			Construction site including soil and material piles at the site should be barricaded to avoid material escape, generation of dust.	Contractor	Supervision Consultant PTEGP WCLA	Check the Adequacy and Integrity of Barricade and mesh sheet.	Daily	
			Vehicle and plant maintenance work should not be conducted at work's site except light maintenance i.e. changing wheel etc. Vehicle washing should be avoided on site. Construction machinery and vehicles should be properly tuned and kept in good working condition, minimizing exhaust and vehicular emissions. It should be ensured that exhausts from these equipment and vehicles comply with relevant NEQS.	Contractor	Supervision Consultant PTEGP WCLA	Compliance System in place	Daily As and When required	
			Use of water suppression for control of loose materials on paved or unpaved road surfaces. Oil and oil by-products is not a recommended method to control road dust. Water should be sprinkled daily or whenever there is dust problem on all exposed surfaces to suppress emission of dust.	Contractor	Supervision Consultant PTEGP WCLA	Monitor Dust emissions (Monitoring conducted as per PEQS/NEQS).	Daily, if required	Water sprinkling cost is included in Contractual Cost borne by Contractor and will be assessed after finalization of construction plan

3.	Traffic Management	Medium	- Traffic Management Plan (TMP) will be introduced in consultation with the construction supervision consultant, construction contractor, school principal and notable community people to manage smooth flow of vehicular traffic and to avoid traffic jam and long queues. - TMP should be prepared keeping in mind schools located in the project area so the students may not face problems especially during the opening and closing hours of school. - Respective alternative TMP will need to be developed in such cases. - TMP will also cater the pedestrian movement.	Contractor	Supervision Consultant PTEGP WCLA	Designated parking spaces	Weekly	Nil
			The Contractor will prepare and implement TMP and gets its approval from the supervision consultant for implementation at site.	Contractor	Supervision Consultant PTEGP WCLA	Designated parking spaces	Weekly	Nil
			Sign postings, warning signs, diversion signs and barriers will be installed to alert public of all potential hazards including limited access to construction sites and the local community should be formally informed through consultation process.	Contractor	Supervision Consultant PTEGP	Designated parking spaces	Weekly	Cost of sign postings and diversion aids

			The work should be planned in light of the local community opinion/suggestions.		WCLA			will be included in Contractual Cost borne by Contractor and will be assessed after finalization traffic management plan
			Enforce the maximum speed limit for site traffic to 5 km/hour or otherwise specified different limits by the supervision consultant.	Contractor	Supervision Consultant PTEGP WCLA	Flow of routine traffic	Daily	
			Any damage to public roads/property due to the project traffic should be rectify ASAP by the contractor.	Contractor	Supervision Consultant PTEGP WCLA		Daily	
			Appropriate plant and equipment should be utilized by the contractor for execution of project activities in narrow and congested urban area e.g. se mini excavator instead of 13 tonner, mini dumper etc. 7.5 Movement of vehicle carrying construction material should be restricted during off peak day time only to reduce traffic load and inconvenience to the local residence.	Contractor	Supervision Consultant PTEGP WCLA	Flow of routine traffic	Daily	
			It is suggested that the work in the streets should be done simultaneously	Contractor	Supervision Consultant	Flow of routine traffic	Daily	Cost of sign postings and

			e.g. first the Right Side streets Gujjar Galli, Mohalla Jalotian, Galli Dr. Muhammad Din, Galli Javahrian and Kocha Shah Anayait that is currently in bad shape and closed due to sewerage and garbage accumulation will be rehabilitated and then the left carriageway will be rehabilitated from Faseel Road, Islam Khan, Dawa Khana Rar Kareem, Mohalla Pat Rangan, Rajpoot Galli, Tavell Sheikhan, Mohalla Chomalla or vice versa.		PTEGP WCLA			diversion aids will be included in Contractual Cost borne by Contractor and will be assessed after finalization traffic management plan
			Movement of construction material to the project sites should be planned in that way it will not hampered major transport activity e.g. material may be transported at night time or early in the morning when the local trips are minimum. However, care must be taken at locations where residents are located, and the transfer of material should not be happened during sleeping hours.	Contractor	Supervision Consultant PTEGP WCLA	Flow of routine traffic	Daily	
			Ensure safe and continuous access to all shops and residences during construction	Contractor	Supervision Consultant PTEGP WCLA	Flow of routine traffic	Before / during Implementation of Project activities	Nil
4.	Parking issues of Motor cycles of Labour or construction contractor team	Medium	A car parking area is under construction near the entrance of Bhatti Gate on existing drain as a part of phase 1 of the said sub project. The labour /construction contractor team can park their motor cycles there during construction phase of project.	Contractor	Supervision Consultant PTEGP WCLA	Flow of routine traffic	Before / during Implementation of Project activities	Nil

5.	Storm water drainage	Low	Awareness programs for the public will be initiated to avoid throwing of garbage in the proposed storm water drains during construction and operations. Sign post will also be displayed over the drains to disseminate the information.	Contractor	Supervision Consultant PTEGP WCLA	Sign post placement and dissemination of knowledge	Quarterly and spot checks	Nil
			Storm water channels/side drains along subproject road as included in the design should be constructed earlier to reduce flooding. It is proposed that drain of one track will be constructed earlier and the other track will be rehabilitated at the same time to accommodate storm water discharge and eliminates flooding. The proposed drain while construction should be barricaded to avoid falling of a person inside the trench.	Contractor	Supervision Consultant PTEGP WCLA	Check construction plans, Check JHA made by CC and check the adequacy of fall protection	Quarterly and spot checks	Nil
6.	Surface and Ground Water Quality deterioration due to spills from construction equipment, fuel, inadequate disposal of waste material, removal of pole mounted Oil filled transformers	Low	2.4 Supervision Consultant will ensure that the Contractor's fulfill contractor's obligations regarding disposal of construction waste material including waste concrete, spoil, empty drums, packing material etc. Contractor will provide separate bins for construction waste and recyclable domestic waste on site. The contractor will ensure the waste carries in appropriate trash vehicles for transporting the waste from the site.	Contractor	Supervision Consultant PTEGP WCLA	Check surface/ground water quality parameters (pH, TDS, TSS, Oil & Grease, Turbidity, Total Hardness, As, Pb, Coliform) – Grab samples will be taken and samples tested as per PEQS in EPA certified Laboratory	Quarterly	Waste disposal cost is included in Contractual Cost borne by Contractor and will be assessed after finalization of construction plan Rs.20,000 per grab sample for water quality analysis, as per column F

		Excavation material /civil works related solid waste should be taken and stored in a proper interim location onsite as the area is thickly populated and it is not possible to dump the SW immediately. The excavated material; should ultimately disposed to Mahmood Booti Landfill site which is 120 km away from the site. It should be adequately barricaded and covered to avoid ingress of storm water. The location of onsite waste storage site will be selected by Supervision Consultant and contractor as per detailed construction plan.	Contractor	Supervision Consultant PTEGP WCLA	Check surface/ground water quality parameters(pH, TDS, TSS, Oil & Grease, Turbidity, Total Hardness, As, Pb, Coliform) – Grab samples will be taken and samples tested as per PEQS in EPA certified Laboratory	Quarterly	Waste disposal cost is included in Contractual Cost borne by Contractor and will be assessed after finalization of construction plan Rs.20,000 per grab sample for water quality analysis, as per column F
		Coordination with LESCO should be kept during relocation of transformers and an HDPE lining sheet must be put beneath the transformer mounted poles to avoid soil contamination. Use of PPE (impermeable gloves, eye protection and apron/coverall) while handling, transporting and storage of transformers will be made mandatory.	Contractor	Supervision Consultant PTEGP WCLA	Placement of HDPE lining, use of PPE and coordination with WAPDA	At time of removal of transformers	HDPE lining cost is included in Contractual Cost
		Building instead of establishing a labor camp. It will also serves as the shelter for labor during construction and provision of water. Therefore, no generation of wastewater will be envisaged	Contractor	Supervision Consultant PTEGP WCLA	On-site waste collection facility	Weekly	Cleanup cost is in Contractual Cost borne by Contractor

7.	Storage of Hazardous Material	Medium	5 Hazardous material (fuel, cement etc.) should be kept away from the water body (drain, groundwater source (tube-well, hand pump etc.)	Contractor	Supervision Consultant PTEGP WCLA	On-site waste collection facility	Weekly	Cleanup cost is in Contractual Cost borne by Contractor
			2.6 Contractor will ensure that surface drainage is not blocked due to the piling of the raw material 2.8 Contractor will ensure that the material is stock piled at the designated area only.	Contractor	Supervision Consultant PTEGP WCLA	On-site waste collection facility	Weekly	Included in Contractual Cost borne by Contractor
			2.7 Contractor will maintain leak / spill record for each incident of spill or damaged vehicles. Damaged / defective vehicles will not be operated unless repaired	Contractor	Supervision Consultant PTEGP WCLA	On-site waste collection facility	Weekly	
8.	Cleanup of Portion of Right Track	Medium	The sludge will be removed through front end loader and transferred via leaked proof and covered dump trucks to Landfill site for disposal.	Contractor	Supervision Consultant PTEGP WCLA	Check the onsite clean-up action	Before the rehabilitation of subproject road	Cleanup cost is in Contractual Cost borne by Contractor
			If any liquid sewage exists at the site, it will be collected in sewage suction trucks and discharge into existing WASA sewerage system.	Contractor	Supervision Consultant PTEGP WCLA	Check the onsite clean-up action	Before the rehabilitation of subproject road	Cleanup cost is in Contractual Cost borne by Contractor
9.	Possible Noise emissions from running of construction machinery	Medium	PVC Laminated Polyester Fireproof Mesh Sheet as discussed in the earlier section will be used with hard barricade to reduce the noise levels and check the noise levels outside the barricade periodically for different type of construction activity through a hand-held noise meter.	Contractor	Supervision Consultant PTEGP WCLA	Check the adequacy and integrity of noise barriers and mesh sheets while monitor noise levels as per PEQS/NEQS.	Fortnightly or as and when required by using noise level meter	Cost of PVC laminated sheets will be included in Contractual Cost borne by Contractor and will be assessed after finalization sub-project plans

10.	Possible Noise emissions from running of construction machinery	Medium	Machinery operation and high noise activities should be carefully planned and scheduled .	Contractor	Supervision Consultant PTEGP WCLA	Ambient Noise Monitoring (dB(A)) as per PEQS near residents and businesses – Handheld noise meter will be used for measurement.	Fortnightly	Rs.10,000 for 8hr ambient noise monitoring per location, as per column F
11.	Noise Pollution	Medium	Carry out noise monitoring at 5m distance from machine or work activities which likely to produce noise pollution. Use appropriate machinery in good working condition in order to keeping noise levels within NEQS/PEQS.	Contractor	Supervision Consultant PTEGP WCLA	Compliance System in place	Fortnightly or As and When required	
12.	Mufflers or silencers should be used by project-related vehicles.	Contractor	All noise producing activities should be conducted during day time near residential area. If sensitive receptor identified near the work area i.e. school, health center etc. than additional precautions should be taken to minimize the noise pollution e.g. use noise barrier, adjust working hours etc. Carry out regular noise monitoring as per the requirement of Environmental Monitoring Plan.	Contractor	Supervision Consultant PTEGP WCLA	Compliance System in place		
			Supervision Consultant PTEGP WCLA	Noise emissions of construction vehicles as per PEQS	Fortnightly	Included in Contractual borne Cost by Contractor	Mufflers or silencers should be used by project-related vehicles.	Contractor

