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MURREE CLUB PRIVATE LIMITED



Environmental Impact Assessment of Murree Club

Final Report

September 2023

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Executive Summary

Introduction

Murree is a mountain resort city, located in the Galyat region of the Pir Panjal Range, within the Murree District of Punjab, Pakistan. It forms the outskirts of the Islamabad-Rawalpindi metropolitan area, and is about 30 km (19 mi) northeast of Islamabad. Murree Forest Division is a famous hill station and very well-known tourist hotspot in Western Himalaya of Pakistan. The Government of Pakistan owns a summer retreat in Murree, where foreign dignitaries including heads of state often visit. Murree, which is surrounded by pine and oak forests, has nice summers and chilly, snowy winters. Murree has retained its position as a popular hill station, noted for its pleasant summer weather. People travel long distances from all over the country to enjoy the beautiful weather and enchanting forest scenery. Each year, more than one million tourists visit the Murree area, and the number is increasing by 5% each year during times of political serene.

Need for the Project

The Murree hills have recently been found to be overburdened with the area's increasing population. More than 350 large and small hotels have been built in and around Murree. During the summer, the Murree population grows by more than The population of Murree swells by more than 10 times during the summer season. so increasing number of tourists and in order to cater the residential needs of the locals and tourists, developmental activities are needed.

As the number of tourists grows, development activities are required to meet the residential needs of both locals and tourists. The sponsor (Murree Club Private Limited) has proposed building a commercial and recreational facility in Murree beside the highway in Lower Topa. The planned project is designed to be environmentally sustainable while still being safe and secure for both tourists and locals.

In order to meet the constitutional demands of Pakistan's environmental legislation, the proponent has employed experts to conduct an Environmental Impact assessment (EIA) on the project.

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Scope Objective and Criteria of the Environmental Impact Assessment (EIA)

The major goals of the Environmental Impact Assessment (EIA) research are to:

- Determine the potential effect of the building project on the surrounding environment.
- Identify, analyze, and assess the nature and extent of potential environmental and social consequences.
- To safeguard and conserve the environment and natural resources.
- To investigate the current bio-geophysical, physical, and socioeconomic circumstances in the area where the project will be carried out, as well as their influence.
- To establish an Environmental Management Plan and an Environmental Monitoring Plan in order to identify mitigation strategies to minimize, avoid, and mitigate environmental consequences.

Methodology Outline

The Environmental Impact Assessment (EIA) process analyses and evaluates the potential implications (both positive and negative) that a proposed project may have on the biophysical and socioeconomic environment. It highlights mitigation actions that must be implemented to avoid, minimize, or reduce negative impacts, as well as ways to increase positive outcomes. The following sections provide additional detail regarding the key stages in this EIA process.

Project Description

Murree Club Private Limited has proposed constructing a commercial and recreational facilities along Express Way in Murree near Sozu Adventure Chowk and Lower Topa. The project's purpose is to transform the 11.5-kanal property into a modern commercial and recreational center with enough parking and amenities to meet the needs of both tourists and residents. The entire area is divided into FOUR building blocks, each with plenty of parking. Block A building contain Basement car parking with shopping mall, fun city, cinema and café, while Block B

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comprised of Hotel, restaurants and office. In Block C and D all apartments with adequate car parking will be constructed.

Environmental Baseline Conditions

Murree is a hill station and summer resort in Pakistan, as well as the administrative center of Murree Tehsil, which is a subdivision of Rawalpindi District and encompasses the Murree Hills. Murree, which is surrounded by pine and oak forests, has nice summers and chilly, snowy winters. The area of the planned project is locally known as Arwari. The project site is bordered by forest to the east of the property, Sozu Adventure park to the Northern end of the property and multi-dwelling developments and express way to the west and follow land to the West of the project area. The neighboring area is occupied mainly by human settlement, commercial premises and social amenities; including restaurants, schools, hotels park and multi-dwelling residential development.

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Physical Environment

Murree region comprises of brittle rocks with hard gray reddish sandstones. Sedimentary rocks of the Murree area are highly mutilated due to active geological faults and tectonic pressures. Edaphic influences play a significant role in the local alteration of plant communities in Murree. Soil under spruce and fir is profound and pretty rich in humus while it is shallow and deprived under pine and scrub regions.

Ecological Environment

Murree Hills are considered as one of the multi-floristic place in Pakistan, Floristic inventory is the baseline study for the exploration, sustainable use, and conservation of the biodiversity over time. The topmost dominant family in this area were Poaceae followed by Asteraceae and Lamiaceae, while the plant species includes *Pinus roxburghii, Pinus wallichiana, Cedrus deodara and, Berberis lyceium were in this area.*

Many rare animals can be found in Murree. One example is the leopard, which inhabits the neighboring Galiyat region. More common animals include the Rhesus Monkey, foxes and various species of birds. Pheasants, including the rare cheer and kalij, have occasionally been sighted.

Socio-Economic and Cultural Environment

The majority of the urban population lives in two cantonments and Murree City. Permanent urban residents are limited, and most urban areas contain private corporations, government rest houses, private hotels, and luxury summer resorts. Approximately 88% of the rural population lives in small villages scattered across the top of the Murree hills. However, water provision to village families has always been an issue. The majority of these folks move to the low-rent settlements of Rawalpindi and Islamabad.

Murree's livelihood is additionally reliant on tourism from January to mid-October. These foothills ranges attract between 20,000 and 25,500 tourists every month. Similarly, about one million tourists visit the Murree area each year,

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Public Consultation

A number of people and residents of the project region were consulted during this process. Various components of the planned project were highlighted, such as the project area's physical, ecological, and socioeconomic surroundings. Stakeholders' concerns about numerous aspects, the current environment, and the project's implications were identified and included in the EIA report.

People in the neighborhood generally stated that this project would create jobs during its building and operational periods. They believe that the proposed facility will also include features such as source of income for several individuals and households, increased number of visitors and customers in the area. However, few of the local inhabitance showed dissatisfaction regarding noise pollution and proper Solid waste and wastewater management system.

In addition to the local community, many institutions/offices show their concern about the project. The main concerns of these organizations were about effective mitigation measures against the depletion of groundwater resources, loss of flora and fauna and treatment of wastewater

Impacts and Mitigation Measures

Physical Environment

The impacts of the project siting are those related to its position at the authorized site. there is a lot of chance of soil erosion due to heavy rain. degradation of aesthetic values due to developmental activities Similarly, deep excavation may have an impact on the structural integrity of the surrounding buildings, and roadways, Increased runoff from paved areas and large roofs can lead to significant flooding, siltation, and overflow of drainage systems

Mitigation measures:

- Before construction, a soil research study should be performed;
- A suitable landscape and afforestation plan would be designed to compensate for and even improve the site's loss.
- Unnecessary excavation should be avoided;

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- Temporary retaining structures should be supplied.
- Excavations should be carried out in accordance with approved engineering drawings;
- The site is well drained, with good natural slopes for natural drainage;
- An efficient surface water drainage system with adequate capacity should be designed in accordance with the Pakistan Building Code;

Ecological Environment

The site preparation and construction activities may necessitate the removal of the natural vegetation from the areas. Damage and/or loss of vegetation, as well as clearing of other indigenous and introduced species, devastate natural environments, endangering wildlife and plant species.

Plants and sessile animals in these habitats are usually directly impacted, leading in a change or decline in biodiversity.

Mitigation Measures

- A plantation cover of appropriate trees/bushes will be planted in open areas and along highways. To improve the visual and aesthetic value of the parts, ornamental trees, bushes, and climbers have been planted. To mitigate air and noise pollution, phytoremediators will be required, possibly adjacent to roadways.
- The initiatives should be conceived and implemented in such a way that any negative impacts on natural ecosystems and biodiversity are avoided or fully compensated for.

Noise, air and solid waste management

Solid waste will be generated during construction. Among these are papers used for packing cement, plastics, and wood remnants.The construction activity is going to be a noisy operation because of the moving devices (mixers, tippers, communicating personnel) and incoming cars delivering construction goods and workers to the site.

Construction equipment and project cars will emit exhaust pollutants containing Carbon Monoxide (CO), Sulphur Oxides (SOx), Nitrogen Oxides (NOx), and Particulate Matter (PM). Air pollution

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will also be caused by numerous burning operations associated with construction. These emissions have the potential to degrade the air quality in the immediate neighborhood of the project site.

Mitigation measures

- It is suggested that demolition and construction waste will be recycled or repurposed in order to divert resources that would otherwise be discarded as garbage to beneficial applications.
- Worksite modifications are the most popular approach to minimize the noise levels of conventional construction equipment. Fixing old equipment with dumping materials and mufflers is a regular jobsite improvement.
- Fugitive dust emissions will be reduced by spraying water on soil when necessary and suitable, and a traffic plan will be developed once the project begins its operational phase.
- Construction equipment and vehicles will be kept in good working order and well-tuned in order to reduce exhaust emissions.

Positive impacts

There will be job opportunities for both skilled and casual workers during the construction period. From the time the project begins until it is completed, After the project is completed, there will be jobs in the form of administrative employees for the development, housekeepers, cooks, and security guards, among other things

The proposed project will bring international tourists to Murree, it will also generate foreign exchange, raise the income/economic level of residents in the project area. Gains will be made in both the local and national economies.

The proposed facility will supply much-needed goods and services to local people and tourists throughout the operational phase.

Environmental Mitigation Plan (EMP)

The Environmental Mitigation Plan (EMP) is designed to reduce the potential environmental consequences of the proposed project. EMPs provide a delivery mechanism for addressing the proposed project's negative environmental consequences during execution and operation.

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enhancing project benefits, and introducing standards of best practices to be adopted for all phases of the project. The planned project's cost estimates for adopting environmental monitoring and mitigation measures during the development and operational phases are five Million.

Conclusion and Recommendations

The general goal of this EIA is to examine the implications of the various activities and to address methods to prevent adverse environmental impacts that may occur from the execution of the proposed project, including economic and social consequences. The EIA also includes the project's justification and a full description. It is concluded that the planned project is an investment that is worthwhile by the proponent and will no doubt contribute significantly to the improving economic standup. It provides the necessary safety measures for the protection of all elements of the environment and many advantageous economic and social impacts will manifest in the quality of life. The proposed project's proponent must commit to implementing certain measures to minimize the negative environmental, safety, health, and social impacts connected with the project's life cycle.

In addition to this dedication, it is recommended that the implementation of the Environmental Monitoring Plan should be ensured by the contractor and proponent during the construction phase. To ensure that the EMP is effectively implemented, an environmental monitoring strategy has been prepared for each phase of the project, with a focus on monitoring air quality, and waste water.

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1-Introduction

This paper provides an overview of the project description, effect identification, assessment, and potential mitigation strategies for the proposed Murree Club in District Murree via an environmental impact assessment study. Since the project is descended in schedule II, hence an EIA is required. As consequently, an EIA is necessary for the development of Murree Club. According to Section 12 of the Punjab Environment Protection Act-1997, the proponent is required to submit the Environmental Impact Assessment (EIA) report before the proposed project is allowed to start; thus, the Environmental Impact Assessment (EIA) report is currently submitted to the Punjab Environmental Protection Agency (EPA), Government of Punjab.

1.1 Project Background and Overview

Murree is a well-known hill station and tourist destination in Pakistan's Western Himalaya. It is located 30 kilometers northeast of Islamabad on the Islamabad-Kohala route. Murree, which is surrounded by pine and oak forests, has nice summers and chilly, snowy winters. People travel long distances from all over the country to enjoy the beautiful weather and enchanting forest scenery. Each year, more than one million tourists visit the Murree area, and the number is increasing by 5% each year during times of political serene. The Murree hills have recently been found to be overburdened with the area's increasing population. More than 350 large and small hotels have been built in and around Murree.

During the summer, the Murree population grows by more than The population of Murree swells by more than 10 times during the summer season. so increasing number of tourists and in order to cater the residential needs of the locals and tourists, developmental activities are needed.

The proponent (Murree Club Private Limited) has put forth a proposal to construct a commercial and recreational facility, in Murree along highway in Lower Topa. The proposed project is conceived to be developed with an eco-friendly approach while assuring safe and secure for tourist as well as for local people. As the number of tourists grows, development activities are required to meet the residential needs of both locals and tourists.

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The sponsor (Murree Club Private Limited) has proposed building a commercial and recreational facility in Murree beside the highway in Lower Topa. The planned project is designed to be environmentally sustainable while still being safe and secure for both tourists and locals.

1.2 The Project

The project ''Murree Club Private Limited'' is proposed to construct Commercial and recreational activities for tourists as well as for socioeconomic development. In order to comply with the regulatory requirement of environmental laws of Pakistan, the proponent has acquired the services of experts to conduct an EIA of the project.

The "Murree Club Private Limited" project is designed to build commercial and recreational activities for tourists as well as socioeconomic development. In order to meet the constitutional demands of Pakistan's environmental legislation, the proponent has employed experts to conduct an EIA on the project.

1.3 Project Proponent

The project proponent is **"Murree Club Private Limited''**

Address: Murree Gym Khana Club. Express Way, Near Sozu Adventure Chowk, Moza Arwari, Lower Topa, Murree

Cell: 03174288448

Email: murreeclub@gmail.com

1.4 Nature and Size of the Project

Murree Club Private Limited has proposed building a commercial and recreational facility along Express Way near Sozu Adventure Chowk, Lower Topa in Murree. The goal of this project is to turn the 11.5 kanal site into a modern commercial and recreational facility with sufficient parking and services to serve tourists as well as residents. The entire area is separated into three blocks, each with ample parking. Restaurant, Hotel, Shopping Mall, Cinema, Fun Corner, Gym, and Apartments are all part of the development.

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The project location is now covered with natural vegetation. The surrounding area is mainly populated by human settlement, commercial establishments, and social amenities, such as restaurants, schools, offices, and multi-family residential buildings. The report describes the socioeconomic benefits that will be available to the residents of the area as a result of the project activities. It analyses all of the developments that will occur during the construction and operation of Murree Club.

1.5 Environmental Impact Assessment

Environmental Impact Assessment (EIA) is a process that evaluates the ecological consequences of an environmental project before it is implemented. The Project's Environmental Impact Assessment (EIA) was completed in accordance with Section 12 of the Punjab Environmental Protection Act, 1997 (as amended in 2012 and 2017), which states that:

"No Project shall commence construction or operation unless it has filed with the Agency an Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA) and has obtained from Agency approval in respect thereof. Punjab EPA shall review the IEE & EIA and accord approval subject to such terms and conditions as it may prescribe or require."

The project falling in schedule II requires an EIA. Therefore, an EIA for the Development of Murree Club is required. This Environmental Impact Assessment report presents the evaluation of environmental impacts of the construction and operation of a project namely "Murree Club private limited".

1.6 Scope of EIA

EIA is a tool used to examine the significant environmental effects of a project or development proposal. Such restrictions ensure that decision-makers evaluate the anticipated environmental impact before beginning a project and then try to avoid, minimize, or counteract those consequences. This guarantees that the proponent understands the environmental impact of the project well before a decision is sought. Scoping assists in defining the project's limits and TORs for later stages of baseline collecting, impact identification, and evaluation, thereby saving time and money.

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- Explain the nature and importance of the environmental effects and implications linked with development activities.
- Quantify and access impact significance where possible, taking into account particular, temporal, and cumulative elements.
- Monitor environmental impacts and manage environmental changes to demonstrate that the project is environmentally sustainable.
- Describe the major basis for predicting positive and negative outcomes, as well as the amount to which negative impacts can be avoided by project planning, design, and construction procedures.
- Propose mitigation methods to reduce, eliminate, or compensate for potential negative consequences that may occur during the project's pre-construction, construction, and operating phases.

1.7 Purpose of the Report

The EIA process is designed to inform decision-makers and the general population about the environmental impacts of a proposed project. The purpose of this study is to mitigate the project's negative environmental impacts and to obtain environmental approval from the Punjab-EPA in order for the project to begin properly. The Report can help with the following measures:

• It might screen out environmentally unsound developments.

• Encourages the use of modified designs to lessen environmental effect.

• Predicts major negative consequences.

• Identifies mitigation actions to mitigate, neutralize, or eliminate significant impacts.

• Influences decision-making and the development of terms and conditions

1.8 Objective of the Report

The major goals of the Environmental Impact Assessment (EIA) research are to:

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• Determine the potential effect of the building project on the environment and the surrounding area.

• Identify, analyze, and assess the nature and extent of potential environmental and social consequences, with a focus on substantial beneficial/adverse effects on the project area's existing biological, physical, and socioeconomic surroundings.

• To safeguard and conserve the environment and natural resources.

•To investigate the current bio-geophysical, physical, and socioeconomic circumstances in the area where the project will be carried out, as well as their influence.

• To recommend mitigating methods to decrease the negative impacts to allowable levels.

• To establish an Environmental Management Plan and an Environmental Monitoring Plan in order to identify mitigation strategies to minimize, avoid, and mitigate environmental consequences.

1.9 Methodology

The Environmental Impact Assessment (EIA) process analyses and evaluates the potential implications (both positive and negative) that a proposed project may have on the biophysical and socioeconomic environment. It highlights mitigation actions that must be implemented to avoid, minimize, or reduce negative impacts, as well as ways to increase positive outcomes. The EIA is not a completely linear process, but instead a process in which various stages are carried out concurrently where assumptions and findings are evaluated and adjusted as the project progress. The following sections provide additional detail regarding the key stages in this EIA process.

1.9.1 Collection of Primary Data and Field Visits:

Field visits were intended to conduct physical inspections of the site characteristics as well as the environmental status of the surrounding areas in order to determine the expected impacts. It also contained further interviews with people of the local community. A preliminary socioeconomic examination was also carried out. A detailed environmental baseline assessment was carried out to collect primary data in the Project's surroundings to aid in the identification of sensitive receptors. The main data were evaluated and compared to secondary data from previous

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environmental studies in the area. The survey's scope includes gathering environmental and social baseline data on the following essential aspects:

- ♣ Noise Quality
- ♣ Air Quality
- ♣ Soil
- ♣ Geology
- ♣ Hydrology
- ♣ Vegetation
- ♣ Flora/Fauna
- ♣ Nearby settlements
- ♣ Socio-Economic Activities
- ♣ Land use
- ♣ Infrastructure & Social Services
- ♣ Land and Soil

1.9.2 Collection of secondary data:

The experts team obtained published secondary data of Murree that included:

Physical conditions - includes topography, geology, soils, Temperature and rainfall.

Ecological resources - includes flora and fauna.

Human and economic Development- includes settlements, socio-economic conditions, infrastructure, and land use.

The collected secondary data also provided a detailed insight into the biological environment of the area.

1.9.3 Public Consultation:

Stakeholder consultations were held to involve the public in decision making and to have a fair interaction with all community groups, assuring them that every effort would be made to reduce

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the negative impacts of the project and that adequate remedial measures would be taken to compensate the affected persons, if any.

1.9.4 Review of Legal and Administrative Framework:

The aim of the legal and administrative framework review is to acquire information on all legislation relating to the development of the "Murree Club" The project's environmental regulations, as well as national and international laws and standards, were assessed by the expert team. The report includes an overview of all relevant laws.

1.9.5 Identification of Impacts:

The EIA process entails the creation of an inventory of all conceivable environmental and socioeconomic features, which serves as the foundation for categorizing and evaluating impacts and their likelihood to occur as a result of the project's materialization. Aspects are the causes of both positive and negative effects. These features are generally linked with operations carried out during the project's construction and operating phases.

1.9.6 Impact Assessment & Mitigation Measures:

Experts analyzed the features based on the produced aspects inventory for their logical consequence as expected influences on the physical, ecological, and social environment. These implications have been identified, examined, and weighed for various operations during the project's construction, commissioning, and operational phases. Mitigation methods were also recommended for various project activities in order to reduce potential impacts across the project's life cycle.

1.9.7 Development of Environmental Management Plan (EMP):

In light of the identified impacts and proposed mitigations, an Environmental Management Plan (EMP) has been developed, which will play an important role in assigning tasks to team members for environmental management and mitigation measure implementation, as well as monitoring its effectiveness throughout the project's life cycle. It also offered monitoring plans/procedures to be followed for checking and maintaining environmental quality and compliance with regulatory requirements via suggested mitigating actions.1.9.8 Reporting and Documentation:

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This is the final stage in finishing the environmental assessment and compiling all of the work done into a report. Report drafting began shortly after the start of the environmental assessment. The Environmental Impacts Assessment Study Report was created and submitted by the proponent for evaluation and approval prior to submission to Punjab EPA in compliance with the guidelines established by Punjab EPA for such activities. The experts considered all of the opinions and concerns expressed by interested and/or affected parties and proposed appropriate mitigating actions.