			High noise activities should cease between 22:00 and 06:00 hrs.	Contractor	Supervision Consultant PTEGP WCLA	Check working hours	Initially daily and if found within limits than it can be reduced to monthly and even quarterly	Nil
13.	Damage to natural vegetation, habitat and wildlife	Low	Vehicle and plant maintenance work should not be conducted at work's site except light maintenance i.e. changing wheel etc. Vehicle washing should be avoided at site.	Contractor	Supervision Consultant PTEGP WCLA	Check working hours	Initially daily and if found within limits than it can be reduced to monthly and even quarterly	Nil
14.	Archeological or religious remains (such as graves etc.) may find during the construction activities of the project, particularly during preparation of ground and earthwork activities	Low	Implement Chance Find Procedure (provided as Annexure A) in case of uncovering of ancient site or artefacts during construction phase of the project.	Contractor	Supervision Consultant PTEGP WCLA	Site Inspection record	When required basis during construction phase	
			Explain Chance Find Procedure to the site workers by delivering toolbox talk on this topic during construction phase of the project on site.	Contractor	Supervision Consultant PTEGP WCLA	Site diaries Site training record	Before and during construction phase	

			In case of unavoidable interference require in public places i.e. mosque, schools, graveyard etc. prior notification will be issued to the supervision consultant and consultant needs to be done to reach consensus on procedure or other options.	Contractor	Supervision Consultant PTEGP WCLA	Site diaries Site training record	Before and during construction phase	
15.	Cleanup of Portion of Right Track	Medium	The sludge will be removed through front end loader and transferred via leaked proof and covered dump trucks to Landfill site for disposal.	Contractor	Supervision Consultant PTEGP WCLA	Check the onsite clean-up action	Before the rehabilitation of subproject road	Cleanup cost is in Contractual Cost borne by Contractor
			If any liquid sewage exists at the site, it will be collected in sewage suction trucks and discharge into existing WASA sewerage system.	Contractor	Supervision Consultant PTEGP WCL	Check the onsite clean-up action	Before the rehabilitation of subproject road	Cleanup cost is in Contractual Cost borne by Contractor
16.	Waste Management during construction	Medium	Construction sites should be equipped with temporary refuse bins.	Contractor	Supervision Consultant PTEGP WCL	Temporary refuse bins/On-site waste collection facility	Weekly	Included in Contractual Cost borne by Contractor
			A waste management plan will be prepared for construction phase and implemented in letter and spirit	Contractor	Supervision Consultant PTEGP WCLA	As per Waste management plan prepared by contractor and approved by PTEGP WCLA	Monthly	Nil

			All Asbestos cement pipes, if discovered from rehabilitation of Bhatti Gate subproject site, will be handled and disposed via EPA certified contractor.	Contractor	Supervision Consultant PTEGP WCLA	As per Waste management plan prepared by contractor and approved by PTEGP WCLA	Weekly/As per requirement	
			Recycling of solid waste will be carried out as far as possible and practical like cement bags, steel scaffoldings, empty drums, wood planks, discarded bricks etc. Contractor will suggest/recommend recycling of the paper, glass, plastic wastes in their respective processing units.	Contractor	Supervision Consultant PTEGP WCLA	As per Waste management plan prepared by contractor and approved by PTEGP WCLA	Weekly/As per requirement	
			No wastes should be dumped at any location outside the site boundary/designated disposal site.	Contractor	Supervision Consultant PTEGP WCLA	As per Waste management plan prepared by contractor and approved by PTEGP WCLA	As per requirement	
			All hazardous waste if found shall be segregated from nonhazardous wastes at the point of generation of waste.	Contractor	Supervision Consultant PTEGP WCLA	As per Waste management plan prepared by contractor and approved by PTEGP WCLA	Monthly	Nil
			Training should be provided to working personnel for identification, segregation, and management of waste.	Contractor	Supervision Consultant PTEGP WCLA	Check training reports and records	Quarterly	Quarterly, 2- day workshop @ Rs.12,000 per workshop inc. expenses

17.	Soil Contamination due to fuel spills or Ponding of water or degradation due to activities	Low	Fuel oils and lubricants for construction machinery will be stored in covered diked areas, underlain with HDPE membrane. Washing and maintenance of vehicles will be restricted on site and contractor is mandated to get entry of well- maintained and cleaned machinery. Regular inspections will be carried out to detect leakages in construction vehicles and equipment. Appropriate implements such as shovels, plastic bags and absorbent materials will be made available near fuel and oil storage areas for removal of oil and contaminated soil.	Contractor	Supervision Consultant PTEGP WCLA	Inspection of Fuel and lubricant storage areas, construction site and project vehicle parking areas	Daily	Inspection cost and HDPE lining cost is included in Contractual Cost borne by Contractor and will be assessed after finalization of construction plan
18.	Impacts on Flora / clearing of trees due to project interventions	Low	Ensure that vegetation clearing will be minimized and no tree will be uprooted without prior consent of the Supervision Consultant. It is recommended to plant 10 new trees for every one tree uprooted on site within the project vicinity. Do not introduce invasive or exotic species through new plantation.	Contractor	Supervision Consultant PTEGP WCLA	Site record; Site Inspection record	Once a week or When required basis	Nil
19.	Exposure to asbestos fibers during removal or fixing of sewerage and water cement pipes	High	Define clear asbestos area access regulations. Only trained personnel use protective clothing and appropriate respirators to handle cement pipes containing asbestos. Respirators should be approved for protection against airborne asbestos. Restrict access to areas with possibility of asbestos presence in air or ground – minimize workers' exposure to the area. Measures to be taken to prevent asbestos dust/fibers from becoming airborne. Pipes are to be cut and removed in large blocks. Sprinkle water to keep asbestos fibers wet before during removal operations.	Contractor	Supervision Consultant PTEGP WCLA	Daily	Air surveillance/ monitoring around work areas where asbestos is being removed	Included in Contractual Cost borne by Contractor

			Hammering or breaking of sewerage pipes is not permitted. If possible, install a vacuum system to filter air. Decontaminate (shower) workers and remove protective clothing/change clothes when leaving regulated area. Transportation of removed cement pipes in enclosed containers to a predesignated site for safe disposal. ILO Code of Practice “safety in the use of asbestos” to be followed					
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9 SOCIAL MANAGEMENT AND MONITORING PLAN

The sub-project area comprised of a highly populated urban area. Construction activities need to be carefully executed and supervised by competent persons. This section provides socially acceptable and economically feasible mitigation measures for anticipated adverse impacts on social environment of the area due to the project execution. **Table 9-1** provides Social Management and Monitoring Plan (SMMP).

Table 9-1: Social Management and Monitoring Management Plan

Sr. No.	Impacts	Mitigation Measures	Responsibility		Parameters for Monitoring
			Executor	Monitor	
1.	Livelihoods Losses	Two households will be impacted (Tea Stall and Bird Seller) will be relocated in an alternative place in proximity of the parking area (phase 1 of the project) The replacement cost of structure along with allowances will be paid to these households.	PD, PMU	Supervision Consultant Firm/ SS&GS, PMU	Relocated Site Amount paid for lost structures and allowances.
2	Infrastructure Losses i.e. damage to structures/ Properties, etc.	During rehabilitation of infrastructure, the civil work will be restricted to the utilities like sewerage, pipes, telecommunication only. It will be mostly masonry work. In case there is damage to align structures like nearby houses or shops, it will not be left unattended, and compensation will be paid in kind. SOPs will be prepared for countering such scenarios and made part of the civil work contract. A GRM prepared for the project (details provided under section 17) will be emplace for people to record any concerns or grievances that may arise.	Contractor WCLA	Supervision Consultant Firm/ SS&GS, PMU/ WCLA	Site Records/ Grievance Records

3	Economic/ Livelihood Losses	Most of the project area is mainly residential. Shops are only on the main trail, where, as per WCLA, the ROW is already clear. There are semi-commercial buildings in the main trail which will be open for business with some disturbance as scaffolding would be present there. The passage of heavy vehicle will be disrupted, and the owners of semi-commercial buildings will be given prior notice to have sufficient reserve material so that heavy traffic is not required to pass during execution of civil work. Pedestrian traffic will not be disturbed and civil works in semi-commercial areas will be started in off peak time or after the closure of the shops so that loss to business could be avoided. The work plan (timing, sequence of execution etc.) will be shared thorough consultations with the local community and finalized the plan on the basis of the community's feedback.	Contractor WCLA	Supervision Consultant Firm/ SS&GS, PMU/ WCLA	Site Records/ Grievance Record/visual inspections
		Contractor will be required to negotiate construction work timings with the community and provide diversions with proper signage.	Contractor	Supervision Consultant Firm/ E&S Team, PMU/	Visual inspection/ Grievance record
4.	Obstruction in public access	Construction work will be conducted phase wise to mitigate impacts on the community.		WCLA	4.

5.	SEA/SH issues	• Harassment cases should be properly addressed and reported through GRM • Awareness training for Community and Labor. • Referrals to prevention and treatment services • Strengthen Prevention in Contractor Documents • Create or Strengthen SEA/SH • Referral Helplines • The Portion where work activities are being carried out should be cordoned off	Contractor	Supervision Consultant Firm/ E&S Team, PMU/ WCLA	• Sexual Harassment (SH) and Sexual Exploitation and Abuse (SEA) issues reported as females do not feel secure to go anywhere.
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10 ESMP IMPLEMENTATION COST

The total allocated cost for implementation of ESMP on site is 2% of the project cost. It is contractor's contractual obligation to implement ESMP on site during construction phase of the project. Cost of ESMP activities will be included in the Contractor Budget and Bill of Quantities (BoQs) through in accordance with the procurement procedures. The contractor(s) will however be paid as per actual implementation (work done). The estimated cost details for the implementation of ESMP details are provided in the **Table 10-1** below. Estimated unit rates are taken from the previous study and addition of 10% inflation.

Table 10-1: Estimated ESMP Implementation Cost

Name of item	Quantity	Unit	Unit Rate (PKR)	Total Amount (PKR)
Estimated PPE Cost (taken from previous study +10% inflation or otherwise specified)				
Dust masks	52,800 (considering average 100 persons working over 24 months)	Each	10 (market rate)	528,000
Safety Shoes	400	Each	2040	816,000
Gloves	800	Each	700	560,000
First Aid Box	10	Each	5000	50,000
Ear Plugs	800	Each	130	104,000
Safety Helmets	400	Each	500	200,000
Safety Jackets/Hi-Viz	800	Each	1120	896,000
Sanitizer	240	Each	500	120,000
Safety Harness	10	Each	10,000	100,000
Safety Goggles	400	Each	500 (Estimate price)	200,000
SUB TOTAL (1)				3,574,000

Name of item	Quantity	Unit	Unit Rate (PKR)	Total Amount (PKR)
Estimated PPE Cost (taken from previous study +10% inflation or otherwise specified)				
Environmental Analysis During Construction				
Ambient Air Quality Analysis (SOx, NOX, CO, PM2.5, O3,)	16	Each	70,000 (market rate)	1,120,000
Noise Level Monitoring	4No. Noise meter	Each	100,000 (market rate)	400,000
Water Analysis (water supply and wastewater)	16	Each	30,000 (market rate)	480,000
SUB TOTAL (2)				2,000,000
Others				
Reflective Tape Role	300	Each	500	150,000
Sign boards (3x2 feet)	10	Each	25,000 (market rate)	250,000
Water sprinkling	Once a day during summer and when require basis during winter	L/S	1,000,000	1,000,000
Implementing Waste Management Plan	Provision of Colour coded Bin, rubbish bags and disposal of special waste	L/S	5,000,000	5,000,000
Delivering Training Plan	20 sessions	Each	50,000	1,000,000

Implementation of Traffic Management Plan	Controlling traffic of the area by implementing purposed mitigation measures e.g. separating cones, temporary signal, speed breaker etc.	L/S		5,000,000
SUB TOTAL (3)				12,400,000
Total				14400000

10.1 GRIEVANCE REDRESS MECHANISM

A site-based Grievance Redress Mechanism (GRM) for the project will be operational during the entire sub-project cycle. Grievance Redress will be convened as per the World Bank OP 4.12 which requires an appropriate and accessible grievance redress mechanism for affected persons, including displaced persons and host communities.

A multi-tier GRM has been proposed in the ESMF. At the PMU level, the Social Safeguard and Gender Specialist will be the focal person for PTEGP. Project director will chair the GRC. At the district level the Grievance Redress Officers (GROs) are already nominated. For the proposed sub-projects, Dy. Director Development, Lahore will act as GRO. He has already received training on GRM.

In addition, a focal person will be appointed from the Walled City Authority Lahore (WCLA). PMU will conduct training on GRM to sensitize the social mobilization wing of WCLA. This wing will provide additional support in dissemination of information in the community regarding grievance redressal processes.

GRM will provide an easy to access forum for stakeholders the public to officially launch any complaint (through complaint boxes, by post, via mail, in person etc.) against any project related activities or issues whereby, their complaints will be heard, registered and addressed by the project. The proposed GRM has time bound activities with clearly defined roles and responsibilities. All complaints received in writing or received verbally will be properly recorded and documented.

An online GRM already exists operational and can be accessed at:

<https://ptegp.punjab.gov.pk/GRM>

10.2 CONCLUSION

The project will not have any significant adverse impact on the existing environment of the area. Envisaged adverse impacts are predictable and expected to be temporary, localized and/or reversible, low in magnitude, site-specific, without likelihood of impacts beyond the actual footprint of the project (no land acquisition or horizontal expansion of existing facilities); and have low probability of serious adverse effects to human health and/or the environment.

Rehabilitation of infrastructure and carrying out construction activities within highly populated urban area need to be well planned to avoid any accidental damages and health and safety issues e.g., noise & dust pollution, traffic issues, obstruction in movement of local community, extra burden on existing welfare facilities etc. Land acquisition will not be required for this phase of the sub-project. Possible adverse impacts related to construction activities and/or livelihood can be managed through implementation of ESMP.

On the other hand, the project envisages the reconstruction of existing networks by replacing the existing old, worn-out infrastructure and inserting into the existing network, modern materials and technologies, which will shorten the construction time, installation and significantly increase the period of operation of the network at the sites. Therefore, infrastructure rehabilitation and improvement are the need of hour to use the tourism potential of the area and make it a favorite tourist destination. It will boost the tourism industry and subsequently flourish the local economy of the area by creating new small business and job opportunities, hence a step to poverty alleviation.

ANNEXURES

Annexure- A: Chance Find Procedure

Chance Find Procedures

Project may involve deep excavations. Therefore, the possibility of Chance Find is not ignorable. In case of any chance find, the contractor will immediately report through Supervision Consultant to DG Directorate General of Archaeology, Punjab, to take further suitable action to preserve those antique or sensitive remains. The Representative of the Director will visit the site and observe the significance of the antique, artefact and Cultural (religious) properties and significance of the project. The report will be prepared by representative and will be given to the Director. The documentation will be completed and if required suitable action will be taken to preserve those antiques and sensitive remains.

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

- Stop the construction activities in the areas of chance find.
- After stopping work, the contractor must immediately report the discovery to the Supervision Consultant.
- The Director decides to take over the antiquity for purposes of custody, preservation and protection, the person discovering or finding it shall hand it over to the Director or a person authorized by him in writing.
- Delineate the discovered site or area.
- Consult with the local community and provincial Archaeological Department.
- The Director shall constitute a team of archaeologists for undertaking preliminary investigation and will decide about further course of action in light of findings of the team.
- The suggestion of the local communities and the concerned authorities will be suitably incorporated during taking the preventive measures to conserve the antique, artefact and cultural (religious) properties; and
- Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remain, a night guard shall be arranged until the responsible local authorities take over.
- Avoid the use of heavy construction machinery during the excavation

process; and The Contractor staff must have relevant qualification and experience of similar projects.

Annexure- B: Environment and Social Checklist Completed during the Sub-Project Screening Process

S/N	Screening Criteria	Yes	No	Explanation
ENVIRONMENT				
1.	- Is the subproject in an eco-sensitive area or adjoining an eco-sensitive area or monument? (Yes/No) - If Yes, which is the area? Elaborate impact accordingly.		No	The sub-project site is not an eco-sensitive area, however the WCLA has identified 194 heritage properties inside the Bhatti gate. Identified heritage sites will be rehabilitated under this project. The rehabilitation work will be designed and executed under the supervision of qualified archeologist of WCLA, ensuring their heritage values are not compromised. The proposed work will not only improve the life but in fact will help to preserve out built heritage which consequently will be a tool to improve tourism and economic regeneration of the area and subsequently help in poverty alleviation in the area.
2.	Will the subproject create significant/moderate/limited/no environmental impacts during the construction stage?	Yes		The proposed work scheme involves rehabilitation/improvement of existing structures and infrastructure of the area. Therefore, no significant environmental or social impact was anticipated. However, because the site situated in the densely populated area and have high heritage value, it is crucial to efficiently manage environmental, social and health & safety impacts of the project mainly related with construction phase of the project. Anticipated adverse E&S impacts can be mitigated by developing and implementing sustainable, socially acceptable and environmentally friendly mitigation measures. Keeping the factors of local stakeholders/residents, diversion and

S/N	Screening Criteria	Yes	No	Explanation
				Alternative routes and movement of community in and out will be insured along with health & safety measures. Furthermore, the alternate/temporary system for sewerage, water supply, electricity or gas supply etc. will be provided, if require, for maintaining the availability of above facilities as routine for the local community. It will be insured that there are zero disturbances which means all the imminent services including electricity, gas, water and sewerage will remain functional during construction phase of the project. Once the new system is properly laid the old system will be transferred to the new system without any interruption or delay. On the other hand, the project will have significant permanent positive social and environmental impacts. Rehabilitation/improvement of infrastructure and heritage buildings will help to improve in living standards of the community, attract tourism and improve health & safety conditions for the local community.
3.	Clearance of vegetation/tree-cover/other		No	The sub-project area is comprised of densely populated Lahore city devoid of natural vegetation or habitat. No adverse impact on vegetation or trees is anticipated.
4.	Direct discharge of construction run-off, improper storage, and disposal of excavation spoils wastes and other construction materials adversely affecting water quality and flow regimes.	Yes		Current drainage system comprised combination of open drains and conventional underground sewerage system laid by WASA Lahore. Wastewater generated from the construction site (Construction run-off) can be disposed of into the existing available sewerage system of the area provided the wastewater is tested and results are shared with WASA, Lahore

			for their approval to discharge the wastewater into the local sewerage system. Construction material and construction waste should be kept/temporary store away from the water bodies. Liquid material should be kept within the bound area with additional arrangement of catching any accidental spill or leaks. Wastewater produced from the project activities (watering fresh concrete, cleaning surface area of buildings for rehabilitation work etc.) can be released to the existing sewerage system with the approval of concerned authority, i.e., WASA, Lahore. The wastewater should be tested by the contractor before it releases into the existing sewerage system and the test results should be shared with WASA, Lahore. Further details will be provided in the ESMP as an Environmental Monitoring Plan. Under this project, it is proposed to replace the existing drainage system with modern UPVC pipes for sewerage water and GRP for rainwater disposal. A separate system of collection and disposal of storm water will be installed. Wastewater of Bhatti Gate area collected through a network of partially covered sewage pipelines and convey to the disposal station located just outside the Bhatti Gate walled area. From the disposal station the wastewater was pumped to the open area in the outskirts of Lahore city. Followed by the contractor and supervised by the supervision consultant. The contractor will conduct Water quality testing during construction and post execution and submit reports to PMU. Testing will be part of BOQs.
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5.	Flooding of adjacent areas.		No	The project area comprised an urban area of Lahore City. River Ravi flows in the outskirts of north-western side of Lahore; however the city is protected with river training embankments and the risk of river flooding in the project area is very low. The project area may be flooded for short period during heavy rain of monsoon. The contractor should identify low line areas within the project area which likely to be flooded for short time during rain and plan his work activities and site setup accordingly.
6.	Improper storage and handling of substances leading to contamination of soil and water.	Yes		Poor housekeeping and inappropriate management of material loading/unloading and storage on site could lead to accidental spill or release of hazardous material to the environment. All material handling and storage should be carried out by a competent person. Material should be stored in the purposed built area and maintained and supervised on a regular basis during the construction phase. Further detailed control measures will be provided in the ESMP. The contractor and Supervisory consultant firm will be responsible for ensuring proper storage of construction material. Heavy machinery cannot enter the sub-project area therefore contractor will remain in close liaison with LWMC and TMA for timely removal of materials from site. PMU will monitor the activities quarterly. Health and safety supervisor should be included in the contractor's and supervision consultant site teams.