1.10 Organization of the EIA Report

The EPA-mandated standard format was used to create the EIA report. The Report is divided into the following sections:

- Chapter 1: introduces and summarizes the project.
- Chapter 2: Provides a review of pertinent policy and legislation, as well as international guidelines.
- Chapter 3: describes the micro- and macro-environments of the prospective project sites. This chapter outlines the physical, biological, and socioeconomic resources of the project sites and their neighboring areas.
- Chapter 4: (Project Description) describes the planned project, its layout plan and associated activities, raw material information, and utility requirements.
- Chapter 5: Describes the stakeholder consultation process as well as the issues and concerns highlighted by stakeholders and interested parties.
- Chapter 6: Discusses the probable environmental and social implications of the proposed Project. General and project-specific principles were used to examine the potential environmental implications at each stage of the project's design, construction, and operation.
- Chapter 7: (Environmental Management Plan) describes the mitigation measures planned for the project in order to keep the project's environmental impact to acceptable levels. It also outlines the deployment of mitigation measures on the ground as well as the monitoring of environmental parameters in relation to potential environmental impacts.

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- Chapter 8: (Conclusion) summarizes the report and presents its conclusions.

2-POLICY, RELEVANT LEGISLATIVE AND REGULATORY FRAMEWORK

There is rising concern, both globally as well as in Pakistan, that many sorts of development activities threaten the environment. Development activities have the potential to harm the natural resources that sustain the economy. Environmental Impact Assessment is a valuable technique for protecting the environment from the negative consequences of development activities. Development initiatives must today be socially acceptable, environmentally sound, and economically feasible.

According to Section 33 of the Punjab Environmental Protection Act, 1997 (Amended 2017) and Section 12 of the Punjab Environmental Impact Assessment Regulations, 2020 both require an Environmental Impact Assessment project/study report to be prepared and submitted to the Punjab Environmental Protection Agency (PEPA) for review and eventual licensing before development can begin.

This section includes an introduction of Pakistan's legal frameworks and environmental assessment process, as well as a summary of major environmental legislation and guidelines relevant to the project.

2.1. Environmental Legislation

2.1.1. Punjab Environment Protection Act-1997

The Punjab Environmental Protection (Amendment) Act is a provincial act that was approved to update the Pakistan Environmental Protection Act, which was passed in 1997. This law is the fundamental legislative tool allocated to provide for environmental preservation, conservation, rehabilitation, and improvement, as well as pollution prevention and control, and the promotion of

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sustainable development. The discharge or emission of any effluent, waste, air pollutant, or noise in an amount, concentration, or level exceeding the Punjab Environmental Quality Standards (PEQS) specified by the Pakistan Environmental Protection Agency (Pak EPA) is prohibited under the Act, and penalties are imposed for those who violate the Act's provisions.

Section 12 (1) of the Act specifies the obligation for environmental assessment. No project involving construction activities or any change in the physical environment can be done under this section unless an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA) is conducted and authorization from the Punjab EPA is obtained. Section 12(6) of the legislation indicates that this provision applies exclusively to the project categories established by the Punjab Environmental Protection Agency (Review of IEE and EIA Regulations), 2020.

2.1.2. Punjab Environmental Protection Agency Review of IEE & EIA Regulations, 2020

The Punjab Environmental Protection Agency (Review of IEE and EIA Regulations), 2020 (the Regulations), prepared by the Punjab Environmental Protection Agency under the authorities granted to it by the Act, contain the required details on IEE and EIA preparation, submission, and review. One of the primary components of the Regulations is project categorization for IEE and EIA. The projects have been categorized based on the anticipated extent of negative environmental impacts. Project types included in Schedule-I are designated as being less detrimental to the environment, while those listed in Schedule-II are designated as potentially having substantial adverse consequences. Schedule-I projects must have an IEE conducted if they are not in ecologically sensitive areas.

For the schedule-II projects, conducting an EIA is necessary. Salient features of the regulation, relevant to the proposed project are listed below:

- Project categories requiring IEE and EIA are issued in two schedules connected to the Regulations.
- A fee, based on the project cost, has been imposed for the review of EIA and IEE and must be paid at the time of submission.

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- The submission must be accompanied by an application in the format specified in Schedule IV of the Regulations.
- The Punjab EPA is required to perform a preliminary review and respond within 10 days of the report's submission, a) confirming completeness, b) requesting additional material, or c) demanding additional studies.
- The notice issued in accordance with sub regulation (1) shall specify a date, time, and location for a public hearing on any comments on the project or its EIA.
- The Punjab EPA is required to make all attempts to complete the review process for IEE within 45 days and the EIA within 90 days of the issue of confirmation of completeness.
- Punjab EPAs provide approval subject to the following conditions:
- Before the project may begin, the proponent must file an undertaking accepting the requirements.
- Before beginning project operations, the proponent must get written confirmation from EPA of compliance with approval conditions and IEE/EIA requirements.
- An EMP must be submitted with the request for confirmation of compliance and environmental mitigation. • EPAs must issue confirmation of compliance within 30 days of receiving the request and accompanying documentation.
- The IEE/EIA approval is valid for three years from the date of agreement, and a monitoring report must be filed to the EPA after construction is completed, followed by annual monitoring reports during operations.
- Development of Murree Club falls in schedule-II of the regulations. Hence, this type of project needs an EIA to be conducted.

2.1.3. Guidelines for the Preparation and Review of EIA Report, 1997

These suggestions outline the nature of the material to be included in environmental reports and provide for the development of EIA of Projects that address project proponents. It also outlines the monitoring, operation, methods, and appropriate mitigation measures to be implemented at each stage of the project, and the Terms of Reference for the reports are to be submitted by the project proponents themselves. PEPA rule 2020 outlined public consultation criteria as well as guidelines

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for sensitive and essential areas. The reports must include baseline data on the project region. as well as a full assessment and mitigating strategies.

2.1.4. Policy and Procedures for Filing, Review and Approval of Environmental Assessments, Regulations,2020

These policies and procedures define the policy context and the administrative procedures that govern the environmental assessment process, from the project prefeasibility stage to the approval of the environmental report.

2.1.5. Punjab Environment policy 2015

The Punjab Environment Policy serves as a framework for reforming regulations, programmes and projects for environmental protection. and will review and ensure legislation is implemented. The Punjab Environment Policy gives broad recommendations to Provincial Governments and Local Governments for addressing environmental concerns and guaranteeing effective management, restoration, enhancement, and sustainable use of environmental resources. Through sustainable development, the Punjab Environment Policy aims to protect, conserve, and restore the Punjab environment.

2.2. National Environmental Guidelines and Policies

2.2.1. National Conservation Strategy (NCS), 1992

The Pakistan National Conservation Strategy (NCS) is the key document aimed at encouraging sustainable development, conserving natural resources, and improving resource efficiency and management. The NCS was created during a nine-year period (1983-1992) by the IUCN and the Government of Pakistan working together. The NCS establishes the fundamental principles for a comprehensive effort to conserve the country's environment and natural resources.

2.2.2. Biodiversity Action Plan, 2000

The present Biodiversity Action Plan for Pakistan (BAP) is a first attempt to meet the Convention's ecological planning obligations. It gives a brief evaluation of the country's biodiversity state and trends, establishes strategic goals and objectives, and identifies a plan of action that includes

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coordinating mechanisms and implementation strategies. Pakistan is a signatory to the Convention on Biological Diversity, and as such is required to adopt a national biodiversity protection policy. The Pakistani government has established a Biodiversity Working Group under the supervision of the Ministry of Environment.

Local Government and Rural Development will work together to create a Biodiversity Action Plan for the country. A draft Action Plan has been established following considerable consultation. Following government approval of Pakistan's first Biodiversity Action Plan, analyses the causes of biodiversity and proposes an implementation timetable that prioritizes activities that may be executed promptly and at a minimal cost.

2.2.3. National Environment Policy, 2005

The National Environment Policy establishes a broad framework for dealing with environmental challenges. Pakistan is facing numerous challenges, including pollution of fresh water bodies and coastal waterways, air pollution, a lack of effective waste management, deforestation, biodiversity loss, desertification, natural catastrophes, and climate change. The National Environment Policy (NEP) of Pakistan strives to protect, conserve, and restore the country's environment in order to improve inhabitants' quality of life through sustainable development. Further sectorial criteria, Energy Efficiency and Renewable, which are closely tied to building energy codes for newly constructed structures, were established in the NEP.

2.4. Other related laws

2.4.1. Punjab Occupational Safety and Health Act, 2019

This act consolidates the law for ensuring the health and safety of persons at work and protects them against risks arising from occupational hazards; to promote a safe and healthy working environment that caters to the psychological needs of employees at work; and to provide for matters related to or supplemental to the aforementioned.

2.4.2. Building Code of Pakistan Fire Safety Provisions – 2016

The Building Code of Pakistan - Fire Safety Provision 2016 prescribes standards for fire prevention, life safety, and fire protection of buildings and structures. The provision must be

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approved by the federal and provincial governments, as well as organizations and bodies both public and private, as specified. The rule establishes conditions for building and premises inspection in order to protect the safety of people and property. The law also gives authorities the jurisdiction to seal a building or premises, and anyone who violates any aspect of the regulation would be punished five hundred thousand rupees.

2.4.3. Antiquity Act, 1975

The Antiquities Act, 1975, governs the preservation and protection of antiquities and cultural treasures in Pakistan. The legislation is intended to safeguard antiquities from destruction, theft, carelessness, illegal excavation, commerce, and export. Antiquity designated as protected antiquity under Section 10. The Act defines antiquities as any ancient movable or immovable result of human activity expressive of art, architecture, crafts, customs, literature, morals, politics, religion, warfare, or science, or of any feature of civilization or culture. The law prohibits new development near a protected antiquity and enables the Government of Pakistan to restrict excavation in any area that may hold archaeologically significant artefacts.

The project proponents are required by the Act to:

- Ensure that no activity is undertaken in the vicinity of a protected antiquity;
- If an archaeological discovery is made during the course of the project, it should be reported to the Department of Archaeology, Government of Pakistan.

2.4.4. The Cutting of Trees (Prohibition Act), 1975

The act bans tree cutting and chopping without the Forest Department's consent. Section 3 of the regulation indicates "No person shall cut, fell, or damage or cause to be cut, fell, or damaged tree without the prior approval of the local formation commander or an officer authorized by him in this behalf."

2.4.5. The Protection of Trees and Bush wood Act, 1949

Section 2 of this Act states that lopping, tapping, stripping off the bark of leaves from, setting fire to, kindling any fire or leaving any fire burning in the vicinity of, keeping or carrying any fire in

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such a way as to endanger, permitting cattle to damage or otherwise in either way damaging any tree or brushwood whether, standing, fallen or felled.

2.4.5. Pakistan Penal Code, 1860

This legislation establishes penalties for offences involving public or private property, as well as purposeful or unintentional wrongdoing by an individual or group of people that endangers human lives. Within the framework of the project. This defines the penalty for infractions including contamination of the air, water, and land. This Act's Sections 272 and 273 address the adulteration of food or drink. Section 268 addresses noise pollution by defining and recognizing noise as a public nuisance.

"A person is guilty of a public nuisance if he does any act or commits any illegal omission that causes any common injury, danger, or annoyance to the public or to the people in general who dwell or occupy property in the vicinity, or which must necessarily cause injury, obstruction, danger, or annoyance to persons who may have occasion to use any public right."

2.4.6. Punjab Fire Prevention and Fire Safety Act 2004

In the Punjab State, a more effective provision for fire prevention and safety measures in buildings and premises was created. It is mandatory to obtain a No Objection Certificate upon completion of the building construction. The rule establishes conditions for building and premises inspection in order to protect the safety of people and property. The law also gives the authority the jurisdiction to seal a building or premises, and anyone who violates any provision of the regulation faces imprisonment for a term of up to six months, a fine of five hundred thousand ruppes1, or both.

2.4.7. The Registration Act, 1908

The registrations act explains how to register, what documents should be registered, and how it should be done. The Registration Act largely governs the registration of immovable property papers with the registrar of assurances. The act explains the registration procedure, what documents must be registered, and how it should be done, the registration of Will documents, as

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well as the registrations department's authorities and tasks. It also addresses penalties and punishment for not failing to follow the method and failing to complete tasks on time.

2.4.8. Pakistan Tourism Development Corporation

Pakistan Tourism Development Corporation (PTDC) was established on March 30, 1970, as a Public Corporation Limited by Shares under the abolished Companies Act 1913 (now the Companies Ordinance, 1984). The Government of Pakistan owns 99.75% of the PTDC. The corporation's primary goal is to promote and enhance tourism in Pakistan.

2.5. Obligation under International Treaties

Pakistan has signed numerous international treaties and conventions on environmental conservation and animal preservation. The country is obligated to follow through on the commitments outlined in these accords. The Convention on Biological Diversity was adopted during the Rio de Janeiro Earth Summit in 1992. Parties are required by the Convention to prepare national plans for biodiversity conservation and sustainable use, and to include these plans into national development programs and policies. Parties are also obligated to identify biodiversity components that are important for conservation and to develop systems to monitor their usage in order to promote their sustainable use.

The 1979 Convention on the Conservation of Migratory Species of Wild Animals requires countries to take action to avoid endangering migratory species, where migratory species refers to species of wild animals that cross one or more national jurisdictional boundaries cyclically and predictably. The parties are also expected to promote or collaborate in migratory species research. Pakistan is mandated by the 1951 International Plant Protection Convention to take action to safeguard specific plant species that suffer extinction.

2.6 Implication of Legislations to the Project

The following are the implications of the aforementioned legislations for the pre-construction, construction, and operating phases of the Development of "Murree Club":

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- Stakeholders, as the project's proponent, must ensure that the construction and operational phases of the project are carried out in accordance with the EIA report and the Environmental Management Plan is implemented.
- The project will be subject to four basic pollution control provisions under the Punjab EPA 1997, which are contained in sections 11, 13, 14, and 15 as follows:
- Section 11 forbids the discharge or emission of any effluent, waste, air pollutant, or noise that exceeds the PEQS or the set ambient criteria for air, water, or land.
- Section 13 forbids the disposal of hazardous materials.
- Section 14 bans the handling of hazardous substances unless authorized by a license or in compliance with the provisions of any local legislation or international agreement.
- Section 15 prohibits the operation of motor vehicles if any air pollutant or noise exceeds the PEQS or the set ambient standard.

Pakistan appears to be an unusual candidate among the 50 or more countries that have developed Conservation Strategies and National Environmental Action Plans to establish the most excellent plan for environmental improvement and sustainable development.

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3-Description of the surrounding environment

3.1 Introduction

Murree is a hill station and summer resort in Pakistan, as well as the administrative center of Murree Tehsil, which is a subdivision of Rawalpindi District and encompasses the Murree Hills. Murree was the British Raj's summer capital in the Punjab Province (British India). A renowned tourist attraction in the north-west Himalayas at an elevation of 2,291 meters (7,516 feet). Murree, which is surrounded by pine and oak forests, has nice summers and chilly, snowy winters. The city is noted for its structures from the colonial era that are styled in Tudor and Neo-Gothic architecture.

Murree is located 58.3 kilometers (36.2 miles) northeast of Islamabad on the Islamabad-Murree Highway. Murree is derived from the word 'marhi,' which means "high place." Murree and Galliat are inseparable geographically, culturally, linguistically, and from the perspective of tourism. Murree is a gateway to Galliat. Bhurban and New Murree (Patriata) have also grown as tourist destinations. The Murree Galliat region as a whole is famous for its picturesque beauty. Mountains covered with pines and oaks, teeming with glowing springs and crisscrossed by rivulets. In 1987, the Punjab Tourism Department built resorts among the forests on the Patriata ridge, as well as a 3-kilometer sky slope from the top of the Patriata ridge to Gulara Gali (which is no longer operational). Murree Hills has been reported to be overburdened with the area's growing population and an increasing number of tourists each year, and development operations to meet the residential demands of both locals and tourists are at the highest level ever.

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Figure 3. 1 Map showing the surrounding areas of the project site



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3.2 Project Description

This chapter explains the project area's baseline environmental, social, and biological circumstances and includes sections on the physical, biological, social, economic, and cultural environments. The baseline description is based on data obtained on-site as well as available data gathered during stakeholder and institutional consultations, as well as previous studies undertaken in the area. The environmental description is site-specific and includes information on water quality (surface water and groundwater), geographic condition, ambient air quality, climate, and soil, among other things, located in the proposed project's overall environmental study area, as well as socioeconomic conditions in the project study area.

3.3 Environmental Setting

The project site is located in Murree, within the express highway in Lower topa. The area of the proposed project is locally known as Arwari. Murree is the most famous hill station in Pakistan. Murree located at 33.34° north latitudes and 73.30° east longitudes and lies 50 kilometers northeast from Islamabad.

Administratively Murree is divided in six parts; 4 sub-divisions (Sambli, Ghora Gali, Sehr Bagla, and Lower Topa) and 2 ranges (Ban and Municipal range). The Lower Topa comprised of about 2,439.12 ha area. The property currently has natural vegetation growing on it, thickets of herbs i.e. *Cynodon dactylon, Medicago tridens, Taraxacum officinal, Ranaculus mueicatus*, and few species *Berberis lyceum* and *Pinus roxburgheii* and many other invasive species spread all over the land. It is bordered by forest to the east of the property, while in the west Malash village is present. In the Northern side Sozu Adventure park, Pakistan air force college (PAF), and locally known area i.e., Masiari village is present, while in the southern side New Murree is developed. The neighboring area is occupied mainly by human settlement, commercial premises and social amenities; including restaurants, schools, offices and churches and multi-dwelling residential developments. This base line study includes physical, biological and socioeconomic environment of the project site.

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3.4 Physical Environment

3.4.1 Geologic Resources

Murree region comprises of brittle rocks with hard gray reddish sandstones interbedded with soft red calcareous shales and alluvial deposits belongings to Shiwalik and Sirmar series of sub-Himalayas structure. This region falls in tertiary and quaternary sediments dominate the zone with 15 extensive rock formation of Shiwalik nature. Sedimentary rocks of the Murree area are highly mutilated due to active geological faults and tectonic pressures. These rocks have the uppermost affinity to landslide hazards

3.4.2 Soil Resources

Edaphic factors show an imperative part in the local change of plant communities in Murree. The top soil is continuously being eroded by runoff water from upper slopes. Soil under spruce and fir is profound and pretty rich in humus while it is shallow and deprived under pine and scrub regions. The relative amounts of soil particles indirectly affect communities by bringing differences in soil water. Coarse, fine sands, Gravels, clay and silt particles were documented in diverse communities.

3.4.3 Water Resources

3.4.4 Air and Climate

Climatically the Murree hills are in divided into diverse regions from higher temperate zone to subtropical lowlands. Such a varied climate in a small geographical area to a diverse topography is triggered by the differences in elevation, depth of the snow accumulation amount of snowfall in winter and changing vegetation etc. The weather has four distinct seasons i.e. summer, winter, spring, and autumn. Usually the climate is cooler at higher elevation and warmer at lowlands with a short autumn and spring seasons. In the western Himalayas higher mountains located at the opening of the hills act as a block to the summer monsoon and bound its dissemination into the upper north western parts of the mountains Winter normally start in the December and gets considerable snowfall. Murree and its neighboring parts are shielded with thick layer of snow in most of the winter. Temperature frequently drifts round about the freezing point. Summer duration

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lasts during May to the end of August. The months of June and July are the topmost tourists" season in the Murree. Many tourists visit there and enjoy this weather.

3.4.5 Temperature

Murree region exhibits extensive differences in temperature due to substantial altitudinal and topographic variations. The mean lowest temperature was 4-9°C whereas highest temperature was 27-30°C respectively during the years 1988 – 2018 (Metrological Department Islamabad, Pakistan). The warmest month of the year was June, 2018 with an average maximum temperature of 30°C. Spring season in Murree area lasts from March to the middle of May. Maximum temperature in this period 16 fluctuates between 12-20°C and minimum 4-9°C respectively.

3.4.6 Rainfall

Monsoon winds are the leading source of rainfall. The Murree hills receives the highest quantity of precipitation in Pakistan with an average of 1,640mm- 1,904mm and nearly 89 mean rainy days per year. On the other hand, several parts of the region receive fluctuating quantities of precipitation. The majority of the rainfall is received from July to August during the monsoon

3.4.7 Ambient Air Analysis

The "Murree Club" project is located on Express Way, near Sozu Adventure Chowk. The planned project involves the growth of commercial and recreational activities for tourists, as well as socioeconomic development. This means that there is a lot of traffic on the roadways during the summer and winter seasons. Pak-EPA Certified laboratory, National Cleaner Production Centre Foundation (NCPC) performed the ambient air quality, noise monitoring, and ground water analysis. The ambient air, noise level monitoring, and ground water analyses were carried out at the project site from the 2nd to the 4th of August 2023 in order to establish the project's baseline. During a 24-hour period at the project site, the ambient air quality was measured and compared to the Punjab Environmental Quality Standards (PEQS) for carbon monoxide (CO), Sulphur dioxide (SO2), oxide of nitrogen (as NO), oxide of nitrogen (as NO2), ozone (O3), respirable particulate matter (as PM10), and respirable particulate matter (as PM2.5). Annex-II contains the detailed results of ambient air quality measurement. Table 1 shows the concentrations of contaminants in the atmosphere.