8.	Disruption to traffic and visitor's movements.	Yes	The sub-project is located in a densely populated area of the old part of Lahore City. Most of the streets are quite narrow and the contractor will require to plan his work activities carefully e.g. construction waste collection, segregating work area from public path/road, avoid working during busy hours particularly near school, provision of traffic diversion, information sign boards etc. such that the project execution have minimum impact on local community. (More details will be provided in the ESMP). A site specific GRM will be a part of the ESMP for community for the community and the project's staff. Contractor will also be required to negotiate construction work plan with the community and ensure Grievances Redress Mechanism (GRM) is in place for catering to any public enquires and for registering complaints The whole project activities are divided into five packages. Infrastructure improvement package five (alteration in electricity supply system, installing underground sewerage collection and disposal system etc.) will commence in the second phase of the project. Building rehabilitation and conservation work on packages 1-4 will be executed simultaneously in first phase of the project.
9.	Damage to existing infrastructure, public utilities, and amenities.	Yes	Unplanned or poorly managed Rehabilitation/Improvement work of old buildings may lead to accidental damage of infrastructure or public facilities. All work activities should be properly planned and supervised fulltime by competent persons.

				In second phase of the project, existing electrical overhead wires including HT< wires, Transformers, electrical line connections will be replaced with approved LESCO design for underground HT/LT, location of DB's with ABC cables along with connectors with individual house connections in proper systematic manner. Once this proposed system is laid out properly, it will be made functional and thereafter the previous system which include overhead dangling wires will be removed and will be handed over with inventory to LESCO. The sub-project involves improvement of the existing infrastructure, such as electrical system will be made underground or run through insulated pipes (as per recommendation of LESCO), covering of open storm water drain, and sewerage system etc.
10.	Failure to restore temporary construction sites.	Yes		All sites temporarily possessed (site offices, material yard etc.) by the contractors will be restored to minimum original level at completion of the work. The Supervision consultant will ensure the required site restoration is carry out accordingly. Further details will be provided regarding restoration of the area used by the contractor during construction phase of the project.
11.	Possible conflicts with and/or disruption to local community and/or visitors.	Yes		The sub-project area is populated and there is a possibility of conflict. Training of contractors and operationalization of GRM will be ensured.
12.	Health risks due to unhygienic conditions at workers 'camps.	Yes		Contractor will rent the suitable buildings with the permission of supervision consultant for their staff residing near the site. Supervision consultant and PMU staff will monitor contractor's camp and work locations on regular basis and ensure occupational health & safety issues are addressed and

				compliance with PEQS by the contractor.
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13.	Will the subproject create significant/limited/no environmental impacts during the operational stage? (Significant / limited / no impacts) • Flooding of adjacent areas • Impacts to water quality due to effluent discharge • Gas emissions Safety hazards Other, specify.		No significant adverse environmental impact is anticipated from the project execution. Most of the adverse impacts pertain to construction work activities in the populated urban area close to the heritage sites. Anticipated adverse impacts are temporary, localized and mitigatable. However, a comprehensive health & safety plan need to be developed and implement on site by the contractor to control construction work activities. The Physical Cultural Resource Management Plan (PCRMP) will be prepared by PTEGP team and ensure that it is implemented while execution of work on site. Anticipated negative environmental and social impacts of the sub-project will be further evaluated and presented in the ESMP. Limited impacts WASA managing water supply and drainage process in the project area. Relevant office of WASA was consulted as a part of stakeholder consultation process. Currently there is no separate drainage system for storm water collection in the area. An open drain located just outside the Bhatti Gate structure conveys the domestic and rainwater to the disposal pumping station. The effluents will be disposed of to the existing sewerage system under TMA and WASA jurisdiction. Limited Gas emissions as heavy machinery cannot enter the area. Safety hazards can occur during construction activity. First aid kits, PPE, Safety barriers and signage will be part of the BOQs.
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14.	Does the subproject involve any prior clearance from Government Departments? (Yes/No). If yes, which?	Yes		The proposed work scheme approved by WCL. The walled city of Lahore is under the jurisdiction of WCLA. They can initiate conservation work as no formal permission is required from any other department. However, WCLA will follow all codal formalities before initiating infrastructure improvement in coordination with TMA, WASA and LESCO for infrastructure improvement.
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CULTURAL HERITAGE				
S/N.	Screening Criteria	Yes	No	Explanation
1.	Will the subproject create significant/limited/no cultural properties impacts?	Yes		The sub-project involves rehabilitation of façade of 1028 properties which include low to high value properties, based on their architecture, as classified by WCLA. There will be minor impact.
2.	Involve significant excavations, demolition, and movement of earth, flooding, or other major environmental damages.		No	There will be no significant excavation. Shallow excavation will be done for laying of sewerage pipes, electrical wires, gas connections. The electrical, gas and sewerage system will be made underground for main streets. However, all the services except electrical will be shifted underground while DB's and ABC cable will be used for transmission of electricity in smaller streets having limited space. Hazards associated with excavation work will be mitigated through environmentally friendly and socially acceptable control measures including sprinkling water for dust pollution, carry out hand digging to minimize noise pollution, vibration and possible risk of damaging underground services, segregate work area by fencing and provide appropriate path for local community to undertake their day-to-day work activities etc. more details will be provided in the ESMP.

3.	Is located within or in the vicinity of a recognized cultural property conservation area or heritage site	Yes		The WCLA has classified 194 properties within Bhatti Gate as properties with heritage value.
4.	Is designed to support the management or conservation of a cultural property.	Yes		The sub-project is designed to support the conservation of cultural properties and restore the cultural value of the Bhatti Gate and surrounding area.
5.	Other, specify.		No	
6.	Does the subproject involve any prior clearance from the Archeology Department for either the conservation or management of heritage sites or vicinities? (Yes/ No). If yes, which?	Yes		The executing agency will obtain NOC from Archaeology Department and Higher Education Department for conservation of Naunehal Singh Haveli/Victoria Girls High School, which is protected under Antiquity Act, 1975.

SOCIAL

S/N	Screening Criteria	Yes	No	Explanation
1.	Will the subproject create significant/limited/no adverse social impacts?	Yes		A) Conservation & Rehabilitation Works B) Rehabilitation of Infrastructure Development Both A & B components of the sub-project will have limited, reversible adverse impacts. For component A wherever any construction/conservation/restoration works shall be carried out it will have bare minimum disturbance during construction activities such as façade rehabilitation. The interior of the houses will not be disturbed, neither there will be any involuntary relocation of the residents. After mutual discussion and consent of the residents, it is planned to conduct rehabilitation work of 4 to 5 properties at a time in each package.

				For Component B civil work is carried out after providing alternative sources such as electricity connections and gas supply. Temporary impacts such as privacy concerns and hurdles in daily commuting will be addressed in the relevant E&S instrument, which will be part of the bidding document. The executing agency will issue a prior notification to the residents/business owners of the properties before initiating civil work.
2.	Land acquisition resulting in loss of income from agricultural land, plantation, or other existing land.		No	A) Conservation & Rehabilitation Works B) Rehabilitation of Infrastructure Development As per joint survey of PMU and WCLA, land acquisition will unlikely require for both components (Phase 1 & 2). Public utilities such as LESCO transformers are already placed on public land.
3.	Impact on livelihood and economic activity.	Yes		A) Conservation & Rehabilitation Works B) Rehabilitation of Infrastructure Development Both A&B components of the proposed subproject will have long term positive impacts in terms of livelihood and economic activity. During execution phase, there may be minor inconveniences like daily commuting. Commercial activity is only on the main trail. Traffic load is mainly pedestrians, motorbikes, rickshaws, donkey carts for which diversions will be managed.

				GRM will be operationalized to address community concerns. The ROW is clear and there will be no monetary or structural losses during works on residential and commercial structures. The properties are already in dilapidated state and in dire need of conservation not just for aesthetics but also for safety of the residents. At the moment open drainage systems and dangling wires are not only posing danger to the stability of the heritage structures but are also a health and safety hazard. Improved infrastructure will result in improving living standards of the residents. It will support regeneration of the area by promotion of tourism, display of art and crafts. This project will also become a tourist corridor starting from Bhatti leading to Taxali, Lahore fort and going through Mariam Zamani Mosque leading to Delhi gate.
4.	Land acquisition resulting in relocation of households.		No	
5.	Any displacement or adverse impact on tribal settlement(s)/ minority communities.		No	No existence of tribal settlements along sub- project. Also, there is no recognized minority settlement within the sub-project area.
6.	Adverse impacts to women, including economic and safety concerns.			Out of 1028 properties in the project area 928 are residential structures. There are 69 buildings on main trail which is a commercial cum residential area. No women headed businesses were identified. There will be no economic impact. However, it is perceived that there may

			be privacy concerns especially during rehabilitation of facades. The rehabilitation will be done phase, area and street wise with prior intimation to the households to give them time to decide within the same buildings. As the proposed rehabilitation of buildings only involves rehabilitation of façade and the contractor will require access to the front part of the buildings only. Rear part of buildings will be unaffected from the project activities and therefore residents can make necessary arrangements accordingly during the façade rehabilitation works. Relocation of the residents is not required for the execution of façade rehabilitation work. The privacy concerns will also be addressed in the ESMP. PMU will train the contractor on privacy issues. GRM will be operationalized to address relevant concerns. The social mobilization wing of WCLA will be sensitized on GRM. Ensure that the existing GRM is accessible to the local community is gender-sensitive, and has SEA/SH Protocols Labor camps to be established away from the residential areas Presence of security personnel on the project site during the execution
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7.	Impact on infrastructure (roads, water supply, any other type of infrastructure) Other, specify.	Yes		The infrastructure will be improved. At present the dangling high voltage electricity wires and open drainage pose serious health risks and are a safety hazard as well. The project will overall improve the living standards of the community by rehabilitation of the existing infrastructure.
8	An influx of Labor, especially if from outside the project area.	Yes		Awareness training for community and Labor. Referrals to prevention and treatment services Strengthen prevention in contractor documents create or strengthen SEA/SH referral helplines.
OVERALL ASSESSMENT				
Subproject is classified as environmental Category B and requires an Environmental and Social Management Plan (ESMP), Abbreviated Resettlement Action Plan (ARAP) and Physical Cultural Resource Management Plan (PCRMP).			B	

Annexure-C: Correspondence Regarding Availability of State Land for the proposed Pumping Station



WATER & SANITATION AGENCY LAHORE
PLANNING AND DESIGN DIRECTORATE
ZAHOOR ELAHI ROAD, GULBERG-II LAHORE,
042-35757425, Fax: 218

To



Mr. Arif Mukhtar, Civil Engineer,
PMU-PTEGP.

1286
17/02/24

No.DD(P&D)/123-24

Dated: 13.02.2024

Subject: **DESIGN & RESIDENT SUPERVISION OF URBAN REHABILITATION OF INFRASTRUCTURE IMPROVEMENT PROJECT FROM BHATTI GATE TO KATRI HAJI ALLAH BAKHSI PHASE -I.**
CONSTRUCTION DRAWINGS AFTER ADDRESSING OBSERVATIONS.

Ref. No. PMU/PTEGP/323, dated: 06.02.2023.