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Table 3. 1 Ambient air pollutants concentration

Parameter	Unit	Monitoring Duration	Results	PEQS Standards
Nitrogen Dioxide (NO_2)	µg/Nm³	24 Hours	18.5	80
Oxides of Nitrogen (NO_X)	µg/Nm³	24 Hours	7.10	120
Sulfur Dioxide (SO_2)	µg/Nm³	24 Hours	1.43	120
Carbon Monoxide (CO)	mg/Nm³	08 Hours	3.92	5.0
Ozone (O_3)	µg/m³	01 Hours	3.57	130
Particulate Matter ($PM_{2.5}$)	µg/Nm³	01 Hours	13.6	35
Particulate Matter (PM_{10})	µg/Nm³	24 Hours	60.1	150

3.4.8. Noise Monitoring Analysis

The project area of "Murree Club" was monitored for noise level monitoring. Traffic/vehicular movement, pressure horns, and commercial activities in and around the research area were the main sources of noise identified at the location. The noise level at the project site was measured at 45 dB at night and 55 dB during the day, both of which are within the PEQs' prescribed limits. Table 3.2 shows the average noise level concentrations.

Table 3. 2 Noise level Concentration at the project site

Sr. No.	Locations	Category	Noise Levels (dB) Leq			
			Day Time		Night Time	
			Average Noise Level	PEQS	Average Noise Level	PEQS
1.	Project Sample	Commercial	55	65	45	55
	Point 1	47.2				

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3.4.9 Ground Water Analysis

Ground water samples were taken at N33.883036°, E73.432252° around the project area and were analyzed for physical, chemical and microbiological parameters. Table 3.3 shows the results of ground water analysis.

Table 3. 3 Ground water analysis at the project site

S.no	Parameters	Results	PEQS	LOD	Units
1	pH	7.1	6.5-8.5	0.01	-
2	TDS	339	< 1000	1	mg/l
	Chloride	17.4	<250	0.24	
3	Total Hardness	316	< 500	0.1	mg/l
4	Alkalinity	148	_	0.5	
5	Turbidity	<0.1	< 5	0.1	NTU
6	Nitrate	<0.1	≤ 50	0.1	mg/l
7	Odor	Odorless	Non-Objectionable	-	-
8	Taste	Sweet	Non-Objectionable	-	-
9	Color	<10	≤15 TCU	1	Pt-Co
10	Sodium	6.5	-	0.0037	-
11	Potassium	0.301	-	0.0009	-
12	Calcium	96	-	1	-
13	Magnesium	18	-	1	-
14	Sulphate	32.5	-	0.41	-
15	Carbonates	<0.12	-	0.12	-
16	Bi-Carbonates	1.2	-	1.2	-
17	Conductivity	552	-	1	-
18	Total Coliform	Negative	Must not be detectable in any 100mL sample	-	Cfu/100mL
19	Fecal Coliform	Negative	Must not be detectable in any 100mL sample	-	Cfu/100mL
20	E.coli	Negative	Must not be detectable in any 100mL sample	-	Cfu/100mL

These results shows that all the results are below the standard limits of PEQS.

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3.4.10 Aesthetic values

Murree Forest Division is a famous hill station and very well-known tourist hotspot in Western Himalaya of Pakistan. It comprises of four progressively growing foothills. On the highest among these is the Murree city itself situated at altitude of 2290- 2300m. Other peaks contain Patriata, Gharial and Kuldana. Murree municipality was built in line with the European municipalities with Churches in the center and main The Mall road running along with commercial areas and organizational offices around this. The Mall road was and is still the center of charm for tourist. The area gives scenic view and is important in having compact forest at higher elevations which typically includes Cedrus, blue and chir pine forests.

3.5 Biological Environment

3.5.1 Vegetation/Flora

The distribution of vegetation is the reflection of micro-and macro-environmental factors. Floristic inventory is the baseline study for the exploration, sustainable use, conservation and management of the biodiversity components and monitor fluctuations over time. The topmost dominant family in this area were Poaceae followed by Asteraceae and Lamiaceae, while the plant species includes

Pinus roxburghii, Pinus wallichiana, Cedrus deodara, Olea paniculata, Picea smithiana, Quercus robur, Myrsine Africana, Carissa spinarum, Berberis lyceium, Indigofera himalayensis. Themeda anathera, Oxalis corniculata, Fragaria nubicola. Common invasive plant species growing in the region comprise herbs like *Conyza canadensis, Amaranthus caudatus, Leucanthemum vulgare* and trees like *Aesculus indica, Ailanthus altissima* and *Robinia pseudoacacia.* were present in the surrounding area of the project site.

Table 3. 4 List of the Floral Species at Found at the surrounding of the Project Site

S.no	Plant species	Habit	Family
1	*Aesculus indica*	Tree	Sapindaceae
2	*Ailanthus altissima*	Tree	Simaroubaceae
3	*Amaranthus caudatus*	Herb	Amaranthaceae

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5	*Carissa spinarum*	Shrub	Apocynaceae
6	*Cedrus deodara*	Tree	Pinaceae
7	*Conyza canadensis,*	Herb	Asteraceae
8	*Fragaria nubicola*	Herb	Rosaceae
9	*Indigofera himalayensis*	Shrub	Fabaceae
10	*Leucanthemum vulgare*	Herb	Asteraceae
11	*Myrsine Africana*	Shrub	Primulaceae
12	*Olea paniculata*	Tree	Oleaceae
13	*Oxalis corniculata*	Herb	Oxalidaceae
14	*Picea smithiana*	Tree	Pinaceae
15	*Pinus roxburghii*	Tree	Pinaceae
16	*Pinus wallichiana*	Tree	Pinaceae
17	*Quercus robur*	Tree	Fagaceae
18	*Robinia pseudoacacia*	Tree	Fabaceae
19	*Themeda anathera*	Herb	Poaceae
20	*Plantago lanceolata*	Herb	Plantaginaceae
21	*Cynodon dactylon*	Herb	Poaceae
22	*Medicago tridens*	Herb	Fabaceae
23	*Ranunculus muricatus*	Herb	Ranunculaceae
24	*Taraxacum officinal*	Herb	Asteraceae
25	*Cyperus rotundus*	Herb	Cyperaceae
26	*Oxalis corniculata*	Herb	Oxalidaceae
27	*Beberis lyceium*	Shrub	Berberidaceae

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28	*Pinus gerardiana*	Tree	Pinaceae
29	*Verbascum thapsus*	Herb	Scrophulariaceae
30	Salix babylonica	Tree	Salicaceae

3.5.2 Fauna

Many rare animals can be found in Murree. One example is the leopard, which inhabits the neighboring Galiyat region. More common animals include the Rhesus Monkey, wild boar, foxes and various species of birds. Pheasants, including the rare cheer and kalij, have occasionally been sighted.

Table 3. 5 List of the Fauna in the project area

S.no	Animal species	*Scientific names*
1	Bat	*Chiroptera*
2	Black swallowtail (Butterfly)	*Papilio polyxenes*
3	Cabbage butterfly	*Pieris rapae*
4	cheer	*Catreus wallichii*
5	Crow	*Corvus*
6	Dog	*Canis familiaris*
7	foxes	*Vulpes*
8	kalij	*Lophura leucomelanos*
9	leopard	*Panthera pardus*
10	Lion	*Panthera leo*
11	Pheasants	*Phasianus colchicus*
12	Porcopine	*Hystrix indica*
13	Rhesus Monkey	*Macaca mulatta*

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14	Snail	*Helix pomatia*
15	Teetar	*Francolinus pondicerianus*
16	wild boar	*Sus scrofa*
17	Brown butterfly	*Bicyclus anynana*

3.5.3 Endangered or Threatened Species and Habitat

Murree Hills are considered as one of the multi-floristic place in Pakistan, known for its beauty and tourism. Over the past few years, there has been a drastic change in the vegetation of Murree forest, indicating a loss in biodiversity. *Pinus wallichiana* and *Adiantum capillus* were considered as invasive species.

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Figure 3. 2 Flora and Fauna Observed During Site Visit

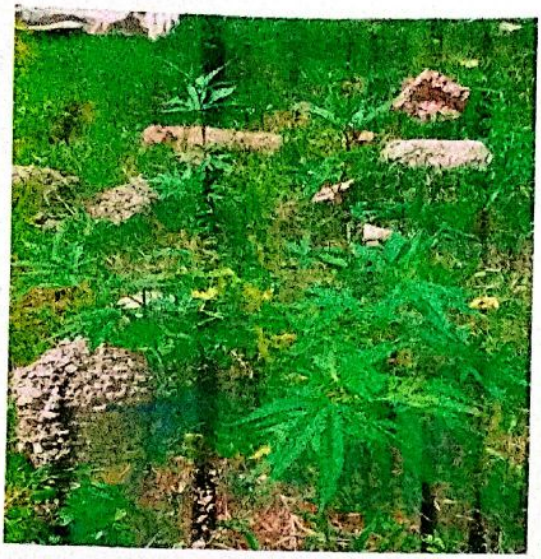


Exhibit 1: *Cannabis sativa* (Bhang) located at the project site



Exhibit 2: *Ipomea pupurea* (Morning glory) located at the project site



Exhibit 3: *Trigeron sonchifolius* located at the project site



Exhibit 4: *Leucanthemum vulgare* located at the project site

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Exhibit 5: *Fragaria vesca* located near the project site



Exhibit 6: Rubus located near the project site



Exhibit 7: Pinus wallichiana located along the project site

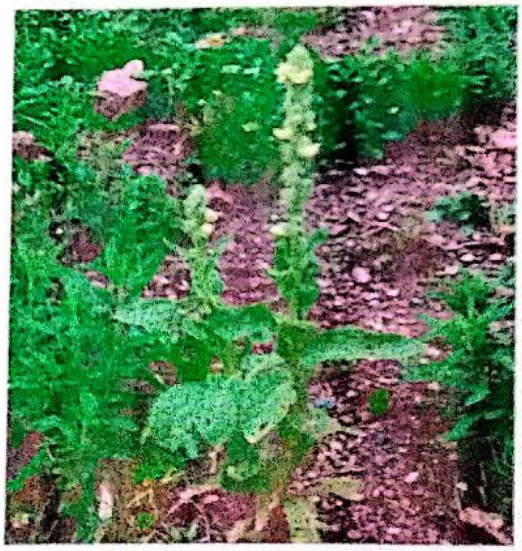


Exhibit 8: Verbascum thapsus located in the project site

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Exhibit 13: *Bos taurus* (cow) grazing in the field

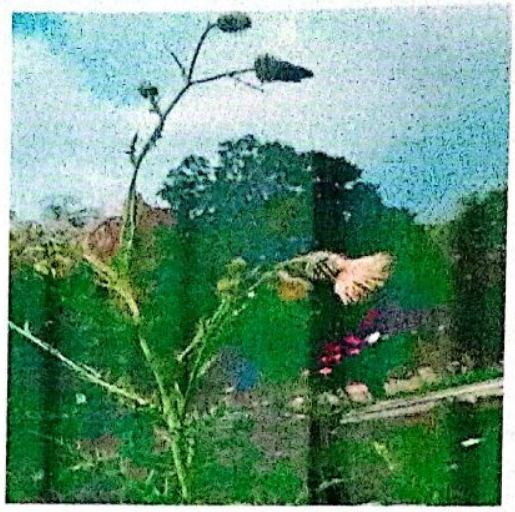


Exhibit 14: *Pieris napi* (Butterfly) fly in the project site

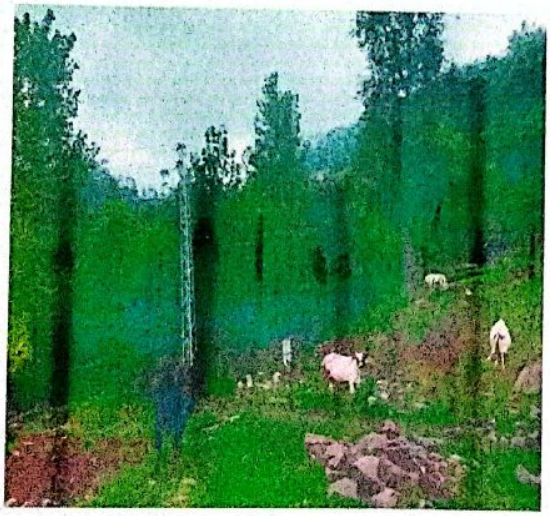


Exhibit 15: Cattle grazing at the project site



Exhibit 16: Fly sucking nectar from the flower

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3.6 Socio□Economic□Cultural Environment

The majority of the urban population lives in two cantonments and Murree City. Permanent urban residents are limited, and most urban areas contain private corporations, government rest houses, private hotels, and luxury summer resorts. The General Post Office, tailors, millinery, and general merchants are all major commercial institutions. Murree Brewery was founded in 1860 at Ghora Gali to meet the drinking needs of the British in the area.

Approximately 88% of the rural population lives in small villages scattered across the top of the Murree hills. Residents of the village enjoy easy access to local elementary and secondary schools, clinics, and bazaars. However, water provision to village families has always been an issue. People are migrating mostly for new work possibilities, a lack of other resources such as tap water, petrol and roads, and to meet their children's higher education needs. The majority of these folks move to the low-rent settlements of Rawalpindi and Islamabad.

3.7 Education and Literacy

According to the 1998 census, Murree has a literacy rate of 69% among children under the age of ten. Murree region is one of Pakistan's most educated areas, far outperforming major cities. In the Murree area, there was a one-degree college (for both girls and boys). Furthermore, there are 112 boys' and 109 girls' primary schools, two boys' higher secondary schools in Tanda and Ausia, 16 boys secondary and 6 girl's high schools, and twelve boys' and fifteen girls' middle schools. Murree is also well-known for its elite academic institutions, which have drawn students from all around the region.

Lawrence College was built in 1860 at Ghora Gali as the Memorial Asylum (Lawrence) for children of retired or serving British army soldiers, far from the tropical atmosphere of the subcontinent. It was one of four such schools created in British India. Following independence, further schools were constructed, including Army Public School, Cadet College Murree near Pindi Point, and Cadet College Lower Topa. It would be discriminatory not to bring up Murree Christian School, which was regrettably the target of a terrorist attack in 2002. Murree is also home to Kohsar University.

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3.8 Religion and Tribes

Religion has a great impact on the culture of people. Most of the people are Muslims. However, there is also a Christian presence; churches from the British Era can be found in Murree and Nathia Gali The main tribe of Murree are the Dhund Abbasi, Other tribes are the Karlal, Syeds, Sheikhs, Khawajas, Kethwal Rajputs, the Dhanyals, Awans, Jasgam, Satti, Baig, Quraysh (tribe), Mirza, Mengiral Rajput Jats, Kashmiri, Balti, and Barlas

3.9 Livelihood

Livelihood in most of the remote areas in the Murree Mountains is one of the challenges for survival. Typically, people have more than one kind of profession in order to keep sustainable livelihoods.

3.9.1 Livestock

Typically, each family has animals grazing to meet their dairy and poultry needs as well as to earn income. The number and variety of cattle vary from a few to hundreds. The majority of homes keep cows, buffalos, and goats, among other animals. The indigenous people rely on their livestock for a living since the Murree region's rangelands are rich in pleasant and nutritious grass species. Grasses are gathered and stored in order to be utilized as dry feed for cattle during the winter months.

3.9.2 Agriculture

Murree area is primarily rain fed, the agricultural sector is heavily reliant on rainfall and, to a lesser extent, water provided by mountain springs and streams. The Murree region is cultivated up to around 2000 m asl, with fruits and cereals commonly grown on stepped slopes, while there are extensive areas that are uncultivated and have thin soil with little vegetation. In a few areas of the Murree, classic agricultural methods such as ploughing fields with bullocks are still practiced. Wheat, millet, maize, barley, mustard, sunflower, turnip, pulses, tomato, pumpkins, radish, cucumber, lady finger, and potato are among of the crops farmed in the Murree area. Apple, pear, citrus, plum, guava, apricot, walnut, and peach trees are examples of fruit trees in Murree.

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ourism

ee's livelihood is additionally reliant on tourism from January to mid-October. These foothills ranges attract between 20,000 and 25,500 tourists every month. Similarly, about one million tourists visit the Murree area each year, with the number increasing by 5% each year during times of political calm. In 2018, domestic tourism contributed Rs. 89 billion, accounting for up to 30% of overall domestic travel and tourism expenditures. According to estimations, tourism in Murree increased from 12,50,000 to 16,37,650 between 2011 and 2015. As a result, there has been an increase in the number of automotive vehicles, which is contaminating the air in Murree Hills on a daily basis.

3.10 Infrastructure

Murree Hill Station is experiencing a number of issues as a result of government neglect. Murree, in particular, has both attractive recreational areas and historical buildings dating back to the colonial era. Residents suffer a variety of concerns, including inadequate health care, education, and water. Water is undoubtedly the most pressing issue for both inhabitants and tourists. Similarly, citizens continue to be unable to access public health facilities, as only two public hospitals are now operational in the Murree Tehsil. In addition to the constant influx of tourists, the city's population has grown dramatically over the years.

3.11 Land Use

Murree, as a tourism destination, is constantly under pressure via visitors from all across the country. The increase in people during the peak season of tourist in summer and extreme winter generates huge growth and extension of Murree's urban area. The urban expansion has had an impact on land use, which has risen from 57.37% to 69.10%. Murree's land use pattern has been driven by the land ownership structure and the proclivity of commercialization to access the city's tourism potential.

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3.9.3 Tourism

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4-PROJECT DISCRIPTION

4.1 Introduction

The development of ''Murree Club'' Project has been proposed on a piece of land measuring 11.5 kanals located adjacent to the Express Way, in Lower Topa, Murree. The proposed project is to construct Commercial and recreational activities for tourists as well as socioeconomic development. The whole project is divided into 4 Blocks with adequate car parking that will serve the tourist and local community.

4.2 Type and category of the project

The proposed project is a non-linear building project. According to the Punjab Environmental Protection Agency (Punjab-EPA) (Review of IEE and EIA) Regulations 2020, the proposed project falls under category A sub category I of Schedule II, which requires EIA before commencement of construction activities.

4.3 Objective of the project

The main objective of the project is to meet the growing requirements of the visitors and local community

- To bring forth facilities to the visitors which will help in growth and boost in economic activities through foreign exchange earnings and employment generation.
- To yield employment opportunities both directly (workers and employees) and indirectly by accelerating the business activities in the project area.
- To provide various services such as: commercial activities, fun activity, restaurant facility, Cinema, Gym, Residential apartments, to the tourists as well as to the people living there.
- Indirectly the project will improve the socioeconomic development and strengthen the regional economy.

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4.4 Location of the project

The proposed project is located along Express Way, Near Sozu Adventure Chowk, Moza Arwari, Lower Topa, Murree, over an area of approximately 11.5 kanals. The GPS coordinates of the project site are N33°52.909′ latitude and E073°25.959′ longitude.

4.5 Project's surrounding

The proposed project site is bordered by forest to the east of the property, Sozu Adventure park to the Northern end of the property and multi-dwelling developments and express way to the west and fallow land to the West of the project area. The neighboring area is occupied mainly by human settlement, commercial premises and social amenities; including restaurants, schools, hotels park and multi-dwelling residential developments.

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Figure 4. 1 Location and Accessibility to" Murree Club"



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4.6 Description of the project

The development of Murree Club Project has been proposed on a piece of land located adjacent to the Express way. The project is divided into 4 blocks with adequate parking. The commercial project will be built on an area of 11.5 kanals. The Project will also incorporate hotel, Restaurants, Shopping mall, Cinema, Gym, Apartments, Fun corner. The size and arrangements of each block

Table 4. 1 Size and arrangement of the blocks in Murree Club

SIZE AND ARRANGEMENT OF BLOCKS IN MURREE CLUB		
BLOCK =A WITH AN AREA OF 104407.84 SFT		
S.No	**Floor Plan**	**Descriptions**
1	Basement=2	Parking Area with No.of Cars= 29 , No.of Motor Bikes = 25
2	Basement =1	Parking Area with No.of Cars= 28 , No.of Motor Bikes = 39
3	Ground Floor	Parking Area with No.of Cars= 14 , No.of Shops = 7
4	First Floor	Parking Area with No.of Cars= 14 , No.of Shops = 7
5	Second Floor	No.of Shops = 24
6	Third Floor	No.of Shops = 25
BLOCK =B WITH AN AREA OF 31884.84 SFT		
1	Ground Floor	Cinemas=02, Food Court= 1
2	First Floor	No.of Halls =03
3	Second Floor	Prayer Hall=02, Snooker Club =01,Board Games=1,Balling Alley=1 and Cafe =01
4	Third Floor	Gym =01, Ladies Saloon =01, Spa=01 and Multipurpose Hall=01
BLOCK=C WITH AN AREA OF 52590.61 SFT		
1	Ground Floor Plan and Top Roof Block=B	Restaurants =02 and Food Courts =08
2	First Floor	No.of Halls =02

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3	Second Floor	Parking Area with No.of Cars= 14 and No.of Apartments = 20
4	Third Floor	Parking Area with No.of Cars= 14 and No.of Apartments = 20
BLOCK=D WITH AN AREA OF 189535.80 SFT		
1	Basement =04	Parking Area with No.of Cars= 45 , No.of Motor Bikes =16
2	Basement =03	Parking Area with No.of Cars= 45 , No.of Motor Bikes =16
3	Basement =03	Parking Area with No.of Cars= 45 , No.of Motor Bikes =16
4	Basement =01	Parking Area with No.of Cars= 45 , No.of Motor Bikes =18

For the development of Murree Club Project, the essential infrastructure works include storm drainage system, water supply, sanitary sewerage system, solid waste management system, electrification, security, sui gas works, sanitation and external electrification and other facilities will also be provided.