Kindly refer to the above cited letter. WASA Lahore has already provided its technical input in shape of comments / remarks on deliverable "Preliminary Design Report" of subject project vide office letter No. DD(P&D)/1338 dated: 15.12.2023.

It is pertinent to mention here that the responsibility related to design and its vetting / approval does not rest with WASA Lahore. Therefore, the original drawings are hereby returned.

Submitted for information and further necessary action.

Encl: Original Construction Drawings (2 Copies)


(Hafiz Omer Ahmad)
DY. DIRECTOR (P&D)
WASA, LAHORE.

Cc:

Director (P&D), WASA, Lahore.

No. PMU/ PTEGP/323

Date Lahore February 06, 2024

Managing Director,
Water & Sanitation Agency,
Gulberg, Lahore.

Subject: DESIGN & RESIDENT SUPERVISION OF URBAN REHABILITATION OF INFRASTRUCTURE IMPROVEMENT PROJECT FROM BHATTI GATE TO KATRI HAJI ALLAH BAKHSH PHASE-I. CONSTRUCTION DRAWINGS AFTER ADDRESSING OBSERVATIONS.

Reference your office letter no. DD(P&D)/1338 dated 15.12.2023 and subject cited above.

2. Mescon Associates & HA Consulting (JV) has Submitted construction drawings of sewerage and water supply networks in the above titled scheme after rectifying observations raised by your office vide their office letter No.MAS/HA/PTEGP/24/207 dated February 01, 2023.

3. It is requested that necessary vetting and approval may please be granted to proceed further.

4. In this regard, Punjab Tourism for Economic Growth Project (PTEGP) is available for any assistance required. Mr. Saeed Ahmed Team leader (0307-0416539) from Mescon Associates & HA Consulting (JV) is focal person for any inquiry and supporting document.

5. Copies of the letter and construction drawing are attached as Annex-A


Arif Mukhtar
(Civil Engineer)
PMU-PTEGP

CC: -

1. Project Director, PTEGP.
2. Director(C&P), WCLA.



MASCON ASSOCIATES (PVT)LTD
ENGINEERING CONSULTANTS, ARCHITECTS, &
ENVIRONMENTALISTS

Address: 106-D/2 WAPDA Town, Lahore
Ph: 042-35182734, Cell, 0336-2709445, 0300-4402490
E-Mail: Mascon_193@hotmail.com

In
Association
with



HANNA CONSULTING
ARCHITECTS, ENGINEERS & PLANNERS

Address: 10-D-II, JOHAR TOWN, LAHORE
Tel: +92 43 35182103-4
E-mail: hanna@hannaconsulting.co.

Ref No. MAS/HA/PTEGP/24/207

Project Director (PMU),
Punjab Tourism for Economic Growth Project,
175-a, Upper Mall,
Lahore.

Dated: 01-02-2024

Handwritten signature and date: 31/01/24
Received

Subject: - **DESIGN AND RESIDENT SUPERVISION OF URBAN REHABILITATION OF INFRASTRUCTURE IMPROVEMENT PROJECT FROM BHATTI GATE TO KATRI HAJI ALLAH BAKKSH PHASE-I**

SUBMISSION OF WORKING / CONSTRUCTION DRAWINGS OF PUBLIC HEALTH WORKS (WATER SUPPLY SYSTEM, SEWERAGE SYSTEM AND DRAINAGE SYSTEM)

Reference: Your Office No. PMU/PTEGP/270 Dated: 22-12-2023

Dear Sir,

We are submitting herewith the working / construction drawings in duplicate including para-wise reply of overall remarks of WASA in annotated form below, conveyed through your above quoted letter under reference for further submission to the concerned agency / office for getting the same vetted as per contractual requirement of our consultancy agreement.

Sr#	Remarks of WASA	Reply
1	Mention the design life of project. Mention the Design life of each component of system.	The design life of system is 25 years. Design life of other components is given as under. ➤ <u>Water Supply: -</u> i. Tubewell = 15 Years ii. Tubewell Chamber = 25 Years ii. Pumping Machinery = 10 Years iv. Distribution System = 25 Years v. Rising Main = 25 Years ➤ <u>Sewerage System: -</u> i. Civil Works = 25 Years ii. GRP Pipes = 50 Years iii. Pump Motor = 10 Years
2	Provide clear drawings (A3 Size) of the proposed Water	Attached



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with*



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Tel: +92 43 35182103-4
E-mail: hannan@haconsulting.co.

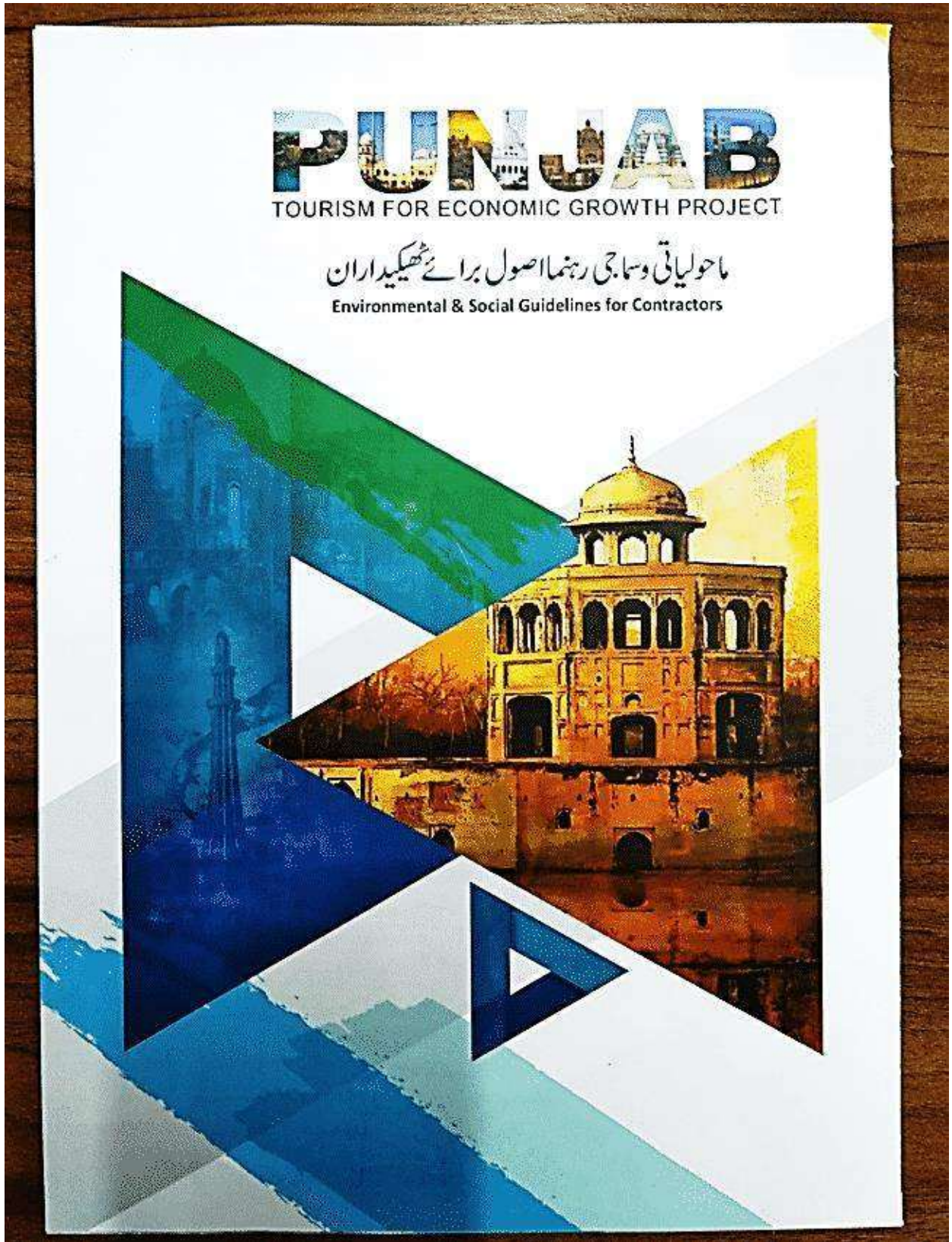
	Supply, Sewerage & Drainage system.	
3	The storm water allowance of 100% mentioned under 3.3.4 may be reviewed keeping in view the availability of space / land for laying of Sewer lines.	The sewerage system utilized in this project is partially combined, implying that both domestic and storm water flows are integrated into one sewer. As a result, the storm water allowance is 100% in compliance with WASA criteria, and as this sewer will also handle storm water from roof tops and roadways, hence, 100% of the stormwater allowance is recommended as it complies with WASA guidelines.

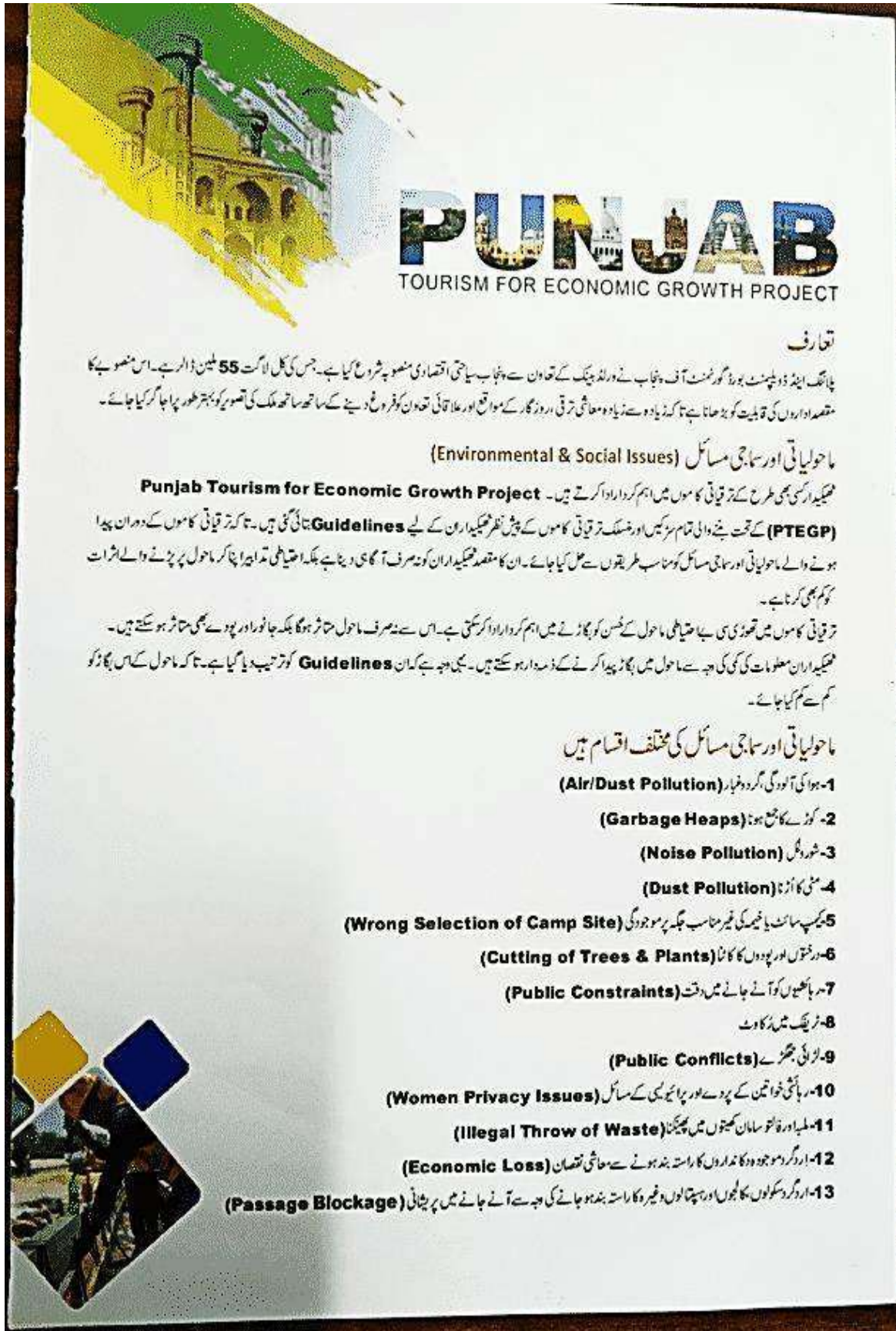
Yours Truly,

(Engr Saeed Ahmed)
Team Leader.