The layout plan of the ''Murree Club'' has been shown in figure 4.2

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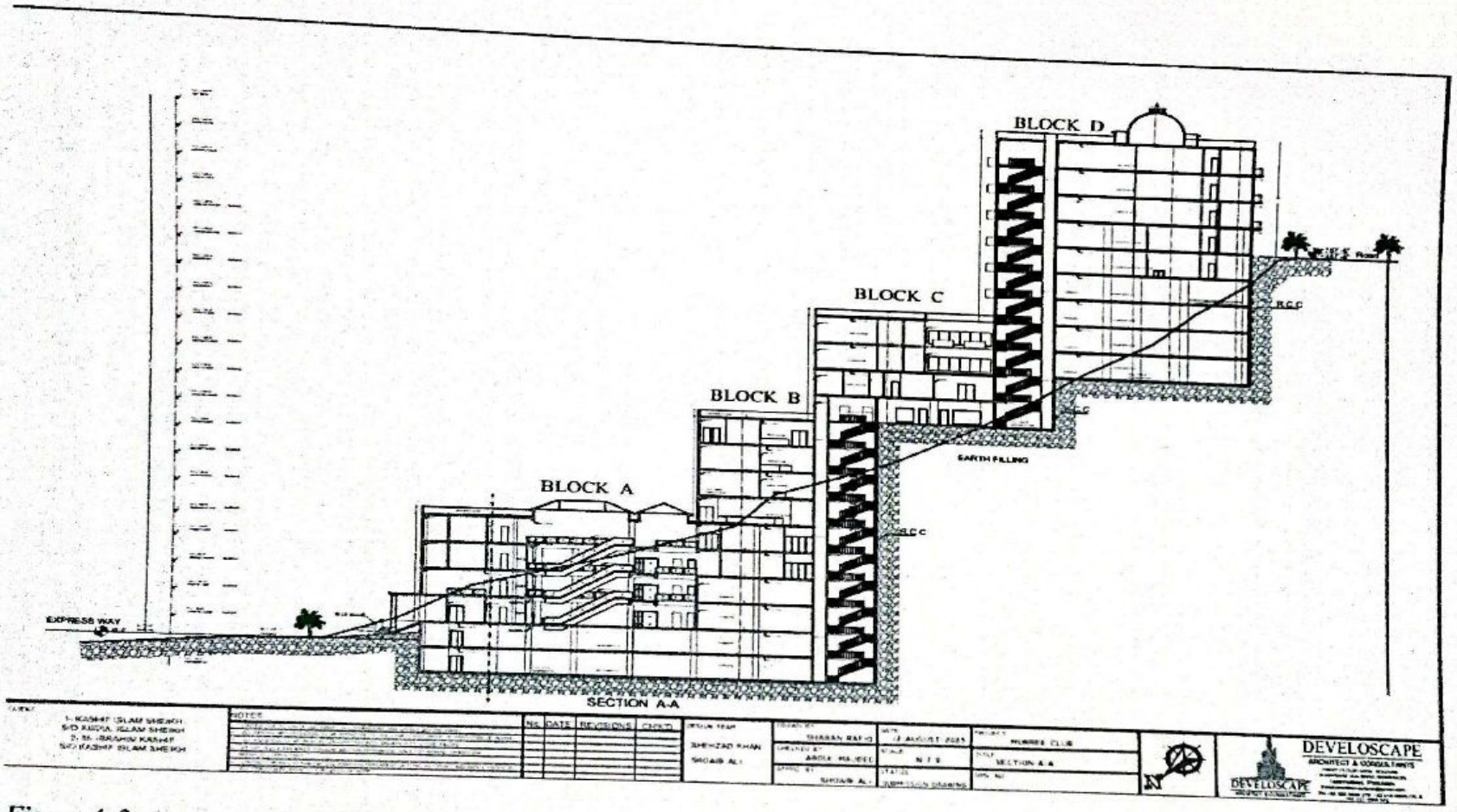


Figure 4. 2 A cross section of the proposed project development

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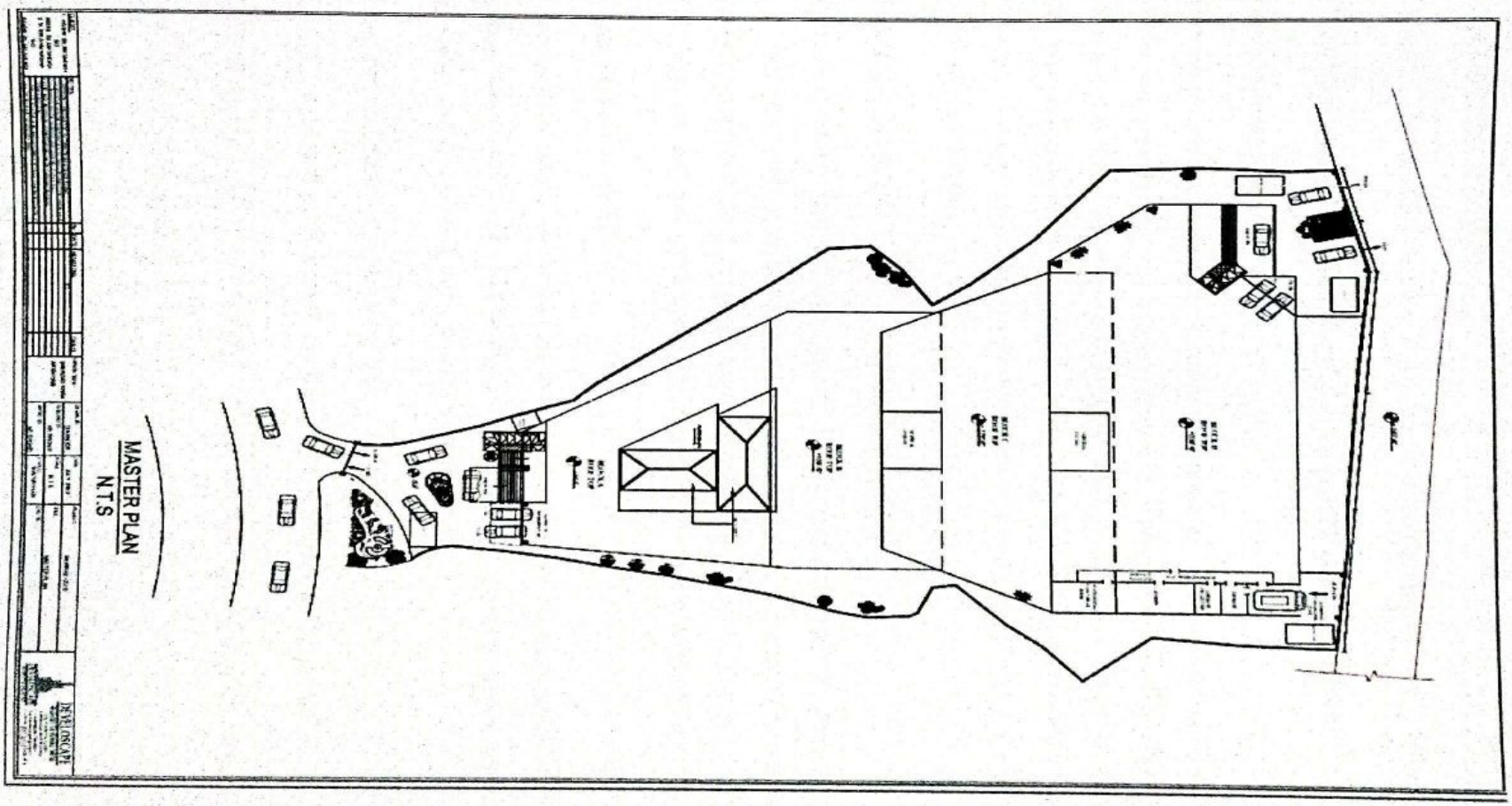


Figure 4. 3 layout plan of the ''Murree Club'

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4.7 Cost of the project

The total cost is estimated to be PKR 700 million for the development of '' Murree Club''.

4.8 Description of the project's construction activities

4.8.1 Site preparation works

The planned project location will be ready for building. This will entail vegetation removal, excavation, and transportation of building materials. This will be done in stages to reduce soil erosion and the effects of excessive dust creation. Due to the vast nature of the proposed project, heavy earthmoving machinery such as excavators and bulldozers would be used in its construction. The engineers will also utilize human labour where necessary so as to create employment to the local residents of the area.

4.8.2 Storage of materials

Construction materials will be kept on-site. Heavy materials such as stones, gravels, sand, concrete, and steel will be properly heaped on-site in specific places. To prevent piling huge quantities of materials on site, the proponent will order bulky materials such as sand, gravel, and stones as needed throughout construction under the supervision of an engineer.

4.8.3 Construction material

The following materials would be utilized in the proposed project's construction i.e, cement, sand, aggregates, concrete frame (RCC Frame), brick infill, brick cladding coarse aggregates (crush), fine aggregates (sand), water, asphalt, and reinforce cement.

4.8.4 Expected equipment for construction

The following construction machinery is expected to be present at the project site:

- Bulldozer
- Loader/Excavators/Jack Hammer
- Concrete Mixing plant
- Tractor Trolley
- Water tanker
- Water pumps

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- Diesel generator
- Asphalt mixing plants
- Cabin Hoist
- Loader Steel Cutting & Bending Machine etc.
- Vehicles for personnel movement
- Dumper Trucks
- Air Compressor Form Work & Scaffolding Pipe
- Crane Mobile

4.9 Construction Activities:

The building activities will be carried out in accordance with the standard methodology and work sequence. The activities will involve basic earthwork to transform the natural surface into the needed profile, as well as the laying of sub-base, base course, and a Storm Drainage System to collect and dispose of storm water separately. The piped drinking water will be installed.

4.9.1 Labour force:

Personnel demand estimation is a critical component in facilitating personnel deployment. The total manpower required for the proposed project would be estimated by the contractor during the construction stage, whereas the workforce for the proposed project has been estimated as..... workers based on the consultant's previous experience. However, the operation stage design estimated a capacity of 2oo people.

4.9.2 Structural works

The building will be reinforced with structural steel for stability. steel woks involve steel cutting, welding and erection. Structural timber is used in making door. Building glass is used in making

4.9.3 Roofing works

Roofing activities will include raising the roofing materials such as tiles fastening to the roof and each floor.

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4.9.4 Electrical work

Electrical work during construction of the premises will include installation of electrical gadgets and appliances including electrical cables, lighting apparatus, sockets etc. In addition, there will be other activities involving the use of electricity such as welding and metal cutting.

4.9.5 Plumbing

Installation of pipe-work will be done to connect sewage from the ablution blocks to a sewer system. Plumbing will also be done for drainage of storm water from the rooftop into the peripheral storm water harvesting tanks. Plumbing activities will include metal and plastic pipe cuttings, the use of adhesives, metal grinding and wall drilling among others.

4.9.6 Disposal of Excavated/ Construction Waste:

Construction waste will be recycled by the contractor if possible, otherwise it will be disposed of at designated site which will be decided at the time of award of contract with the contractors.

4.10 Description of the project's operational activities

4.10.1 The facility users

The Proposed commercial and recreational development, when completed will target both local and foreign visitors.

4.10.2 Source of Water

Source of Water during Construction Phase Contractor will be responsible to arrange water for construction works. For this purpose, boring will be done by the contractor.

4.10.3 Source of Water during Operation Phase

The water requirement for the new facility will be supplied through ground water boring.with water servers as existing facilities for drinking and sanitation purpose.

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4.10.4 Solid waste

The proponent will provide facilities for handling solid waste generated within the facility. These will include dust bins/skips for temporarily holding waste within the premises before final disposal at the designated sites. Murree Club private limited will develop a solid waste management plan to ensure that the volume of solid waste generated within the entire development is minimized through the principles of reduce, re-use and recycle.

4.10.5 Waste water management

The proponent ensure that the drainage and sanitation system shall be maintained in a sanitary and safe operating condition and all the surface drains should be cleaned periodically by the management. Regular maintenance checks shall be carried out to check any bursting or chocking of internal sewer. An effective waste water management plan should be developed to ensure proper mitigation measures.

4.10.6 Storm water drainage system

The building roofs and pavements will enhance the volume and velocity of storm water or run-off flowing across the covered area. This will result in additional storm water entering drainage systems. In order to cope this situation permanent drainage system should be installed to properly drain the subsurface surrounding of the structures. The site is also well drained, with good natural slopes for natural drainage. All wastewater would be discharged into the municipal sewerage system. Sustainable Urban Drainage Systems (SuDS) in runoff maintenance helps to maintain and improve groundwater quality in order to minimize the risk of flooding.

4.10.7 Power requirement/ power source

Incoming power to the site will be derived from the Murree Power network. The power requirement is 150 KVA, which will be provided by installing a separate transformer by WAPDA and through generator to produce 100 KVA power. The standby generator plant would serve all facilities in the absence of main power source.

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4.10.8 Firefighting arrangements

To mitigate the fire safety concern during the period of construction, it's the responsibility of all the stakeholders including builders, architects and construction consultants who are practically working at sites. All the machinery must be used safely and with maintaining the required distance from the other combustible material and also should store safely to avoid any unpredictable incidents. They should also strictly follow the safety norms given under NBC (National Building Code) 2016.

4.10.9 Earthing and Lightning Protection

Buildings/structures within the proposed development that require lightning protection would typically have a roof air termination network with appropriate down conductors to ground level. Where practicable, the building structure may be used to form the down conductor path, with appropriate test and inspection facilities at the lowest levels.

4.10.10 General repairs and maintenance

The proposed development and associated facilities will be repaired and maintained regularly during the operational phase of the project. Such activities will include repair of building walls and floors, repair and maintenance of electrical gadgets, painting and replacement of worn out materials among others.

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Figure 4. 4 Pictorial presentation of the project site and the surrounding area of "Murree Club"



Exhibit 1: Project site of the **"Murree Club"**

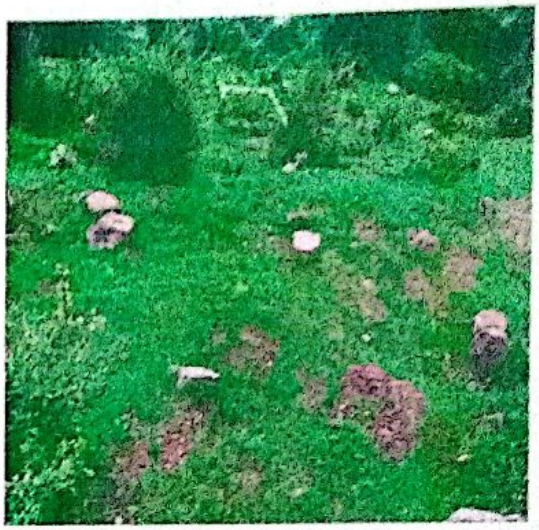


Exhibit 2: Vegetation of the project site

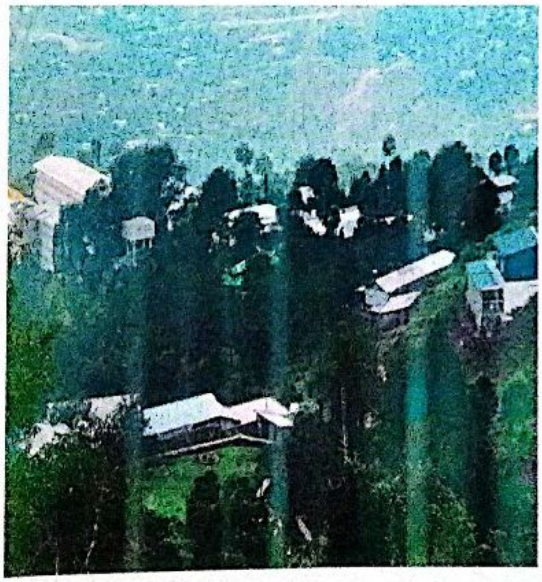


Exhibit 3: View of the local residant

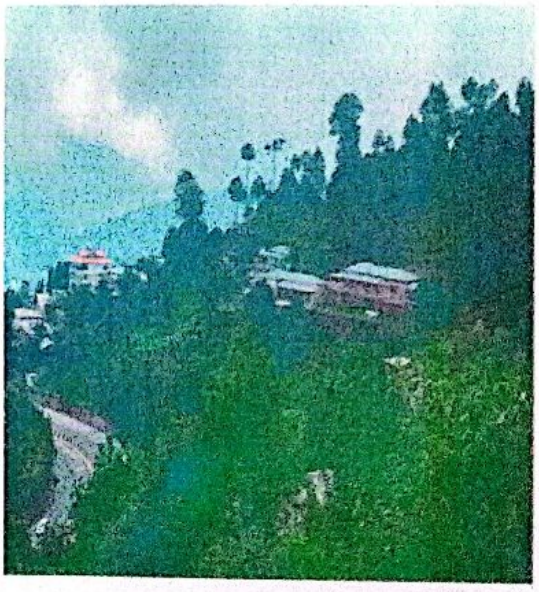
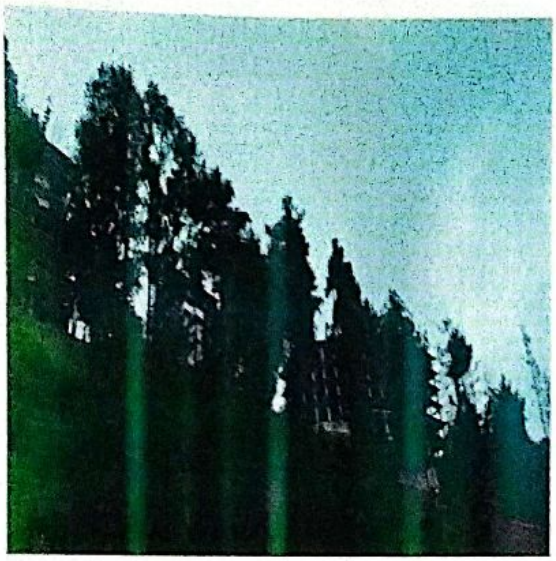


Exhibit 4: View of local residant near the Express way

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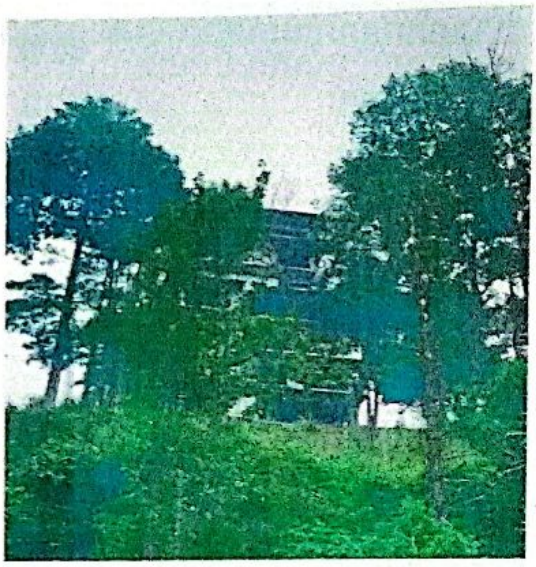
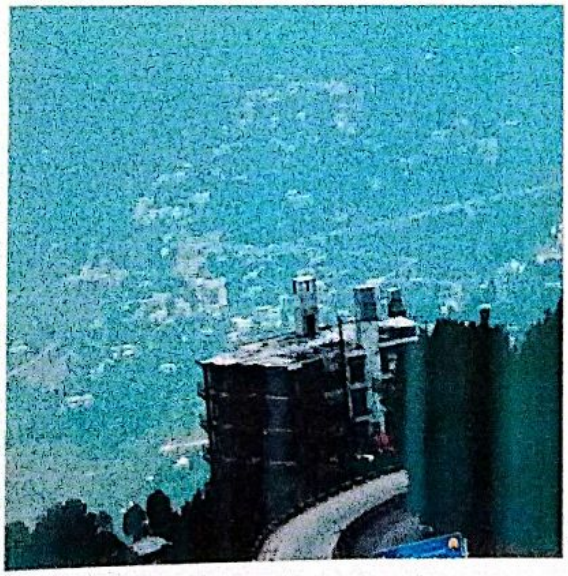