Encl: As per noted above

Annexure -D: Site Workers Code of Conduct





PUNJAB TOURISM FOR ECONOMIC GROWTH PROJECT

تعارف

پانچ ایئر ڈیپنٹ بورڈ گورنمنٹ آف پنجاب نے ورلڈ بینک کے تعاون سے پنجاب سیاحتی اقتصادی منصوبہ شروع کیا ہے۔ جس کی کل لاگت 55 ملین ڈالر ہے۔ اس منصوبے کا مقصد اداروں کی قابلیت کو بڑھانا ہے تاکہ زیادہ سے زیادہ معاشی ترقی اور روزگار کے مواقع اور علاقائی تعاون کو فروغ دینے کے ساتھ ساتھ ملک کی تصویر کو بہتر طور پر اجاگر کیا جائے۔

ماحولیاتی اور سماجی مسائل (Environmental & Social Issues)

محکمہ ارضی بھی طرح کے ترقیاتی کاموں میں اہم کردار ادا کرتے ہیں۔ **Punjab Tourism for Economic Growth Project** (PTEGP) کے تحت بننے والی تمام سرکیس اور مشنک ترقیاتی کاموں کے پیش نظر محکمہ ارضی کے لیے **Guidelines** تیار کی گئی ہیں۔ تاکہ ترقیاتی کاموں کے دوران پیدا ہونے والے ماحولیاتی اور سماجی مسائل کو مناسب طریقوں سے حل کیا جائے۔ ان کا مقصد محکمہ ارضی کو صرف آگاہی دینا ہے بلکہ احتیاطی تدابیر اپنا کر ماحول پر پڑنے والے اثرات کو کم بھی کرتا ہے۔

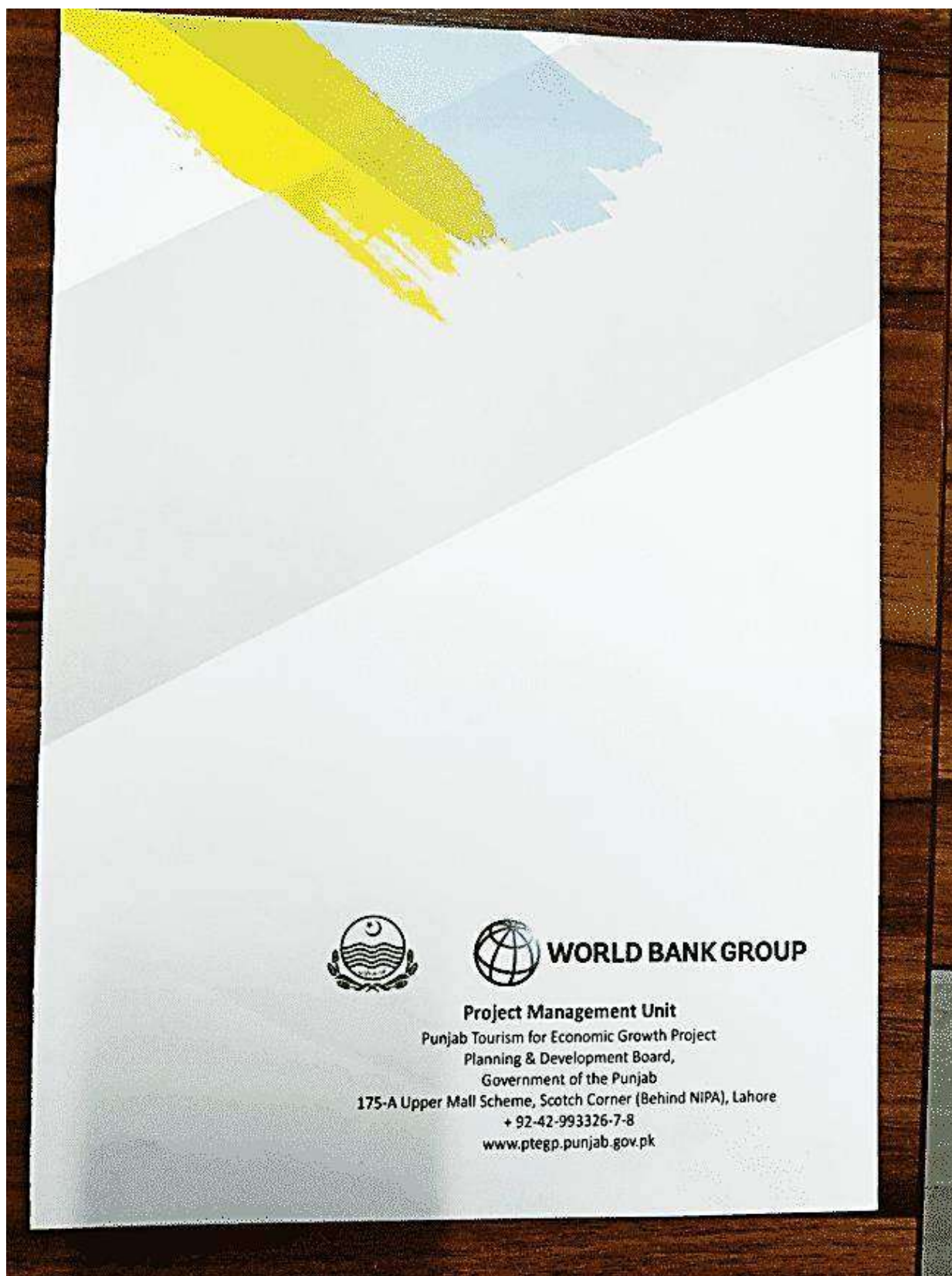
ترقیاتی کاموں میں تھوڑی سی بے احتیاطی ماحول کے نقص کو بچانے میں اہم کردار ادا کر سکتی ہے۔ اس سے نہ صرف ماحول متاثر ہوگا بلکہ جانور اور پودے بھی متاثر ہو سکتے ہیں۔ محکمہ ارضی کو معلومات کی کمی کی وجہ سے ماحول میں بگاڑ پیدا کرنے کے ذمہ دار ہو سکتے ہیں۔ یہی وجہ ہے کہ ان **Guidelines** کو ترجیح دیا گیا ہے۔ تاکہ ماحول کے اس بگاڑ کو کم سے کم کیا جائے۔

ماحولیاتی اور سماجی مسائل کی مختلف اقسام ہیں

- 1- ہوائی آلودگی، گرد و مہار (Air/Dust Pollution)
- 2- کڑے کا تھپ ہو: (Garbage Heaps)
- 3- شور و گش (Noise Pollution)
- 4- مٹی کا آلودگی: (Dust Pollution)
- 5- کمپ سائٹ یا غیر مناسب جگہ پر موجودگی (Wrong Selection of Camp Site)
- 6- درختوں اور پودوں کا کاٹنا (Cutting of Trees & Plants)
- 7- عام باتھوں کو آنے والے میں دقت (Public Constraints)
- 8- ٹریفک میں ڈکاوٹ
- 9- لڑائی جھگڑے (Public Conflicts)
- 10- رہائشی خواتین کے پردے اور پرائیویسی کے مسائل (Women Privacy Issues)
- 11- غیر قانونی طور پر سامان کھنڈوں میں پھینکنا (Illegal Throw of Waste)
- 12- ارد گرد موجود درختوں کا کاٹنا اور راستہ بند ہونے سے معاشی نقصان (Economic Loss)
- 13- ارد گرد کو گلوں، کالوں اور پھانسیوں وغیرہ کا راستہ بند ہونے کی وجہ سے آنے والے میں پریشانی (Passage Blockage)

- ہدایات برائے ٹھیکیداران
- ٹھیکیداران کو چاہیے کہ ترقیاتی کاموں کا اس طرح سے سرانجام دیں کہ ماحول کو کم سے کم نقصان پہنچے اور اپنے عمل کو بھی ہدایات کریں کہ ذمہ داریوں باتوں کا خیال رکھیں۔
- 1- تعمیراتی جگہ پر حفاظتی سائٹ بورڈ لگائیں۔
 - 2- تھیراتی ریسٹ کو ریت اور مٹی کا سب جگہ پر منتقل کیا جائے۔
 - 3- فرسٹ ایڈ بکس (First Aid Box) اور حفاظتی آلات (PPEs) کی موجودگی کو یقینی بنائیں۔
 - 4- سیدھا شدہ کوڑے کو قریبی آبی ذخائر میں پھینکنے سے اجتناب کریں۔
 - 5- پانی کا پتہ دہ کی سے چھڑکاؤ کرنا نہیں۔
 - 6- ہوا پانی اور شور کی آلودگی کو چھٹنے کے لیے منصوبہ جات کی تھیر کے شروع ہونے سے پہلے، دوران اور ختم ہونے کے بعد محفوظ تحفظات ماحولیات (EPD) کی منظور شدہ لیبارٹریز سے ٹیسٹ ضرور کروائیں، تاکہ ماحول پر پڑنے والے منفی اثرات کا جائزہ لے کر پورے مدتہ تک کیا جائے۔
 - 7- درختوں کو کاٹنے سے گریز کیا جائے۔
 - 8- مقامی لوگوں کی املاک کو کم سے کم نقصان پہنچائیں۔
 - 9- خواہش کا احترام کریں دوران کٹانے جانے میں رکاوٹ نہ ڈالیں۔
 - 10- مقامی لوگوں سے نرمی سے بات کریں۔
 - 11- تھیراتی جگہوں پر واقع تاریخی مقامات کو نقصان پہنچانے سے گریز کریں۔
 - 12- ٹریک جنیشن پلان کو تھیراتی جگہ پر آویزاں کیا جائے۔ مقامی لوگوں کی مشورت سے تھیراتی کاموں کے اوقات کا انتخاب کیا جائے۔
 - 13- تھیراتی جگہ پر ٹھیکیدار اور ڈسٹرکٹ آفیسر (District Coordinator Officer) کا فون نمبر آویزاں کیا جائے تاکہ شکایت کی صورت میں رابطہ کیا جاسکے۔
 - 14- مزدوری کے لیے مقامی لوگوں کی بھرتی کو ممکن کیا جائے۔ اس سے نہ صرف مقامی لوگوں کو روزگار میسر ہوگا بلکہ مزدوروں کی رہائش کے لیے کم سے کم جگہ اور وسائل استعمال ہوں گے۔
 - 15- فائنل سامان، مٹی اور غیر کو بروقت ٹھکانے لگایا جائے اور اسے قریبی فصلوں میں پھینکنے سے گریز کیا جائے۔