Exhibit 5: View of under construction building along the project

Exhibit 6: View of under construction building along the project



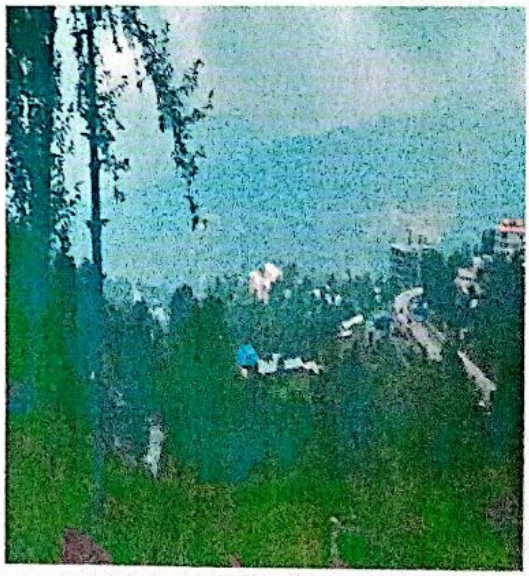


Exhibit 7: View of the area along Express Way

Exhibit 8: Scenic view from project location

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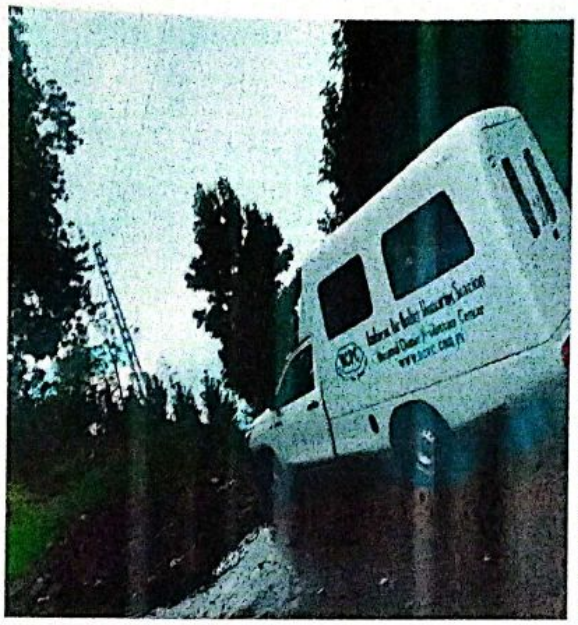


Exhibit 9: Visit of NCPC team at project site

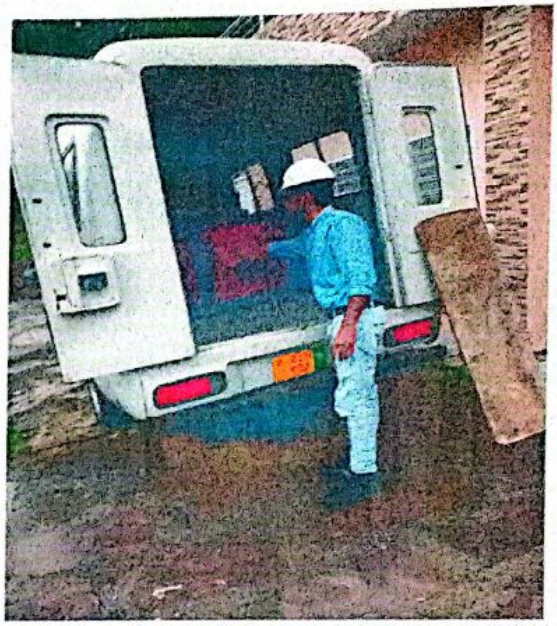


Exhibit 10: Working team for air, water and noise analysis

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5-PUBLIC CONSULTATION

5.1 Introduction

This section details the outcomes of public consultation sessions performed with various stakeholders who may be affected directly or indirectly by the proposed project. Public consultation, or simply consultation, is a regulatory process that seeks the public's input on issues affecting them. The main goals are to improve efficiency, vulnerability, and public participation in large-scale projects, laws, and policies. The EIA process for development projects requires public consultation.

As a result, this chapter covers the public engagement and involvement approach that was used to identify the primary concerns and implications of the proposed commercial and recreational development in Murree.

5.2 Public Consultation

The public consultation procedure involving many stakeholders has been designed to involve the public and other stakeholders from the project's inception. During the project's planning and design phases, the public was consulted. The population surrounding the proposed project site that may be impacted by the project has received special attention. Several individuals and inhabitants of the project region were met during this procedure. Various features and implications of the proposed project were highlighted in terms of their effects on the physical, ecological, and socioeconomic environment of the project region.

5.3 Objectives of Consultation

The stakeholder consultation process used for the proposed project is consistent with the following main stakeholder consultation objectives:

- Provide details about the intended project activities.
- Determine the interests and issues of stakeholders.
- Identify and include all stakeholders in the consultative and participation process, particularly local citizens.

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- Inform stakeholders on the planned project's design and construction, as well as the projected impacts on the physical, ecological, and socioeconomic environment of the project area.
- Why Allow the public to give valuable comments for the project design in a constructive manner during the public consultation session.
- Recording mitigation actions suggested by stakeholders.
- Collect comments, recommendations, and concerns regarding the project from interested and impacted parties.

5.4 Methods of Public Consultation

A public consultation was held to find out stakeholder opinions on project implementation. For public consultation with project stakeholders, the following strategies were used:

- Formal Consultation Meetings
- Informal Consultation Meetings

5.5 MAJOR STAKEHOLDERS AND THEIR APPREHENSIONS

5.5.1 Issues Discussed

Following issues were discussed during the stakeholder consultation:

- Overall activities of the project and their possible impacts;
- Possible impacts on natural vegetation, flora and fauna;
- Possible mitigation measures;

5.5.2 Consultation with the Communities

A customer satisfaction survey and public consultation was carried out with local community living in the area. For this purpose, a series of roadside discussions were carried out with the local community. During the roadside discussion, the community was informed about the salient features of the project, its location, and activities.

The purpose for such consultation was to identify the positive and negative impacts and subsequently promote proposals on the best practices to be adopted and mitigate the negative impacts respectively. It also

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helped in identifying any other miscellaneous issues, which may bring conflicts in case project implementation proceeds as planned. The information gathered enabled the identification of the specific issues from the stakeholders' response, which provided the basis upon which the aspects of the Environmental Impact Assessment was undertaken.

5.5.3 Viewpoints of respondents

The viewpoints of respondents are as follows:

- The respondents interviewed were optimistic that the project will create numerous employment opportunities for both for skilled and unskilled labour alike from the construction phase to the operational phase.
- This will be a source of income for several individuals and households and hence is expected to boost the GDP and improve the living standards of the local people.
- Those with businesses along and around the area were optimistic that the increased number of visitors and customers in the area will result in an increased customer base to their business enterprises.
- Some residents pointed out that once the project is operational, it will result to increase land rates and property or house rent. This will in turn increase the property values in the area.
- The proponent shall ensure that dust levels at the site are minimized through implementation of dust abatement techniques on unpaved, un-vegetated surfaces to minimize windblown erosion. Sprinkling water in areas being constructed and along the tracks used by the transport trucks and diversions within the site will be done.
- The residents expressed their fears over noise pollution that would come from the construction works and the vehicles during the operation phase.
- The respondent emphasized that proper Solid waste and wastewater management system should be planned. Solid waste generated during the construction and operational phase of the proposed project should be disposed.
- To make the project environment friendly, more trees should be planted and whenever possible cut down of trees during the construction phase should be minimized.

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5.6 Mitigation measures proposed for addressing the stakeholder's concerns

The contractors and design engineer may include the following environmental and safety provisions in the project design in order to protect the surrounding environment from the anticipated impacts of pre and post construction activities;

- The contractor should be made bound to follow the mitigation measures proposed in the EMP of the EIA report;
- Solid waste generated during construction at site should be disposed of safely at the designated waste disposal sites;
- All the construction activities should remain confined with the project boundary;
- All necessary measures should be taken for the safety of the workers during construction including medical screenings, and insurance of workers.

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Table 5. 1 Details of Meetings With The Stakeholders

S.no	Name	Department	Date	Remarks
1	Haseeb Ahmad	TMA	31.08.2023	He suggested that more trees should be planted to make the project more environmentally friendly, and tree cutting should be minimized whenever possible during the construction period. Planting should be done along plot borders. Plant species should be chosen in such a way that pollution-absorbing plants are chosen to control air pollution in the microenvironment.
2	Miss Azra Shahid	Rescue 1122	31.08.2023	He recommended that the proposed project include a firefighting plan. Occupational health and safety measures should be implemented by the contractor during construction work to ensure worker safety.
3	Mr. Saad	Civil Defense	31.08.2023	Development of Murree Club will prove to be beneficial for the economy as it will create direct and indirect employment opportunities. He said that environmental awareness in Pakistan is very low therefore raising awareness among the general public about the importance of environment is necessary.
4	Mr. Bilal	Solid waste management	30.08.2023	He recommended that water spraying on a daily basis should be used to prevent dust pollution. Solid waste shall be disposed of at CDA-approved disposal sites, and wastewater generated during the building and operational phases should be treated before entering the sewage system. Solid trash shall be disposed of at CDA-approved dumping sites, and wastewater generated during the construction and operational phases should be treated before being discharged into the sewage system.

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				Residents should be protected from dust, noise, and vibration. Water spraying on a daily basis should be used to prevent dust pollution. Solid waste shall be disposed of at CDA-approved disposal sites, and wastewater generated during the building and operational phases should be treated before entering the sewage system. Solid trash shall be disposed of at CDA-approved dumping sites, and wastewater generated during the construction and operational phases should be treated before being discharged into the sewage system.
5	Mr. Muhammad Ali	Geological	30.08.2023	The project team informed the official about the proposed proposal. The project should be completed on schedule. To make the planned project more environmentally friendly, ecofriendly bricks that are also commercially viable should be employed.
6	Miss Azra Shahid	Punjab Community Safety & Buildings Regulations	30.08.2023	The construction site should be fenced to avoid any incident. Residents should be protected from dust, noise, and vibration.
9	Sheraz Ahmad	Watchman in the project area	02.08.2023	No objection regarding the project was raised. Instead he was happy as more opportunities will be available in the area.
10	Muhammad Rizwan	Shopkeeper in the project area	02.08.2023	He showed mixed response as he was happy for the developmental activity but little concerned for the traffic and plantation as well.
11	Farooq Abbasi	Labour in the project area	02.08.2023	Happy for the developmental activity as it will in turn benefits the area through employment.

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Figure 5. 1 Pictorial Representation of Public and Stakeholders Consultation for Project

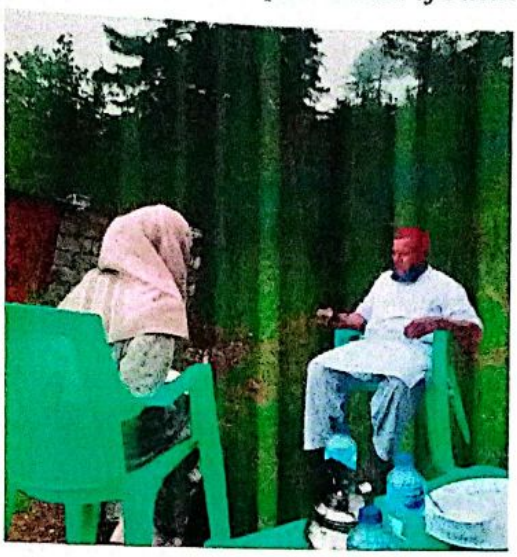


Exhibit 1: Consultation with local people



Exhibit 2: Consultation with local people



Exhibit 3: Consultation with people near road side

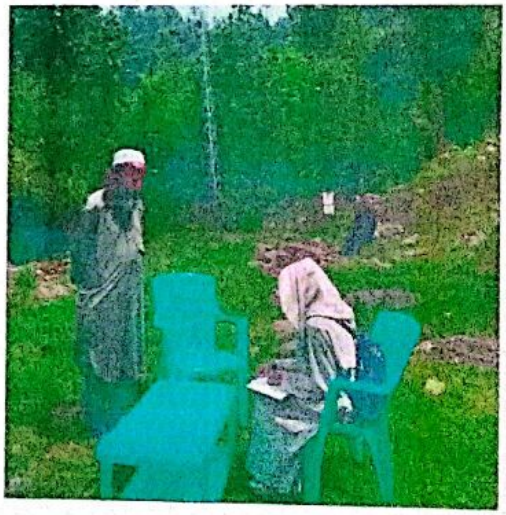


Exhibit 4: Consultation with an aged person at project site

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6-POTENTIAL ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES

6.1 Introduction

This Chapter assesses the environmental impact of numerous components of the planned project "Murree Club" in detail. It evaluates the significance of the prospective repercussions and offers mitigation actions to mitigate, if not eliminate, the project's possibly negative impacts.

The extent and significance of the impacts are determined by the kind and scale of the various activities, as well as the type of pollution control technology used to manage or minimize pollution associated with the project's various operations. The assessment of the probable effects of project activities on the physical, biological, and socioeconomic environment. The screening method assessed the potential implications of these activities on the physical, biological, and socioeconomic environment of the Project based on a review of literature and expert judgement.

The review / screening assesses the impacts of various activities before to the start of construction, during construction, and the resulting emissions of noise, gases, solid waste, and wastewater discharges during the operation phase.

6.2 Environmental Screening of the Project

The tools used for evaluation of potential environmental and social impacts of project were Environmental Impact Matrix and overlays. The environmental impacts matrices were created to assess the extent of the consequences of various project activities on various environmental settings throughout both the construction and operating stages.

The environmental screening matrix was created as part of the current EIA to focus on the project's possible environmental implications during the pre-construction, construction, and operation phases. The matrix investigates the interplay of project operations with numerous environmental components. For impact evaluation, the following scale was used:

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6.3 Impact Assessment Methodology

The screening process begins with recognizing the potential environmental aspects of project siting, followed by evaluating the potential environmental impacts at the design, construction, and operational stages of the project, and finally by implementing mitigation measures that may be required at the start of operations. The planned project's effects on environmental resources will be short-term and transient. A systematic technique was created to offer an assessment of the Project site's potential consequences on the micro and macro environment. The strategy contained the following elements:

- Review of General Guidelines.
- Identification of potential environmental impacts by conducting survey, public consultation.
- Assessment of the intensity and significance of potential impacts by obtaining expert opinion and carrying out environment analysis.
- Defining mitigation measures to reduce impacts to as low as practicable.

6.4 Environmental Impact Matrices

The environmental impacts matrices have been developed to evaluate magnitude of the impacts of different project activities on different environmental settings for both construction and operation phases. These matrices are given in Tables

The following scale has been used for the evaluation of impacts:

LA = Low Adverse

MA = Medium Adverse

HA = High Adverse

B = Beneficial

O = No effect

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Table 6. 1 Environmental Impacts Matrix for Construction Phase

Sr. No.		Physical Environment						Biological Environment		Socioeconomic Environment			
	Environmental Components / Project Activities	Topography	Soil Erosion/Contamination	Air Quality	Drainage	Ground Water Quality	Noise	Flora	Fauna	Health & Safety of Public and Workers	Employment	Disturbance to local community	Traffic Issue
1	Project Site, Land Use and Design	MA	LA	LA	LA	LA	O	LA	LA	O	B	B	LA
2	Site clearance	LA	MA	MA	O	O	MA	MA	LA	LA	B	LA	MA
3	Excavation operations	LA	MA	MA	LA	LA	MA	MA	LA	MA	B	LA	O
4	Construction Works	MA	MA	LA	LA	LA	LA	O	O	O	B	LA	LA
5	Transportation of construction materials	O	LA	LA	O	O	LA	O	O	LA	B	LA	MA
6	Generation of solid and construction waste	O	LA	LA	LA	LA	O	O	LA	MA	B	MA	O

Legend O - No effect B – Beneficial

LA - Low Adverse MA - Medium Adverse

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Table 6. 2 Environmental Impacts Matrix for Operational Phase

Sr. No.		Physical Environment				Biological Environment		Socioeconomic Environment	
	Environmental Components / **Project Activities**	**Air Quality**	**Soil**	**Noise**	**Groundwater**	**Flora**	**Fauna**	**Employment**	**Tourim**
1	Movement of vehicles	LA	O	LA	O	O	O	O	B
2	Consumption of water	O	O	O	MA	O	O	O	LA
3	Municipal solid waste and wastewater generation	LA	LA	O	LA	LA	LA	B	O
4	Landscaping/ Maintenance of Green areas	B	B	B	LA	B	B	B	O

Legend

O – No effect
B – Beneficial
MA - Medium Adverse
LA - Low Adverse
HA - High Adverse

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6.5 Pre-Construction Impacts

6.5.1 Project Sitting Impacts

The impacts of the project siting are those related to its position at the authorized site. These impacts differ from those associated with the project's construction and operation phases in that the former are associated with activities such as land clearing and waste disposal, whereas the latter are associated with the mere presence of a facility at the given location.

6.5.2 Project Site

The land allocated for the development of "Murree Club" is slope land, therefore there is a lot of chance of soil erosion due to heavy rain. One small household are settled in the project site, who may be displaced from their homes due to the proposed project.

6.5.3 Mitigation Measures

The following mitigation measures are defined as follows:

- Excessive groundwater extraction will be restricted to allow time for aquifers to recharge.
- Strategies that include national laws, international agreements, effective law enforcement, and environmentally friendly economic strategies should be developed and executed.
- Water sprinklers will be used to reduce soil erosion.
- The proposed project's design should be implemented in a way that minimizes changes in terrain, landscape, and damage to natural plants.

6.5.4 Aesthetic Value

Natural landscapes have aesthetic value, and any development activity would degrade them. Because of previous human intervention in the form of house development, the project site does not conserve the natural elements in their totality.

As a result of development, it is likely that a low intensity, i.e. negative, impact may occur.

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Mitigation Measures

- It is understood that under the Master Plan, only minor alterations to the terrain, scenery, and natural vegetation will be made.
- A suitable landscape and afforestation plan would be designed to compensate for and even improve the site's loss.

6.6 Construction Phase Impacts

6.6.1 Impacts of the Construction Phase

The construction phase will be by far the most important component of the project in terms of environmental considerations, as the majority of the consequences will occur during this time.

6.6.2 Impacts at extraction sites

The proposed project building would be built in an area currently bordered by buildings. Deep excavation may have an impact on the structural integrity of the surrounding buildings, and roadways, and may result in the structure's foundation collapsing. This effect is long-lasting and moderately negative. There is a probability that artefacts will be discovered during excavation. Mishandling of archaeological remains may result in the loss of a valuable asset. This influence is highly negative in character.

Mitigation Measures

- Before construction, a soil research study should be performed;
- Unnecessary excavation should be avoided;
- Temporary retaining structures should be supplied.
- Excavations should be carried out in accordance with approved engineering drawings;
- Excavations should be carried out carefully to avoid damaging infrastructure in the project area;
- In the event of the discovery of any artefact, the contractor shall immediately report to the Directorate General (DG) of Archaeological Department, Government of Punjab to take further appropriate action to preserve those antiques or sensitive remains.

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6.6.3 Vegetation Loss

The project area is naturally vegetated. Natural vegetation may need to be removed from places where buildings will be built as part of the site preparation and construction activities. Damage and/or loss of vegetation, as well as clearing of other indigenous and introduced species, as well as undergrowth species such as shrubs, grass, and so on, will occur.

Mitigation Measures

The following mitigation measures will minimize any negative impacts on the floral resources of the area:

- A plantation cover of appropriate trees/bushes will be planted in open areas and along highways. To improve the visual and aesthetic value of the parts, ornamental trees, bushes, and climbers have been planted. To mitigate air and noise pollution, phytoremediators will be required, possibly adjacent to roadways.
- Tree and other natural plant cutting shall be minimized as much as feasible through careful planning.
- If tree cutting is inevitable, local tree species will be planted in appropriate locations.
- As many as ten trees should be raised/planted for every tree cut down.
- Because of the soil binding capacity, some grass species should also be introduced into the project area.

6.6.4 Sewerage and Storm Water Drainage System

The proponent will guarantee that suitable facilities are in place to handle the huge amounts of sewage generated by the proposed development. A sewer pipe will be connected to the sewer. It will also be critical to guarantee that sewage pipes are not clogged or broken in order for waste to be carried to the sewer line, as such vices can result in effluent release, resulting in land and water contamination. Such obstructions or damages will be repaired as soon as possible.

The building roofs and pavements will enhance the volume and velocity of storm water or run-off flowing across the covered area. This will result in additional storm water entering drainage systems, leading in overflow and possible damage to such systems, as well as increased erosion or

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water logging in the surrounding area. Increased runoff from paved areas and large roofs can lead to significant flooding, siltation, and overflow of drainage systems.

Mitigation Measures:

- A permanent drainage system should be installed to properly drain the subsurface surrounding the structures. Proper paving should also be supplied near to the structures' exterior walls. These arrangements would prevent surface water ingress into the ground near the buildings;
- The site is well drained, with good natural slopes for natural drainage;
- An efficient surface water drainage system with adequate capacity should be designed in accordance with the Pakistan Building Code;
- All wastewater would be discharged into the municipal sewerage system;
- A plumbing fixture installation found to be defective or unsafe would not be allowed to continue in use unless corrections were made to comply with building code requirements;
- The drainage and sanitation system would not be covered, enclosed, or put into operation until it had been inspected, tested, and approved by CDA. The authority may inspect the appliances and fittings before or during the installation process.