Annexure- E: Communication Record Regarding Relocation of Waste Transfer Station



**OFFICE OF THE DIRECTOR
SOLID WASTE MANAGEMENT
Metropolitan Corporation, Lahore**

No. 442-D18/SWM/2022

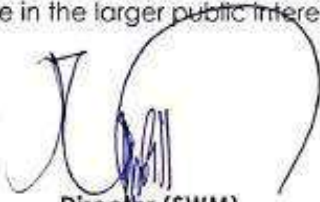
Dated. 27-09 /2022

**Chief Executive Officer,
Lahore Waste Management Company.**

**Subject:- SHIFTING OF BHATTI GATE TRANSFER STATION TO SOME OTHER
SUITABLE SITE.**

The undersigned is directed to refer to the subject and state that Secretary, LG & CD Department, Govt. of the Punjab has observed that Bhatti Gate transfer station is in a congested area and gives very ugly look. Besides, it is also polluting the environment of the locality.

Therefore, the undersigned is directed to request you shift Bhatti Gate transfer station at some other suitable place in the larger public interest.


**Director (SWM),
Metropolitan Corporation
Lahore.**

Copy to:

- ❖ Chief Officer, MCL.
- ❖ PS to Secretary, LG & CD Department.



WALLED CITY OF LAHORE AUTHORITY
Government of the Punjab

Dated: Lahore, the 11th April, 2023

To,

The Commissioner,
Lahore Division, Lahore

Subject:

**REQUEST FOR SHIFTING OF TRANSFER STATION OF LWMC TO ANY OTHER
SUITABLE PLACE AND REMOVAL OF TEMPORARY STRUCTURES OUTSIDE
BHATTI GATE.**

With reference to the subject cited above.

The Walled City of Lahore Authority (WCLA), in collaboration with the PTEGP, has initiated the implementation of the "Urban Rehabilitation and Infrastructure Improvement Project Package-I From Bhatti Gate to Katri Haji Allah Bakhsh (Taveela Shaikhen) Walled City Lahore," a World Bank-funded project. This endeavor aims to restore a balance between residential and commercial interests in the area, with the ultimate goal of reestablishing the Walled City of Lahore as a premier tourist destination.

It is worth mentioning that a fast-track project is scheduled to commence in mid-May 2023. The area outside Bhatti Gate falls under Nazool ownership (Land record & GIS map attached herewith), and WCLA is planning to develop a tourist facilitation center and parking area for the Bhatti Gate trail. This plan is expected to contribute significantly for the promotion of tourism and socioeconomic development in the area.

The transfer station of LWMC is located near project area. It has been noticed the transfer station of LWMC has the potential to cause environmental impacts and disruptions to the project's operations. Therefore, we kindly request your office to consider relocating the said transfer station to a more suitable location. Additionally, we urge the removal of any temporary structures outside Bhatti Gate and the subsequent handover of land to WCLA to ensure the smooth and uninterrupted execution of the project with the utmost commitment.

Thank you.


KAMRAN LASHARI
DIRECTOR GENERAL(WCLA)

C.C:

1. CEO, LWMC
2. Director, Operation & Maintenance, (Gunj Buksh Town), WASA
3. Director (SWM), MCL
4. Director (C&P), WCLA
5. Senior Architect, WCLA
6. Deputy Director (W.S), WCLA

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Annexure- F: Meeting Minutes of Group Stakeholder Consultation




WALLED CITY OF LAHORE AUTHORITY
Government of the Punjab

MINUTES OF MEETING
THE WALLED CITY OF LAHORE
Urban rehabilitation and infrastructure improvement
Bhatti Gate to Katri Hajji Allah Baksh Lahore Consultative Stakeholder Seminar

Consultative stakeholder seminar for the project titled **urban rehabilitation and infrastructure improvement Bhatti Gate to Katri Hajji Allah Baksh**, Lahore was held on 10th November, 2022 in Barood Khana, Lahore fort.

It was chaired by Director C&P Mr. Najamus Saqib on behalf of DG, WCLA in which stakeholders participated which include officers from different departments, intellectuals and members from civil society participated.

Name of participants are as followed.

• Mr. Shahid Latif	DS (development)	LGCD
• Mr. Faqir Saifuddin	Director	Faqeer Khana Museum
• Mr. Waqas Malik	Project Director,	PTEGP
• Mr. Ahsan Bela	Environmental Specialist	PTEGP
• Ms. Tajwar Saeed	Social Specialist	PTEGP
• Mr. Haider Abbas	Coordinator	PTEGP
• Dr. M.M. Aslam	Chairman	P.E.C. (Private Schools)
• Mr. Ali Anan	Managing Director	LWMC
• Prince Chohan		LWMC
• Mr. Zain Hamayun		LWMC
• Mr. Wajahat Ali	Manager/ Architect	AKCSP
• Ms. Naheed Iftikhar	Senior Architect	AKCSP

Representative from civil society

• Mr. Mian Salman	Social worker	politician
• Mr. Waheed	Social worker	
• Mr. Syed Shazal Shah		
• Dr. Ashfaq A Malik	Shopkeeper	
• Mr. Naveed Ahmad	Shopkeeper	
• Mr. M Hanif	shopkeeper	
• Mr. Fareed Bhatti	Shopkeeper	
• Ms. Kausar Bibi		
• Ms. Rubina Bibi		




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WALLED CITY OF LAHORE AUTHORITY Government of the Punjab

WCLA

• Mr. Najamussaqib	Director C&P	WCLA
• Mr. Azeem Dad	Senior Architect	WCLA
• Ms. Nausheen Zaidi	DD SMT	WCLA
• Mr. Ayzed Abrar	AD F&M	WCLA
• Mr. Ahsan Khalid	In charge Lahore Fort	WCLA
• Mr. Hamza Shoaib	AD Engineering	WCLA
• Mr. Faseeh	AD Architect	WCLA
• Mr. Waqar Ahmad	Assistant Architect	WCLA

The meeting started with the recitation of Holy Quran.

The Director (Conservation), WCLA welcomed all the participants on behalf of Director General, WCLA Mr. Kamran Lashari.

Director C&P gave a detail presentation on the project which includes cost timeline sponsors and scope of work, and how WCLA will initiate the project and benefits for local residents.

Second presentation was given by Mr. Saifuddin, in which he gave introduction on Bhatti area and discuss way forward. He appreciated the efforts of WCLA and DG WCLA.

Mr. Salman also appreciated DG WCLA and his team for taking up this project. He assured that local community will stand with WCLA where ever required.

Suggestions and comments by participants:

Sr. No.	Name	Dept./ Profession	Suggestions and reviews	Contribution/ skills
1	Naheed Iftikhar	Senior Architect AKCSP-P		Contribution of AKCSP was already is in this project and if you want more technical aspects we are ready to contribute.
2	Nosheen Zaidi	DD(SM) WCLA		Community mobilization and facilitation for infrastructure, and façade rehabilitation.
3	Tajwar Saeed	PTEGP/ social and gender specialist	An excellent initiative for the revival of the cultural and historical hub of Lahore	

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WALLED CITY OF LAHORE AUTHORITY
Government of the Punjab

			Please consider socio-economic/ livelihood aspects during and after civil work.	
4	Mian Salman Shoaib	Ticket holder MPA 146 Ex-advisor Governor Punjab	Drainage system, sewerage plan, dumping plan, collection of waste, traffic plan, awareness campaign, enforcement plan, tourism safety, and CBO.	As a political activist I will support this project.
5	Mohsin Javed	Water and sanitation agency	During the execution of this project, I humbly requested to you please close the liaison department.	In case of any emergency regarding water and sewerage issues please contact us.
6	Syed Shozab Shamsi	Govt/ A humble servant of Pakistan	Children of Lahore and especially the Walled city of Lahore should have knowledge about notable persons. In schools, we should introduce special theater classes so that they can get familiar with these famous personalities and historic sites.	With my physical efforts.
7	Ashfaq Ahmad Malik	Ophthalmologist President of NGO, "Karsaz Eye Welfare Foundation"	This ancient city has been the abode of knowledge and literature, arts and crafts, and eminent personalities. Civilizational and historical heritage not only recognize the greatness of nations, but their preservation is a great source of training for future generations no doubt walled city of	So to appreciate their work, I would like to offer them my services for any possible help in my expertise

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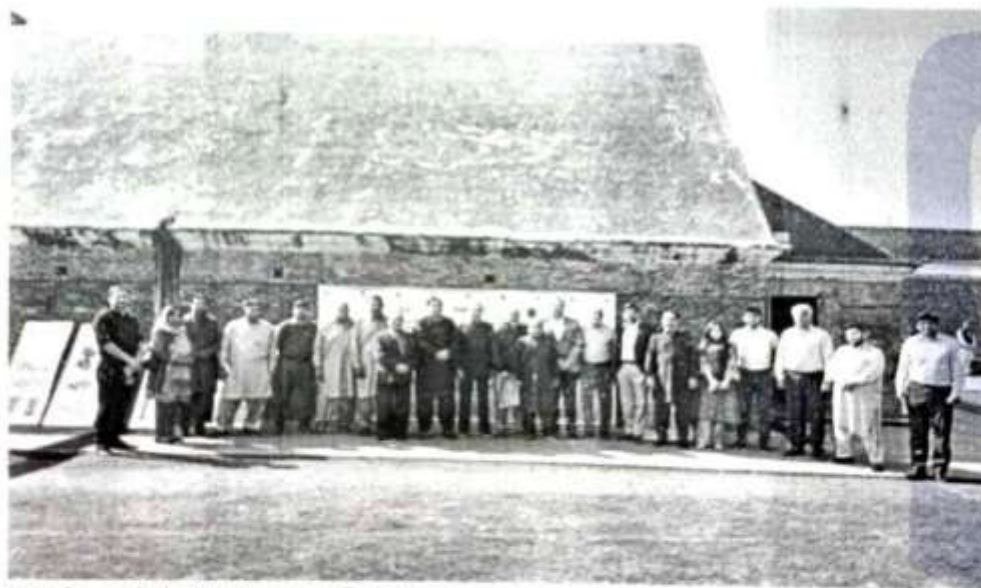




WALLED CITY OF LAHORE AUTHORITY Government of the Punjab

			Lahore authority is playing a vital role in this concern.	
8	WAJAHAT ALI	AKCSP (Agha khan cultural services Pakistan)	Introduce the local community for the day first as they will be the ultimate beneficences and key to sustainability, authorities related to economic upbringing should be a key component of the project	AKCSP would be available for this relevant experience always available

Concern regarding sewerage design was raised by Mr. Saifudin that there are major issue of rat presence in Bhaati gate arealn Reply to this, Ms. Naheed Iftikhar and Ms. Nousheen Zaidi that WCLA has designed sewerage, keeping in view THE ISSUES OF RAT as WCLA and AKCSP already faced and resolved the same issue in Package-I (Delhi Gate and Royal Trail Project).