6.6.5 Natural Environmental Disturbances

Construction projects have the potential to devastate natural environments, endangering wildlife and plant species. Habitat destruction can occur during construction when a habitat is removed to make space for a new development. Plants and sessile animals in these habitats are usually directly impacted, leading in a change or decline in biodiversity. Mobile animals (particularly birds and mammals) withdraw into remaining pockets of habitat

Mitigation Measures:

- In addition, the following is recommended during the construction phase of the project:
- The initiatives should be conceived and implemented in such a way that any negative impacts on natural ecosystems and biodiversity are avoided or fully compensated for.

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- All regulatory provisions relating to hedgerow / tree removal and the protection of bats and birds, with special attention to nesting birds and breeding/roosting bats, must be followed when clearing a site.
- In addition to lowering the risk of floods, the use of Sustainable Urban Drainage Systems (SUDS) in runoff maintenance helps to maintain and improve groundwater quality.

6.6.6 Solid waste management

Solid waste will be generated during construction. Among these are papers used for packing cement, plastics, and wood remnants. Dumping around the site will detract from the area's scenic value. This has an immediate impact on the neighboring community. Off-site disposal of the same solid wastes could also be a social annoyance if done in the incorrect places. Off-site consequences could include aesthetic interference, pest breeding, physical environment pollution, invasion by scavengers, and informal recycling communities.

Mitigation measures

- It is suggested that demolition and construction waste will be recycled or repurposed in order to divert resources that would otherwise be discarded as garbage to beneficial applications.
- In this regard, where practicable, the proponent shall guarantee that building materials left over at the end of construction are reused rather than discarded.
- The proponent must implement procedures to guarantee that construction material requirements are carefully budgeted and that the number of construction materials left on site after construction is kept to a minimum.
- Provision of facilities for the correct handling and storage of construction materials in order to decrease the amount of waste generated as a result of damage or exposure to the elements.
- To reduce the development of excessive packaging trash, use building materials with minimal packing.

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6.6.7 Noise and Vibration

The construction activity is going to be a noisy operation because of the moving devices (mixers, tippers, communicating personnel) and incoming cars delivering construction goods and workers to the site. People living in the neighborhood and site employees are likely to be affected since noise above a certain level is a nuisance that can be regulated within acceptable limits. Heavy earth moving equipment, for example, might move from site to location and its intensity is likely to vary significantly throughout a work day.

Mitigation measures

- Worksite modifications are the most popular approach to minimize the noise levels of conventional construction equipment. Fixing old equipment with dumping materials and mufflers is a regular jobsite improvement.
- Engineering and administrative measures should always be used to reduce noise levels on construction sites.
- Engineering controls alter the equipment or work environment to make it quiet.
- The most common PPE (Personal Protective Equipment) offered to workers to decrease noise exposure is earplugs. Earplugs are a last-resort measure and should be used only when other noise-control methods are ineffective.
- Locating noisy equipment behind purpose-built barriers is an efficient technique to reduce noise. The barriers can be built on the job site using ordinary construction building materials (plywood, block, stacks or ruins).

6.6.8 Deterioration of Air Quality

Construction equipment and project cars will emit exhaust pollutants containing Carbon Monoxide (CO), Sulphur Oxides (SOx), Nitrogen Oxides (NOx), and Particulate Matter (PM). Air pollution will also be caused by numerous burning operations associated with construction. These emissions have the potential to degrade the air quality in the immediate neighborhood of the project site. Furthermore, excavation, land levelling, filling, and automobile traffic on unpaved paths can all result in fugitive dust emissions. During the operational phase, traffic and Restaurant's kitchen may rise, causing greater air pollution.

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Mitigation measures

The following mitigating techniques will reduce emissions and their consequences:

- Construction equipment and vehicles will be kept in good working order and well-tuned in order to reduce exhaust emissions.
- Fugitive dust emissions will be reduced by spraying water on soil when necessary and suitable, and a traffic plan will be developed once the project begins its operational phase.
- This will assist to reduce air pollution.

6.6.9 Dust

During the construction period, construction equipment is likely to emit exhaust pollutants. Motor vehicles used to transport construction workers and goods could have a substantial impact on air quality by generating pollutants through exhaust emissions. Because significant quantities of building materials are required, such emissions can be massive and have a far-reaching impact. As a result of repeated gunning of vehicle engines, frequent vehicle turning, and slow vehicle movement in loading and offloading zones, the effects of such emissions can be greater in locations where supplies are sourced and at the building site.

Mitigation measures

It is suggested that the following dust-control measures be implemented:

- Dust is created by fast moving vehicles. Reduced speed from 60 km/hr to 30 km/hr reduces dust emissions by 65%. Speed limit signage and enforcement can help to slow people down. Speed bumps and drainage ditches across roads can also reduce speeds.
- The project will be completed in stages to mitigate the cumulative impacts of dust, which would be ideal if completed all at once.
- Sweep all constructed roadways, parking lots, and staging areas at building sites daily (with physical sweepers).

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6.6.10 Traffic Incidents and Mishaps

As the proposed project site is located on Express Way, which serves the proposed development, there is a chance of traffic accidents during the construction period, especially since heavy vehicles would be entering and leaving the site.

Mitigation measures

The recommended mitigation measures include:

- Utilization of convex traffic mirrors
- Communication of known traffic hazards using any or all of the following methods:
- Information/warning sign installation,
- Direct communication with affected users;
- Advertising via public media or flag persons.
- Covered the whole project boundary with green net

6.7 Operational phase

6.7.1 Fire hazard

There is a risk of fire throughout the operating period since electricity and related equipment will be used at the project site. If basic safeguards are not performed, fires can cause severe property damage and even human fatalities. The proponent consented to implement the necessary precautions.

Mitigation measures

- Fire escape shall be constructed of non-combustible materials.
- A building fire exits with proper empty space to rescue the people trapped inside.
- All fire escapes should be directly connected to the ground floor.
- In order to minimize fire hazards, Fire resistance safety glass, fire resistance metal doors, fire wool, water sprinklers, fire-resisting electric cables, fire alarms, smoke detectors, water spray extinguishing system, static water storage tank, etc. would be used in building

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6.7.2 Accidents

As the facility will be multi-story, badly constructed staircases, floors, and so on may cause accidents to the building's residents, so the required precautions, including cutting-edge construction techniques, must be put in place to avoid such mishaps. Workers accidents especially in higher heights construction and other confined spaces shall be mitigated by enforcing adherence to safety procedures and preparing contingency plan for accident response in addition safety education and training shall be emphasized.

6.7.3 Job Opportunities

There will be job opportunities for both skilled and casual workers during the construction period. From the time the project begins until it is completed, several employees, including casual laborers, carpenters, joiners, electricians, and plumbers, are expected to work on the site. Aside from casual labour, semi-skilled and unskilled laborers, as well as formal employees, are expected to find profitable employment during the building period. After the project is completed, there will be jobs in the form of administrative employees for the development, housekeepers, cooks, and security guards, and also for special people among others. This will have a huge impact because unemployment in the country as a whole is currently fairly high.

6.7.4 Gains in the Local and National Economy

The proposed project will raise the income/economic level of residents in the project area. Gains will be made in both the local and national economies. Through the use of locally available materials such as concrete tiles, wood, and cement. The material costs will be paid directly to the producers. Because the proposed project will bring international tourists to Murree, it will also generate foreign exchange.

6.7.5 Provision of Market for Supply of Building Materials

The project will necessitate the procurement of building materials, the majority of which will be sourced locally in Murree and the adjacent areas. This provides up a ready market for building material suppliers such as hardware stores and individuals who sell such items.

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6.7.6 Increased trade in the neighboring area

The construction crew will purchase a variety of goods from the nearby business premises. This would help the worried individuals' and thus their families' companies to some extent.

6.7.7 Ease of access to shopping facilities

The concept provides facilities based on necessity, easy movement, and entertainment. Shopping malls, a modified type of open marketplaces, so contain these characteristics that are likely to boost business while boosting user comfort and happiness. The proposed facility will supply much-needed goods and services to local residents and businesses during its active phase. The proposed facility will supply much-needed goods and services to local people and tourists throughout the operational phase.

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7-ENVIRONMENTAL MANAGEMENT PLAN

7.1 Introduction

This Chapter describes an environmental management plan (EMP) as a system for managing environmental and social challenges, as well as mitigation actions. The proposed project's proponent understands that the proposed project's operations will have some impact on the biophysical environment, the health and safety of its employees and members of the public, and the socioeconomic well-being of local communities. As a result, the primary focus will be on minimizing the negative impacts and maximizing the good benefits connected with project operations through a continuous improvement strategy. An environmental management/monitoring strategy has been established to help the project's proponent in minimizing and controlling environmental impacts throughout the project's life cycle.

7.2 Objectives of the Environmental Management Plan

The main objectives of the Environmental Management and Monitoring Plan (EMP) are:

- Provide details on the Project's consequences, as well as recommended mitigation strategies and implementation actions;
- Establish and implement rules and guidelines that will be necessary under environmental regulations specific to the project.
- Define the Project Proponent's, Contractor's, Supervisory Consultants', and other key actors' roles and responsibilities, and effectively communicate environmental issues among them.
- The necessary equipment and human resources for environmental monitoring and responding to accidents are in place, and workers are trained to respond to emergencies.
- Define a monitoring method, frequency of reporting, and monitoring parameters to ensure that all mitigating measures are fully and successfully executed.
- Provide a system for responding quickly to unexpected environmental events.

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7.3 Scope of EMP

This Environmental Management Plan outlines a thorough approach for achieving improved environmental performance in the following areas:

1. Pollution prevention/management of the environment

2. Waste Management and Recycling

3. Risks and hazards to occupational health and safety

4. Community constraints/social concerns resulting from land purchase, among other things

The EMP was created in response to the probable environmental and social implications found during the impact assessment exercise, and it aims to provide a feasible framework to assure the project's long-term development and operation.

7.4 Organizational Structure and Responsibilities

7.4.1 Construction Phase

The project's proponent will have an overall responsibility to ensure the proper implementation of EMP throughout the project. The proponent will be responsible for carrying out construction activities in an environmentally sound way during the construction phase in order to implement the EIA and EMP recommendations.

During the construction phase, the assigned team will make the required arrangements to monitor essential environmental data. These will include the amount of water consumed, waste produced, trash disposal, and project-related automobile traffic.

7.4.2 Operational Phase

As part of the "Murree Club" Project in Murree, an environmental monitoring strategy has been established. Water consumption, trash disposal, water quality, traffic count, and noise, as well as the performance of the sewerage treatment plant and the state of plantation plan execution, will be

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checked on a regular basis. Environmental monitoring reports will be created and shared with the appropriate authorities as needed.

7.4.3 Legislation and Guidelines

The EIA of the Murree Club Project has examined relevant national and international legislation and recommendations. Prior to the start of project operations, the proponent will ensure that his staff and any assigned design and supervision consultants and contractors are aware of this legislation and rules.

The Punjab Environmental Protection Act of 1997 is the primary aspect of environmental legislation. The act also states that no one may emit pollutants or noise in quantities, concentrations, or levels that violate the National Environmental Quality Standards (NEQS). The NEQS will be followed throughout the project's construction and operational phases.

7.4.4 Project Monitoring

During the building and operating phases, proponent will make the required arrangements to monitor vital environmental data. These will include the number of trees cut as part of the project's construction, the amount of water consumed, the amount of waste produced, the amount of waste disposed of, and project-related motor traffic. During the work in progress in the project area, proponent will monitor project operations. Assign team shall keep a record of all non-conformances observed and report them to project management for future action. proponent will also be required to disclose any predicted consequences, as well as his recommendations for further action.

7.4.5 Environmental Monitoring Plan

Detail EMP is given in table 6.1 as under.

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Expected NegativeImpacts	Recommended Mitigation Measures	Responsible Party	Cost (Rs)
1. Layout planning			
Project Implementation Disputes	• Land transfer agreements should be formalized before the project begins in accordance with local legislation. • Proper preparation for enough resources i.e. Financial, personnel, and equipment resources are required.	Proponent	712550
2. Minimize extraction site impacts and ensure efficient use of raw materials in construction			
High Demand of construction raw materials	• Purchase building supplies from local providers who employ environmental friendly procedures. • Ensure precise budgeting and estimation of real building material requirements to guarantee that the least quantity of material necessary is ordered. • Ensure that material damage or loss at the building site is kept to a minimum by storing it properly.	Project Manager. Consultant Engineer & Contractor	5000000
Soil Erosion and Contamination	• Excavations must be limited to the locations specified in the approved engineering drawings. Excavations that are not absolutely necessary should be avoided. • Excess material should be reused if possible, and remaining spoil should be disposed of at a designated location to avoid erosion.	Consultant Engineer/Contractor	300000

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Excavation	• Soil investigation study should be carried out before construction; • Excavation that is not absolutely necessary should be avoided. • There should be temporary retaining structures. • Excavations must be carried out in accordance with approved engineering plans. • Excavations should be done carefully to avoid damaging infrastructure in the project area's vicinity.	Contractor	800000
3. Minimize vegetation and landscaped gardens disturbance at and or around construction site			
Vegetation/biodiversity disturbance	• Ensure that the project area that will be affected by construction operations is properly demarcated and delineated. • Specify trailer and equipment locations, as well as parts of the site that should be maintained free of traffic, equipment, and storage. • Establish access routes and parking on the property. • The Contractor's employees and laborers must follow strict instructions not to destroy any vegetation, such as trees or bushes. They must travel on the trails and highways. • A tree plantation program must be developed with the	Contractor, Civil engineer & Project Manager	500000

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	recommendations and technical assistance of the relevant Forest Department. • If any wild species or habitat is discovered while working, it must be dealt with carefully, and local wildlife department officials must be contacted; hunting, poaching, and harassing of wild animals are strictly prohibited, and the contractor must instruct and supervise its labor force accordingly, and clear orders must be issued in this regard.		
	• Introduction of vegetation (trees, shrubs • and grass) on open spaces and theirmaintenance	Architect & Landscapespecialist	
4. Reduce storm-water, runoff and soil erosion			
Storm water runoff	• Storm water will be collected and recycled for use on the project site. Surface drain off will be used to dispose of storm water that will not be gathered. • Apply soil erosion management strategies such as project site levelling to minimize run-off velocity and promote storm water infiltration into the soil. • On-site open drains that are all interconnected will be provided.	The Civil Engineer, Mechanical Engineer and Project Director	800000
5. Minimize solid waste generation and ensure efficient solid waste management during construction			

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Increased solid waste generation	• Utilization of an integrated solid waste management system, i.e. a hierarchy of options: 1. Reducing the number of sources 2. Recyclability 3. Recycling and composting 4. Combustion 5. Landfilling for sanitary purposes. • Ensure that any construction materials that are left over at the end of the project are reused rather than discarded. • Ensure that damaged or discarded construction items, such as cabinets, doors, plumbing and lighting fixtures, marbles, and glass, are collected and reused in subsequent projects. • Use of long-lasting, strong components that will not need to be changed as frequently. • To decrease the amount of waste produced by damage or exposure to the elements, provide facilities for proper handling and storage of construction materials. • When possible and in obedience with approved guidelines, use construction materials with recycled content. • To prevent creating excessive packaging waste, choose building materials with minimal or no packaging. • Waste dumpsters will be placed at key points across the entire property.	Project director & Contractor	100000/per unit
6. Reduce dust emissions			

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Dust emission	• Maintain strict adherence to on-site speed limit rules. • Excavation should be avoided in severely dry weather. • Sprinkle water over graded access routes as needed to decrease dust generated by construction trucks. • Personal Protective Equipment (PPE) must be worn.	Project Director, Consultant Engineer/ Contractor	20000
7. Minimization of noise			
Noise	• The noisy construction work will be done entirely during the day. • To reduce ambient noise levels, ensure that all generators and heavy-duty equipment are insulated or housed in enclosures. • Utilization of Quieter Equipment • Modification of Existing Old Equipment • Barrier Protection • Work Activity Scheduling • Noise Perimeter Zones are delineated.	Project Director, Consultant Engineer/ Contractor	10000
8 Minimization of energy consumption			

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Increased energy consumption	• When not in use, turn off all electrical devices, appliances, and lights. • Install energy-saving fluorescent tubes in place of incandescent bulbs at all lighting fixtures. • Monitor energy use throughout construction and set targets for energy reduction.	Project Director, Consultant Engineer/ Contractor	250000
9 Minimize water consumption and ensure more efficient and safe water use			
High water demand	• Water needed for development should be obtained in such a way that adjacent communities' water availability and supply are not harmed. • Install water-saving faucets that cut off automatically when no water is being used. • Encourage as much water recycling and reuse as feasible. • Water pipe and tank leaks should be detected and repaired as soon as possible. • Spills should be cleaned up and properly disposed of. • Encourage employees to conserve water by minimizing wasteful water use. • When not in use, make sure the taps are turned off.	Project Director &Contractor	30000/per month
10. Minimize release of liquid effluent			

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Generation of wastewater	• Make provisions for the disposal of sewage generated by construction workers. • Regularly monitor effluent quality to verify that the discharge laws and requirements are not abused. • Conduct regular checks for pipe obstructions or damage, as these vices can result in the release of wastewater into land and water bodies.	Mechanical Engineer & Project Director	20000/per month
11. Minimize occupational health and safety risks			
Approval of building plans	• Ensure that all building plans are approved by the Local Authority.	Proponent	
Incidents, accidents and dangerous occurrences.	• Enforcing adherence to safety protocols and developing an emergency strategy for accident response, as well as safety education and training, must be prioritized.	Project Director, & Contractor	500000
Safety, health and environment (SHE) policy	• Create, establish, and clearly display an acceptable SHE policy for building projects.	Project Director, Developer & Contractor	500000
Machinery/equipment safety	• Ensure that all construction machinery, equipment, personal protective equipment, appliances, and hand tools meet the required safety and health standards and are properly installed, maintained, and safeguarded. • To safeguard all workers from injury, all machinery and other moving pieces of equipment must be enclosed or	Project Director, Developer & Contractor	600000

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	guarded. • A government-authorized individual must examine equipment such as fire extinguishers. The equipment may only be utilized once an examination certificate has been issued.		
Storage of materials	• Ensure that materials are kept or stacked in such a way that they are stable and do not fall or collapse. • Make certain that items are not stored or placed against weak walls or barriers.	Project Director	50000
Safe means of access and safe place of employment	• The building' floors, steps, staircases, and pathways must be of sound construction and adequately maintained. • Securely fence or cover all floor openings. • Provide appropriate railings on both sides of any staircases within the facility. • All ladders used in construction must be of good construction and made of strong materials, and carefully maintained.	Project Manager & Contractor	
Emergency preparedness and evacuation procedures	• Establish appropriate documented emergency readiness and evacuation procedures to be utilized in the event of an emergency. • Ensure that suitable provisions are in place to immediately halt any operations that pose an urgent and serious threat to workers' health and safety, as well as to evacuate workers. • Make certain that the most recent emergency phone number	Project Manager & Contractor	1000000

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	posters are prominently and strategically displayed across the building site.		
First Aid	• Well stocked first aid box which is easily • Available and accessible should be provided within the premises	Project Manager & Contractor	50000
12. Ensure the general safety and security of the site and surrounding areas			
Increased Pressure on Infrastructure	• Coordinate with other planning goals andobjectives for the region	Architect, Project Manager, Contactor andthe Developer	
	• Upgrade existing infrastructure and services, if and where feasible.	Architect, Project Manager, Contactor and the Developer	
Insecurity	• Provide day and night security guards as well as enough illumination within and around the construction site to ensure general safety and security at all times. • Body-search personnel at entry to prevent weapons from being brought on site, and again when they leave to ensure nothing is stolen. • Make certain that only authorized people have access to the site.	Security Officer, Project Manager & Police	200000 per month

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	• Alarm systems will be installed.		
13. Environmental monitoring of the project			
Environmental concern during the constructionphase	• Due to the magnitude of the project the proponent will link up with the environmental expert throughout the construction phase and ensure that the conditions of approval are adhered to.	Proponent, Contractor and environmental experts	60000 -

Impact and their Mitigation Measures during Operational Phase

Expected Negative impact	Recommended Mitigation Measures	Responsible Party	Cost (Rs)
1 Minimization of solid waste generation and ensuring more efficient solid waste management			
	• Ensure that solid trash is disposed of properly at authorised disposal locations on a regular basis. • Donate usable but obsolete equipment to charity and institutions.	Proponent/Project Director	20000/per month

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Hazardous Waste	• Create and implement a hazardous substance management and emergency response plan.	Proponent/ Environmental Consultants.	
2 Minimize risks of liquid waste release into environment			
Waste water release into the environment	• Provide suitable and safe means of handling liquid waste on the premises. • Conduct frequent pipe inspections. damages and fix appropriately. • Make sure that the sewage discharged from the project is monitored on a regular basis. • To verify that the sewage/effluent discharge regulations and standards are not broken. • Design and build a water treatment plant or plants to recycle wastewater generated by the development.	Proponent/Project Director	30000/per month
3 Minimize energy consumption			
	• Turn off electrical devices, appliances, and lights while not in use. • Install occupancy detecting lighting in areas where it is not always necessary, such as parking lots.	Proponent/Project Director	

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Energy Use	• Replace incandescent bulbs with energy-saving fluorescent tubes at all lighting points throughout the building. • Monitor energy consumption during project operation and set targets for energy efficiency.		
4 Minimize water consumption and ensure more efficient and safe water use			
Water management	• Detect and repair water pipe and tank leaks as soon as possible. • Encourage clients and employees to conserve water. • Make sure taps are turned off when not in use. • Install water-saving taps that cut off automatically when no water is being used. • Install discharge metres at water outputs to calculate and monitor overall water consumption.	Proponent/Project Director	30000/per month
5 Ensure the general safety and security of the premises and surrounding areas			
Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the premises		Proponent/Property Managers	

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7.5 Tree Plantation

A tree planation plan has been created for the proposed project site to reduce the impact of air and noise pollution, improve the landscape, and alleviate the damage on trees caused by the planned project's development. Annex –X has a detailed tree plantation plan with cost estimates.