Meeting ended with the vote of Thanks.

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Annexure- G: Environment and Social Monitoring Checklist Executing Agency

Date of visit: _____

Sr. #	Identified Environmental & Social issues	Mitigation Measure	Means of Monitoring	Status of Mitigation Measure be Adopted		Remarks
				Yes	No	
1.	Noise	Noise level testing should be executed by Contractor.	EPD certified laboratory results			
		Provision for Personal Protective Equipment (PPE's), ear muffs/ear plugs to workers.	Visual Inspection			
		Use of machineries and equipment's having less noise.	Visual Inspection			
2.	Dust	Provision for personal protective equipment (PPE's)	Visual Inspection			
		Sprinkling of water	Visual Inspection to ensure water sprinkling is being implemented			
3.	Air Quality	Air quality will be analyzed before and during execution of scheme	Results from EPD certified laboratory			
4.	Waste management	Immediate removal of the accumulated construction waste	Visual inspection Local Community			

5.	Provision of first aid	First aid kit Emergency numbers will be displayed at appropriate places	Visual inspection			
6.	Health, Safety and Environmental needs	Adequate safety precautions such as helmets, safety shoes, gloves, etc. should be provided to the site workers. Appropriate safety signage and segregation of work area with reflective fencing. Safe system of work is in place during construction phase of the project.	Inspection of usage of Personal Protective Equipment during Execution Site specific Health & Safety Plan is prepared by the contractor and approved by supervision consultant			
7.	Public Consultation	Local residents will be consulted during execution phase regarding their views either they are satisfied with the Contractor's activities or not and grievance (if any)	Consultation with local residents			
8.	Vehicles Movement	Provision of alternative routes	Visual inspection			
		signboards for alternate routes Safety barriers				

9.	Infrastructure Losses i-e, loss of land, damage to structures, damage to plants etc.	RAP/ARAP	Record of grievance and mode of compensation provided			
10.	Obstruction in public access	Provision of alternate Routes, or segregating fence between the public path/road and work area.	Visual inspection			
		Construction should start from middle of the street and later on from either right or left side Rehabilitate only 4 to 5 properties at a time	Record of public grievance			
11.	Privacy Issues	Workers should be trained to address privacy issues and ethically behaved. Worker's code of conduct is attached as Annexure D . The Code of Conduct form a part of the job agreement of site workers.	Visual inspection and record of grievance			
12.	Economic Losses	In case of obstruction of passage, shopkeepers/local businesses may affect Public Consultation, alternate routes will be provided. In case of any loss, compensation will be provided by the Contractor	Record of Public Grievance Visual Inspection			
13.	Any other					

Annexure- H: Survey Tool

**Punjab Tourism for Economic Growth Project Planning & Development Board,
Government of Punjab**

**Phase 2- Bhatti Gate Urban Rehabilitation and Improvement
(INFRASTRUCTURE)**

SOCIOECONOMIC AND RESETTLEMENT SURVEY FOR BHATTI GATE LAHORE

1. Name of Interviewer _____ Date _____

2. Location / Home Town _____ Tehsil & District _____

Geographical location

Direction Name	Street/Muhallah	Distance from the site
east		
West		
South		
north		

A- Demographic Characteristics.

3. Name of the Respondent _____

4. Gender 1. Male 2. Female

5. Age 15-25 _____ 25-35 _____ 35-45 _____ 45 & above _____

6. What is your education level?

8. Marital Status 1. Married _____ 2. Un-married _____

9. Language Spoken _____

10. Caste / Ethnic Group _____

11. Religion _____

12. What Type of your family system? 1. Joint _____ 2. Nuclear _____

13. Total number of family members living with you. Male _____ Female _____ Total _____

B- Socio-Economic Characteristics.

15. What are the major sources of your household income?

1. Govt, job _____ 2. Private job/Labour _____ 3. Business _____ 4. Student _____ 5. Any other _____

16. What is distance of your office/work place from your house?

17. What is your average monthly income?(Rs)

1. Less than 10000 _____ 2. +10,000 – 20,000 _____ 3. 20,000 -- 30,000 _____
4. 30,000 - 40, 000 _____ 5. Above 40,000 _____

18. How much is your average monthly expenditure? (Rs).

1. Less than 10,000 _____ 2. +10,000 –20,000 _____ 3. 20,000 -30,000 _____
4. 30,000 -40,000 _____ 5. above 40, 000 _____

19. Status of ownership (In case of shop keeper/business owner/ resident)? 1. Owner 2.Renter

20. What type of construction of your house (In case of resident)?

1. Pacca _____ 2. Semi Pacca _____ 3. Katcha _____

21. Since how long are you living/working in this area? Period _____

a) From which locality do you come here for business/ job? Name of place/distance _____

b) Why do you prefer this locality for business, job? _____

C- Civic Amenities.

22. Which of the following facilities available in your area?

1. Electricity____ 2. Water supply____ 3. Gas____ 4. Sewerage system____ 5. Telephone/PTCL

23. What are the sources of household water being used in the project area?

1. Govt supply _____ 2. Bore hole____ 3. Any other_____

24. Are you satisfied with the water quality? 1. Yes _____ 2. No _____

If no, then what are the reasons of dissatisfaction? 1. Odorous water _____ 2. Polluted water_____

3. Saline water _____ 4. No response _____

25. Is your house connected with sewerage system? 1. Yes 2. No

26. Are you satisfied with performance of current sewerage system in this area? 1. Yes 2. No

If no, then reasons _____

27. What is the source of energy for cooking and lightening in this area? 1. _____ 2. _____
3. _____

31. During last one year did you borrow any money? 1. Yes_____ 2. No_____

a) If yes, than what were Sources of borrowing

I- Bank_____ II- Money Landers_____ III- Private _____

b) If, yes than how much money & what purpose _____

D- Social Institutions (Education & Health).

32. Is there any educational institute in this area? 1. Yes 2. No

33. Where your children go for higher education -----

If yes, then Name_____Distance_____

33. Is there any health facility availability in this area? 1. Yes 2. No If yes, then

Name_____Distance_____

35. Currently what mode of transport being used by you to and from your work place?

1. _____2. _____3. _____

a) Why do you prefer this road for travelling? _____

E- Cultural Characteristics.

36. Is there any shrine/mosque in this area? 1. Yes 2. No

If yes, then

Name_____Place_____

37. Are there any Protected/ archaeological/historical site in this area? 1. Yes 2. No

If yes, then Name_____Place_____

Significance _____

39. Do you know about this project is going to be constructed? 1. Yes_____2. No_____

(If no then tell him about the proposed Project)

40. Would you get benefit from this project? 1- Yes_____2- No _____

41. What is your opinion about its benefits? 1- Yes_____2- No _____

42. Will it boost tourism in the area? 1- Yes_____2- No_____

F- Assessment of Environmental & Social Impacts.

42. In your opinion should this project be implemented here?1. Yes 2. No

If yes, then reasons if no, then reason_____

43. In your opinion, what would be the possible impacts of this project?

During construction _____

During operation _____

44. What protective measures do you suggest during construction to safeguard your interests?

Protective measures _____

45. In your opinion, what are some of the pressing needs of this area (other than proposed project)?

Pressing Needs _____

46. From where people get treatment of their livestock.....

G- Indigenous People.

46. Any Indigenous community living in the Project Area? 1. Yes 2. No

47. Anticipated Impact on Indigenous community_____

48. Status of Indigenous People? 1. Registered 2 not registered

49. Income sources? _____

50. Any other observations by Interviewer during site visit?

Signature of Interviewer: _____

Annexure-I: Attendance Sheets of Participants of Public Consultations

Urban Rehabilitation and Infrastructure Improvement Project
Attendance Sheet for Consultation

Town: Bhauli Gate
 Location: Wapda Office Dated: 12-9-23

Sr. No.	Name of the Participants	Occupation	Signature/Thumb Impression
	Affzal Haider	SDO Wapda	
	Sonail Haider	Sonail	
	Wajida Ashraf	Wajida	

Urban Rehabilitation and Infrastructure Improvement Project

Attendance Sheet for Consultation

Town: Shruti Gate

Location: WASA Office

Dated: 13-9-23

Sr. No.	Name of the Participants	Occupation	Signature/Thumb Impression
	Ghulam Mustafa	SDO ^{WASA}	
		0322-4423162	
	Sahil Haider	Security	
	Wajida Ashraf	Wajida	

Urban Rehabilitation and Infrastructure Improvement Project

Attendance Sheet for Consultation

Town: Baah Cralt

Location: Para ch Zulgas

Dated: 23-9-23

Sr. No.	Name of the Participants	Occupation	Signature/Thumb Impression
	<u>Ansari Ali</u>	<u>Shopkeeper</u>	
	<u>Mehmood Jan</u>	<u>Business</u>	
	<u>Babar Raza</u>	<u>idc</u>	
	<u>Hakeem Tahir Bin Yousaf</u>	<u>Medical</u>	
	<u>Tariq Mehmood</u>	<u>Govt. Job</u>	
	<u>Shahbaz Khan</u>	<u>Teacher</u>	
	<u>Haji Jameel</u>	<u>Property dealer</u>	

Urban Rehabilitation and Infrastructure Improvement Project

Attendance Sheet for Consultation

Town: Bhaati Gali

Location: Victoria School

Dated: 24-4-23

Sl. No.	Name of the Participants	Occupation	Signature/Thumb Impression
	Ch. Mushtaq Ahmed	Farmer	
	Tariq Kamboh	Business	
	Ch. Abdul Majeed	Shop Owner	
	Muhammad Riaz	Labour	
	Zubair Ahmed	Labour	
	Matik Farrukh Shafi	Teacher	
	Ch. Zulfqar	Driver	
	Sultan Ahmed	Property Dealer	
	Muhammad Yousof	Transporter	