7.6 Training Awareness and Competency

Training programs are an essential agenda item that must be executed in order to properly implement the Environmental Management Monitoring Plan. Staff will be trained by the Environment, Health, and Safety Officer. The primary goal of the training program is to guarantee that the EMP requirements are properly understood and followed throughout the project. The following topics will be covered during the training:

• The project area's environmental sensitivity.

• The demand for EMP communication and documentation.

• Vegetation and community challenges, as well as solutions.

• Construction practices that are safe

• Personal protection equipment (PPE) use • Environmentally sound construction practices

• Vehicle security.

• The need for site restoration.

• Solid Waste Management

7.7 Reports and Documentations

The proponent procedure Prevocalic reports will be prepared depending on the data. These will include reports for:

• Project initiation meetings with each contractor

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- Non-compliances
- Monitoring
- A final report will be prepared at the end of the building phase.
- An annual report will be published during the operation phase.

The report will also be made available for examination to external monitoring teams and any other stakeholders that visit the site. In addition, the social and environmental monitoring expert will create reports for each monitoring visit.

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8-Conclusion and Recommendation

This chapter discusses the project's EIA study's conclusion and recommendations. The general goal of this EIA is to examine the implications of the various activities and to address methods to prevent adverse environmental impacts that may occur from the execution of the proposed project, including economic and social consequences. The EIA also includes the project's justification and a full description. It is concluded that the planned project is an investment that is worthwhile by the proponent and will no doubt contribute significantly to the improving economic standup of the investor, employees', as well as goods and service providers' and by extension outgrowth of economic development. As a result, the project provides the necessary safety measures for the protection of all elements/ segments of the environment, including human and environmental health.

It is concluded that many advantageous economic and social impacts will manifest in the quality of life of the people living in the Study Area. These beneficial effects include increased employment, business prospects, infrastructure development, money generation, and enhanced standards of life.The EIA assessment indicated that the proposed project will have some negative consequences. The negative environmental impacts that will result from the proposed project's establishment during the construction phase, such as noise pollution, dust emissions, solid waste generation, increased water demand, increased energy consumption, exhaust emission generation, worker accidents and hazards, increased electricity consumption, increased traffic, and storm water, among others, can be adequately mitigated.

During the operational phase, high groundwater removal for an extended length of time without proper recharge may have an impact on water availability. Careless behavior by staff/visitors may result in water waste, pollution of groundwater due to percolation of contaminated water/leaked oil during maintenance, etc. into groundwater. The proposed project's proponent must commit to implementing certain measures to minimize the negative environmental, safety, health, and social impacts connected with the project's life cycle.

In addition to this dedication, it is recommended that the proponent concentrate on implementing the measures described in the Environmental Management Plan (EMP) as well as following to all

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relevant national and international environmental laws, health and safety standards, policies, and regulations that govern the establishment and operation of such projects. To ensure that the EMP is effectively implemented, an environmental monitoring strategy has been prepared for each phase of the project, with a focus on monitoring air quality, and waste water.

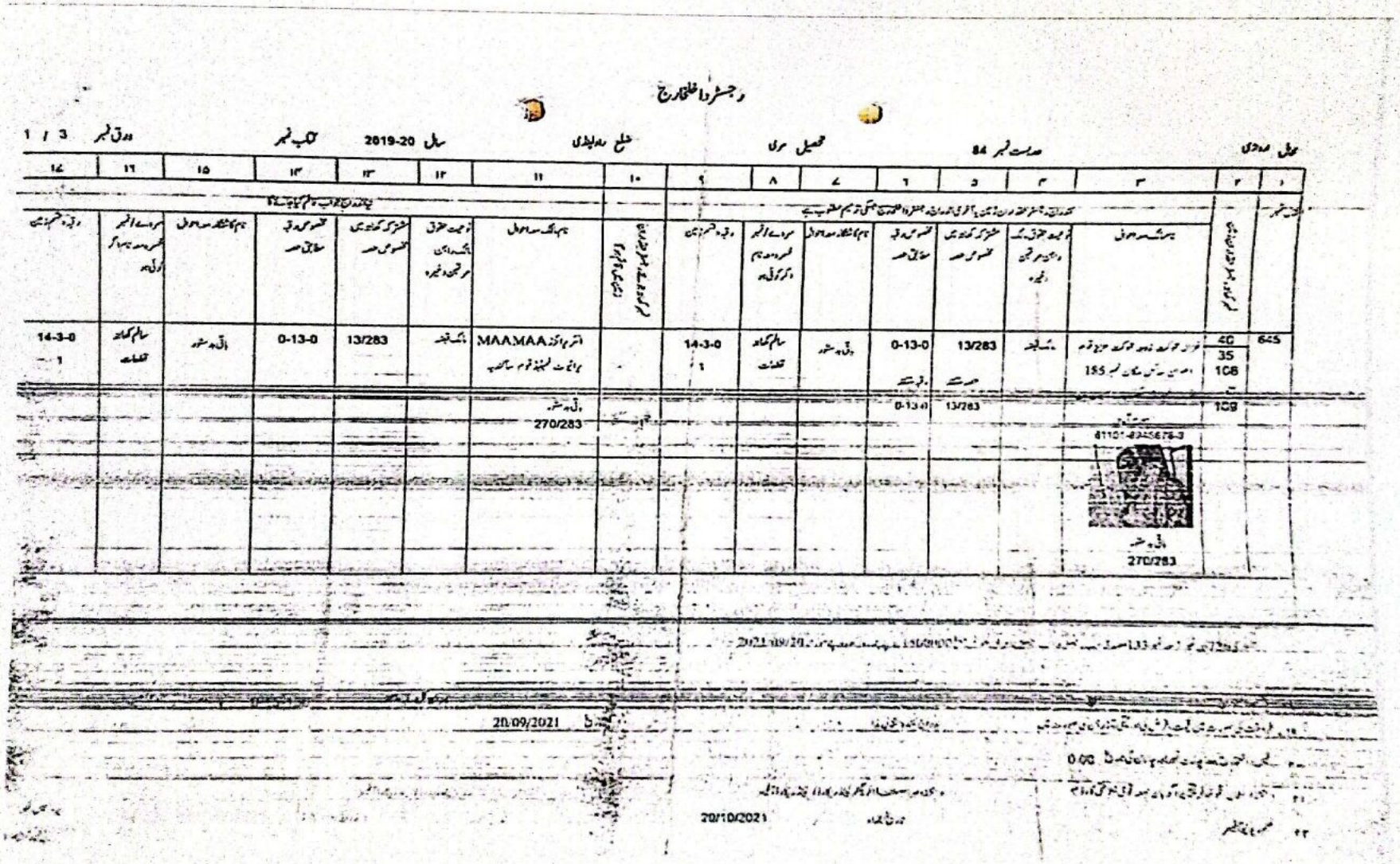
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Annexes

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Annex-I Land Registration Documents

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رجسٹرڈ اخبار

حلقہ راولپنڈی — تحصیل مری — حدست نمبر 84 — حلقہ عدالتی

سال 2019-20 — کتاب نمبر — ورق نمبر 3 / 1

۱	۲	۳	۴	۵	۶	۷	۸	۹	۱۰	۱۱	۱۲	۱۳	۱۴	۱۵	۱۶	۱۷
نمبر شمار	نمبر کھوہ یا دوسری نشانی	ہمسائگی حدود	نوعیت حق یعنی ملکیت مرتہن وغیرہ	مشترکہ کھاتہ میں حصہ کی تعداد	حصہ مرقومہ	ہمسائگی سوائے	سوائے اخبر نمبر مندرجہ ہمسائگی	وقوعہ نمبر زمین	نمبر کھوہ یا دوسری نشانی	ہمسائگی سوائے	نوعیت حق یعنی ملکیت مرتہن وغیرہ	مشترکہ کھاتہ میں حصہ کی تعداد	حصہ مرقومہ	ہمسائگی سوائے	سوائے اخبر نمبر مندرجہ ہمسائگی	وقوعہ نمبر زمین
645	40 35 108 -	حدود مواضعہ نمبر 155	ملکیتی	13/283 حصے	0-13-0 حصے	باقی بحق شفعہ	سالم کھاتہ تقسیمات	14-3-0 1		MAA MAA انٹرپرائزز پرائیویٹ لمیٹڈ فرم سائنسبورڈ	ملکیتی	13/283	0-13-0	باقی بحق شفعہ	سالم کھاتہ تقسیمات	14-3-0 1
	108			13/283	0-13-0					باقی بحق شفعہ 270/283						

باقی بحق شفعہ 270/283

20/09/2021

20/10/2021

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رجسٹرداخلخارج

حلقہ صدارتی ... مراسلہ نمبر 84 ... تحصیل مری ... ضلع راولپنڈی ... سال 2019-20 ... کلب نمبر ... رقبہ نمبر 4 / 1

۱	۲	۳	۴	۵	۶	۷	۸	۹	۱۰	۱۱	۱۲	۱۳	۱۴	۱۵	۱۶	۱۷
نمبر شمار		جائیداد مراسلہ	خلاف ورزی کی قسم	خلاف ورزی کی قسم	رقبہ متعلقہ	رقبہ متعلقہ	رقبہ متعلقہ	رقبہ تخمینہ		جائیداد مراسلہ	خلاف ورزی کی قسم	خلاف ورزی کی قسم	رقبہ متعلقہ	رقبہ متعلقہ	رقبہ متعلقہ	رقبہ تخمینہ
846	40 35 109	کلب کا رقبہ جو کہ مری ...	بنگلہ	13283	0-13-0	ہل	سام کنال	14-3-0 1		ایف ایس ایف ... 33405-5198516-5	بنگلہ	26283	1-6-0	ہل	سام کنال	14-3-0 1
	109			13283	0-13-0											
			بنگلہ	13283	0-13-0											
				13283	0-13-0											

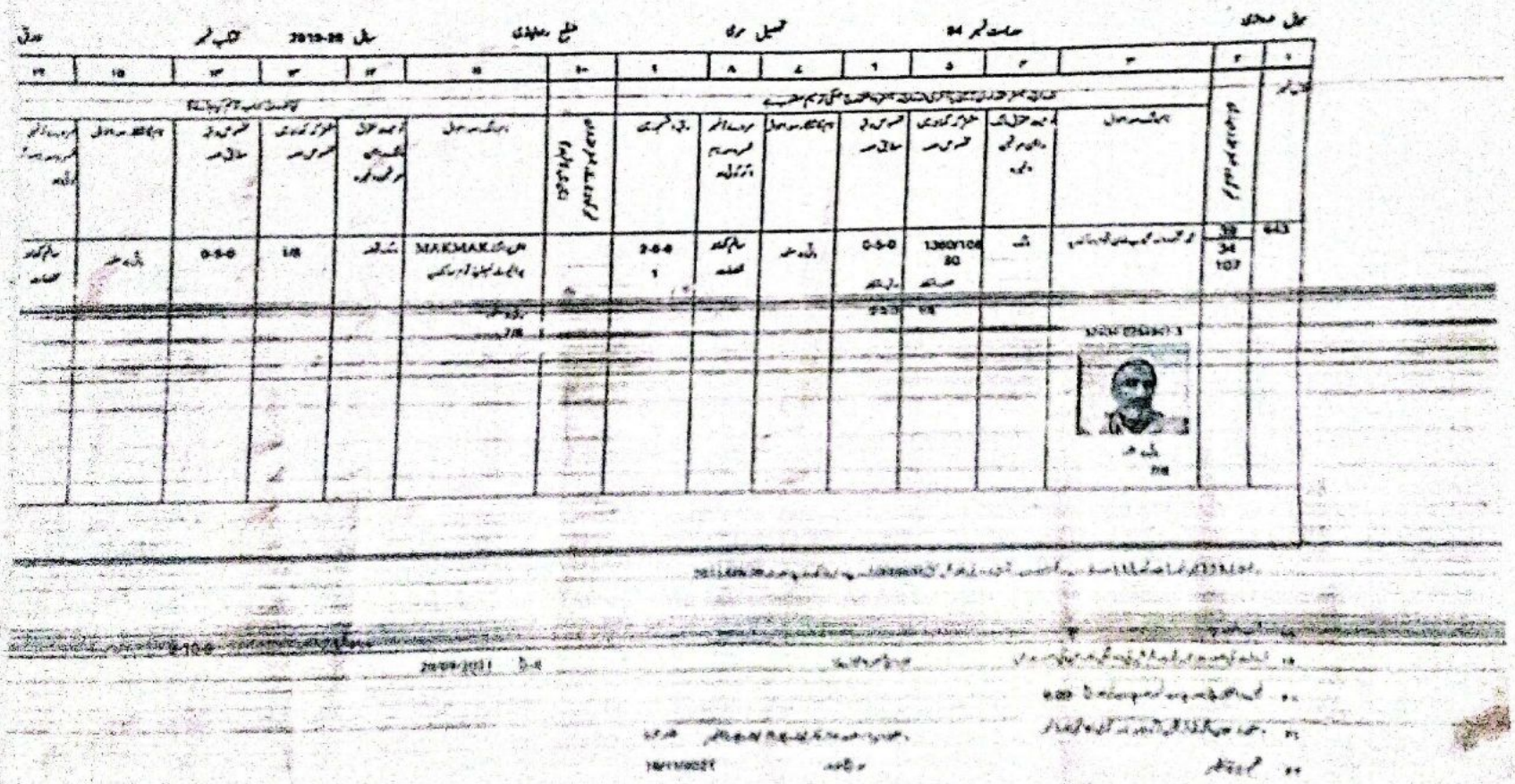
2021.09.20 ... 29.09.2021

29/10/2021

Final Report

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Environmental Impact Assessment of Marble Quarry



رجسٹر اخراج

۱	۲	۳	۴	۵	۶	۷	۸	۹	۱۰	۱۱	۱۲	۱۳	۱۴	۱۵	۱۶	۱۷	۱۸	۱۹	۲۰
نمبر شمار	جائیداد مال	رقبہ حاصل کرنے کی تاریخ	طریقہ کاشت	قسم کی مد	رقبہ حاصل کرنے کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد	رقبہ کی مد
443	[illegible]	[illegible]	[illegible]	1360/10480	0-5-0	[illegible]	2-6-0	[illegible]	[illegible]	[illegible]	MAKMAK	[illegible]	1/8	0-5-0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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رجسٹر واخلاج

حلقہ پٹواری | تحصیل مری | حدبست نمبر 84 | ضلع راولپنڈی | سال 2019-20 | کتاب نمبر

۱	۲	۳	۴	۵	۶	۷	۸	۹	۱۰	۱۱	۱۲	۱۳	۱۴
نمبر شمار	نمبر مرجع نقشہ	جائیداد کی تفصیل	نمبر مکان یا نمبر حلقہ	خسرہ نمبر	قسم زمین	رقبہ	ہمسایگان سے حدود	نمبر مرجع نقشہ	رقبہ قابل تشخیص	جائیداد کی تفصیل	نمبر مکان یا نمبر حلقہ	قسم زمین	رقبہ
644	40 35 108 109		بنگلہ	5440/769 76 20/283 20/283	بارانی بارانی	1-0-0 1-0-0	سال کلہ کلہ	14-3-0 1		MAKMAK 20/283	بنگلہ	بارانی	1-0-0

20/09/2021

16/11/2021

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رجسٹرڈ اخلاج

جمع بندی | حدبست نمبر 84 | تحصیل مری | ضلع راولپنڈی | سال 2019-20 | کتاب نمبر | ورق نمبر 6 / 6

۱	۲	۳	۴	۵	۶	۷	۸	۹	۱۰	۱۱	۱۲	۱۳	۱۴	۱۵	۱۶	۱۷
نمبر شمار	نمبر مربعہ جدید بندی	ہمسایگی سے اول	ترجیحی حقوق مالکان راہی مرتھن وغیرہ	مشترکہ کنوئیں کی حصص	قسمی مربع حقوق	ہمسایگی سے اول	سرے الغر ہمسایہ سے ہم اگر کوئی ہو	رقبہ قسمتہ ہیں	نمبر کنوئیں جو حدود میں واقع ہے	ہمسایگی سے اول	ترجیحی حقوق مالکان راہی مرتھن وغیرہ	مشترکہ کنوئیں کی حصص	قسمی مربع حقوق ملاقی حصہ	ہمسایگی سے اول	سرے الغر ہمسایہ سے ہم اگر کوئی ہو	رقبہ قسمتہ ہیں
										پختہ رقبہ جات کا نام کیا جائے گا						
666 مکرر	43 مکرر	61101-9048678-1 راجی وہ شہ 97/115														

بمقام ہذا حسب ہدایت اسسٹنٹ کمشنر۔ ای/ماری تحصیل مری۔ آج مورخہ 19/04/2022 بغرض تقسیم حقوق مندرجہ بالا تشریف لایا گیا۔ جمع بندی حدبست نمبر 84 تحصیل مری کی جمع بندی کی تصدیق کی۔ جمع بندی حدبست نمبر 130 کی فہرست نمبر 1 جلد نمبر 139 تصدیق شدہ مورخہ 07/03/2022 سے ہمراہ لایا ہے۔ کوئی اعتراض نہیں ہے۔

لہٰذا اخلاج ہذا جمع بندی شدہ کنوئیں نمبری A0 قسم نمبری 4/283 کنال 0-3-14 قسم نمبری A1 قسم نمبری 10/67 کنال 0-8-13 قسم نمبری A3 قسم نمبری 18/11565 کنال 0-15-0 حصہ رقبہ 0-2-0 کنوئیں نمبری 0-18-0 حصہ رقبہ 3020000 روپے مالیت مروجہ کا شتہ ہیں۔ اور مروجہ ان ہاں واسطے مروجہ فراہمی آب اوران ہاں MAKMAK انجینئرنگ لمیٹڈ قوم مصدقہ ہاں ہذا درج ہیں۔ منظور ہے۔

جمع بندی 130 کی فہرست 1 جلد نمبر 139 مصدقہ سب جمع بندی مری بمطابق 3020000 روپے مالیت مورخہ 07/03/2022

۱۸ قسم اخلاج — ۱۹ قیمت کی موجودہ مالیت فی کنال — اندراج کنندہ کا دستخط — ۲۰ کس اخلاج سے پہلے نمبر پر ہوں کی تعداد 0.00 — ۲۱ دستخط اور مہر افسر جس کے روبرو آئی تھی کا نمبر — ۲۲ نمبر رجسٹر

بمقام کنوئیں نمبر — 3-2-0 — کل رقبہ — 03/03/2022 — 21/04/2022

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رجسٹرد اخراج

ضلع راولپنڈی سال 2019-20 کتاب نمبر ورق نمبر 6 / 6

تحصیل مری مدیت نمبر 84 جلد نمبر

۱	۲	۳	۴	۵	۶	۷	۸	۹	۱۰	۱۱	۱۲	۱۳	۱۴	۱۵	۱۶	۱۷
حدود اربعہ جس حقوق زمین یا کوئی خاص درج جسٹرد اخراج ہوگی ترجیم مطلب ہے																
حاصل نمبر	نمبر کھیوٹ یا جزو نمبر	ہم ہمسایگان سے اصول	ترجیحت حقوق مالک مرتہن وغیرہ	مشترک کھاد میں حصہ میں	حصہ مع قید سلاقی حصہ	ہم ہمسایگان سے اصول	سرحدے اقرار نمبر مع ہم اگر کوئی ہو	رقبہ قسم زمین	نمبر کھیوٹ یا جزو مع حدود	ہم ہمسایگان سے اصول	حقوق مالک مرتہن وغیرہ	مشترک کھاد میں حصہ	حصہ مع قید سلاقی حصہ	ہم ہمسایگان سے اصول	سرحدے اقرار نمبر مع ہم اگر کوئی ہو	رقبہ قسم زمین
668 کنال	43 کنال	61101-9049678-1 ولی محمد 97/115														

بحق مہر ولی محمد ولد [illegible] ای مری تحصیل مری آج مورخہ 19/04/2022 داخلہ دفاتر ہذا ہوکر بجائے جسٹرد نمبر 130 جلد نمبر 1 جلد نمبر 139 تصدیق شدہ مورخہ 07/03/2022 سے ہوتے ہوئے کوئی ہمراہ نہیں ہے۔

زمرہ انتقال بیع جسٹرد شدہ کنال نمبر 40 ترقسم ی 0-3-14 4/283 حصہ رقبہ 0-4-0 کنال نمبر 41 ترقسم ی 0-8-13 10/67 حصہ رقبہ 0-0-2، کنال نمبر 43 ترقسم ی 0-15-5 18/115 حصہ رقبہ 0-18-0 بالموض مبلغ 3020000 روپے جو ہے۔ مہر ولی محمد ولد [illegible] مہر ولی [illegible] مہر ولی [illegible] مہر ولی [illegible] MAKMAK اس دستاویز ہیئت لیٹڈ اقوام متحدہ منظور شدہ ہے۔

منظور شدہ

جسٹرد 130 جلد نمبر 1 جلد نمبر 139 صفحہ نمبر [illegible] جسٹرد مری بالموض مبلغ 3020000 روپے جس کا کل ہزار روپے مورخہ 2022/03/07

۱۸ حصہ انتقال کل 3-2-0 کل رقبہ منتقل

۱۹ فروخت کی صورت میں قیمت فروخت کی وجہ تحریر ہو کی صورت میں 03/03/2022 بتاریخ اندراج کنندہ یا منتقل

۲۰ نمبر انتقال ہمراہ پیمائش نمبر ہو پیمائش کی تاریخ 0.00

۲۱ دستخط نمبر فرد نمبر جس کو فرد نمبر اگر پیمائش ہو توی نقل کی تاریخ

۲۲ تصدیق نمبر

دستخط مہر اسسٹنٹ ڈائریکٹر لینڈ ریکارڈ ۱ لینڈ ریکارڈ ۱ نمبر

21/04/2022 مورخہ

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رجسٹر داخل خارج

ورق نمبر 2 / 2 | کتاب نمبر | سال 2019-20 | ضلع راولپنڈی | تحصیل مری | حد بست نمبر 84 | موضع [illegible]

۱۷	۱۶	۱۵	۱۴	۱۳	۱۲	۱۱	۱۰	۹	۸	۷	۶	۵	۴	۳	۲	۱
[illegible]								[illegible]								
رقبہ و قسم زمین	نمبر خسرہ [illegible]	نام کاشتکار مع احوال	[illegible] حصہ	مشترک کھاتہ میں حصہ	[illegible]	نام مالک مع احوال	[illegible]	رقبہ و قسم زمین	نمبر خسرہ [illegible]	نام کاشتکار مع احوال	[illegible] حصہ	مشترک کھاتہ میں حصہ	[illegible]	نام مالک مع احوال	[illegible]	نمبر انتقال

[illegible] 10/02/2022 [illegible] 138 [illegible] 45 [illegible] 16/04/2022 [illegible]

[illegible] 3.39 [illegible] 0-0 [illegible] 1/10 [illegible] 0-4-0 [illegible] 200000 [illegible]

منظور شدہ

[illegible] 45 [illegible] 1 [illegible] 138 [illegible] 3 [illegible] 200000 [illegible] 2021/03/10

۱۸ [illegible] ‖ [illegible] 0-4-0 [illegible]

۱۹ [illegible] 10/02/2022 [illegible]

۲۰ [illegible] 0.00

۲۱ [illegible] 16/04/2022 [illegible]

۲۲ [illegible]

[illegible]

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رجسٹرڈ فلیگ ارج

تحصیل مری — ضلع راولپنڈی — سال 2019-20 — کتاب نمبر — ورق نمبر 1 / 2

جمع بندی — عدالت نمبر 84

۱	۲	۳	۴	۵	۶	۷	۸	۹	۱۰	۱۱	۱۲	۱۳	۱۴	۱۵	۱۶	۱۷
نمبر شمار	نمبر شمار مورثان	ہمسایگی سے حدود	ترجمہ حق مالکان برائے مرتھن وغیرہ	حقوق کی نوعیت	قسم حق ساقی حصہ	ہم کنشکار سے حدود	مرتبہ الخبر فصل ہم وکرائی	رقبہ قسم زمین	نمبر شمار مورثان	ہمسایگی سے حدود	ترجمہ حق مالکان برائے مرتھن وغیرہ	حقوق کی نوعیت	قسم حق ساقی حصہ	ہم کنشکار سے حدود	مرتبہ الخبر فصل ہم وکرائی	رقبہ قسم زمین
667	40 35 108 و 109	حدود مذکورہ سابق حد کو ملاتی ہوئی دوسرے سابق مالکان 81101-8112990-3 203/283	مالک قبضہ	80/283 حصہ مکمل 8/283	4-0-0 رقبہ مکمل 0-8-0	اراضی متنازعہ	سالم کاشت تفصیلات	14-3-0 1		MAAMAA ہمسایگان اراضی متنازعہ 275/283	مالک قبضہ	8/283	0-8-0	اراضی متنازعہ	سالم کاشت تفصیلات	14-3-0 1

جمع زائد 129 کنال نمبر 1 بذلہ نمبر 139 مساوی سیر جملہ مری بالغ 400000 مدیہ پیدا وار گندم سیر 2022/03/03

۱۸ قسم اراضی — ۱۹ قیمت فی صد حصہ — ۲۰ لیس اراضی سے پیداوار غلہ سیر کی مجموعی قیمت 0.00 — ۲۱ دعوا جات وغیرہ جو فیصلہ کے بعد پیدا ہوئے ہوں — ۲۲ نمبر پیج نمبر

اندراج — 03/03/2022 — بروئے کرد تحصیل — 0-8-0 — آدرر

دستخط مہتمم کلکٹر — 18/04/2022 — مہر عدالت

پیمائش نمبر 53090167

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رجسٹرڈ اخراج

حدبست نمبر 84 — تحصیل سری — ضلع راولپنڈی — سال 2019-20 — کتاب نمبر — ورق

۱	۲	۳	۴	۵	۶	۷	۸	۹	۱۰	۱۱	۱۲	۱۳	۱۴	۱۵	۱۶
نمبر شمار	سال مرقومی	نام مالک مع ولدیت و سکونت	نمبر خسرہ / کھیوٹ / کھتونی / رقبہ	نمبر جمع / کھیوٹ	حصہ مشترکہ / کھیوٹ	حصہ ملکیت	نام کاشتکار مع ولدیت	مرہ واقع / کفیت مرہ	رقبہ تعزیری	نام بینک مع برانچ	نمبر جمع / کھیوٹ	حصہ ملکیت	نام کاشتکار مع ولدیت	مرہ واقع / کفیت مرہ	
1	2019	[illegible]	80/283	80/283		4-0-0			14-3-0	[illegible] 37405-5196518-5	60/283	3-0-0			
			223/283												



11/10/2021

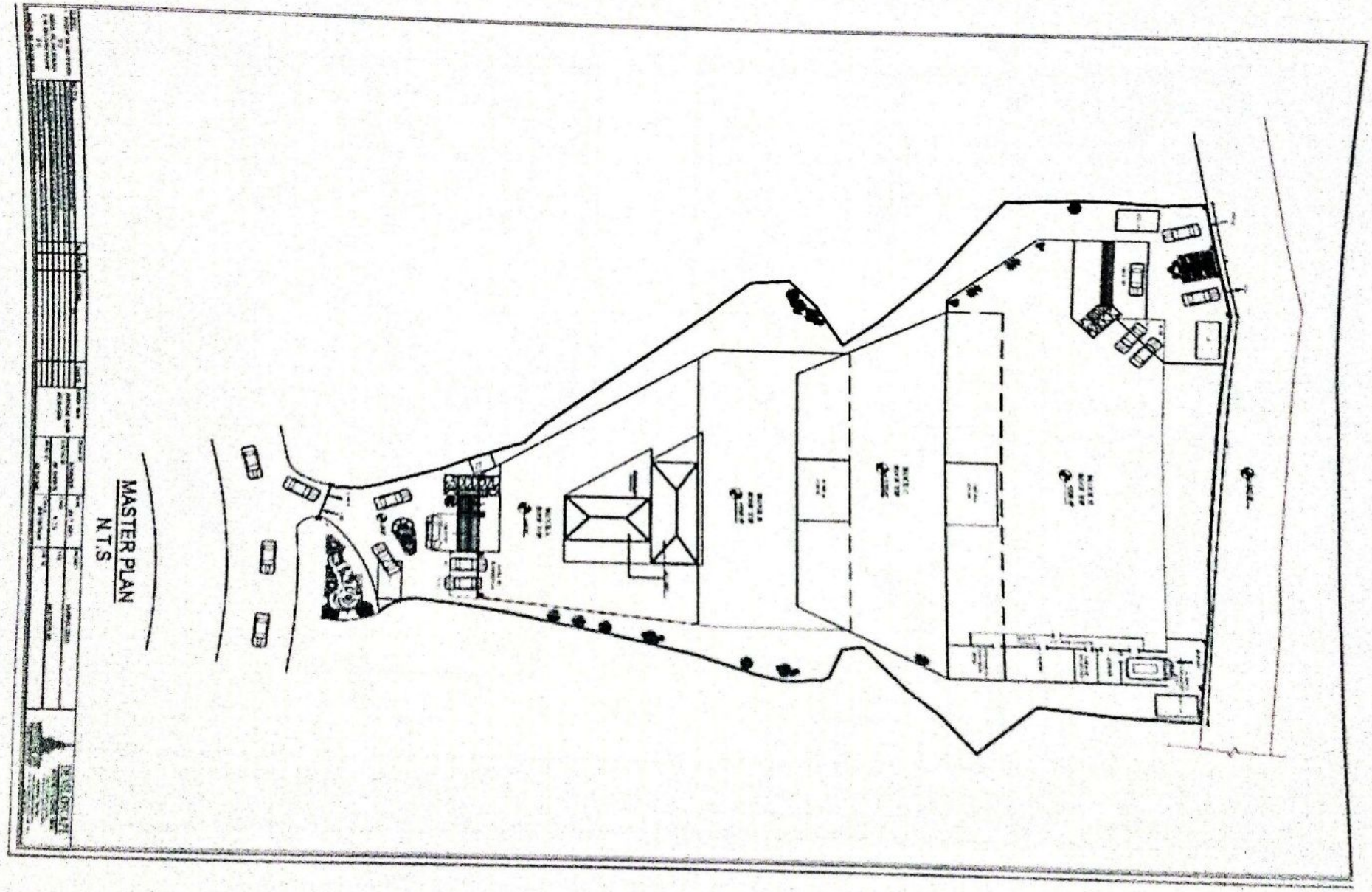
04/11/2021

Environmental Impact Assessment of Mines & Lab

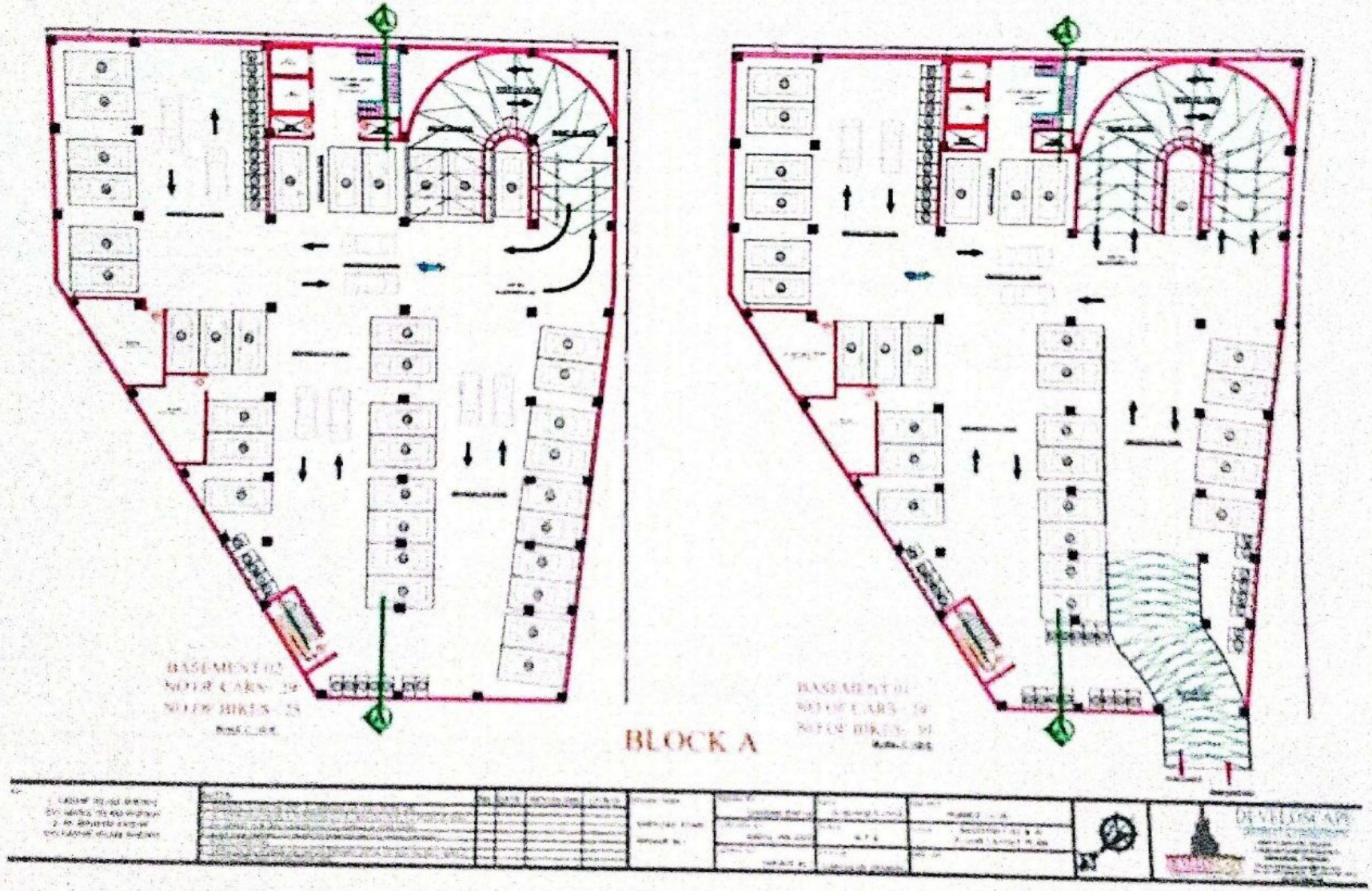
Scanned with CamScanner

Annex-II Floor Plan Map

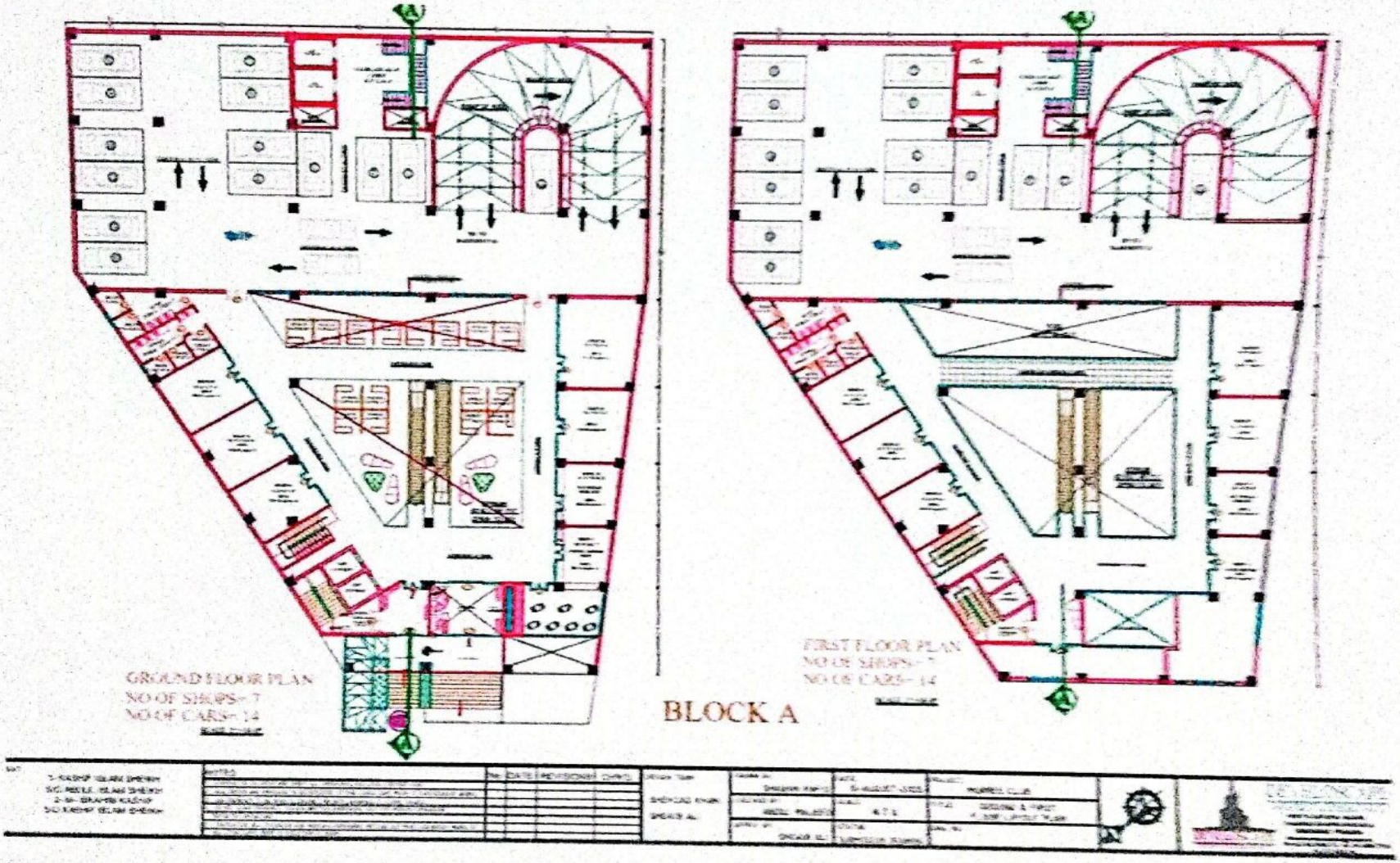
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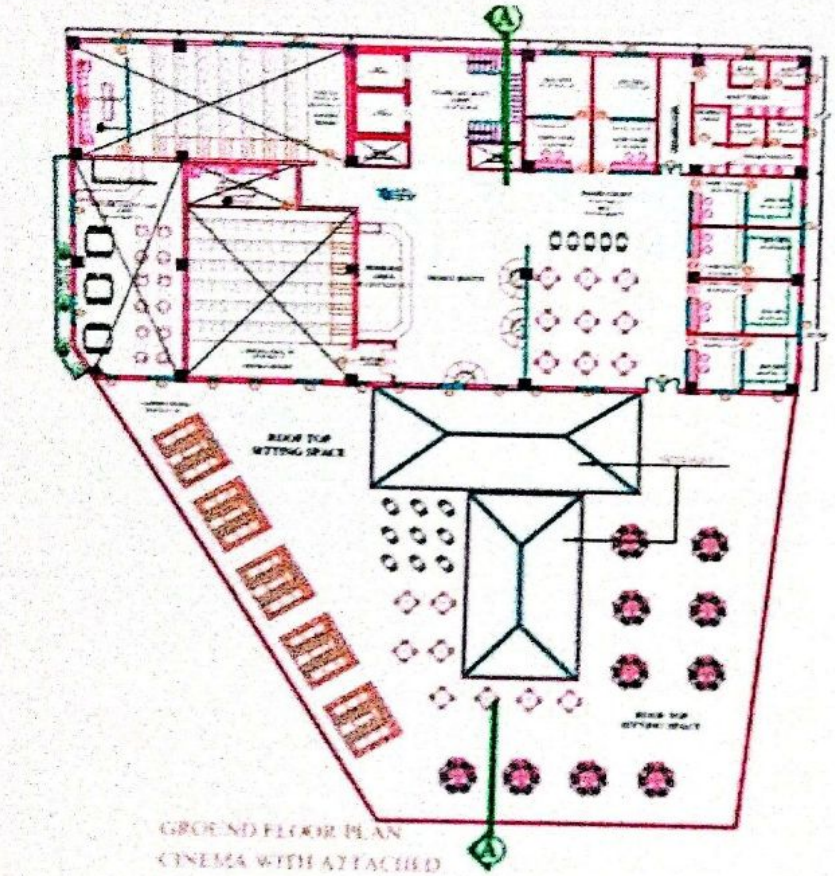
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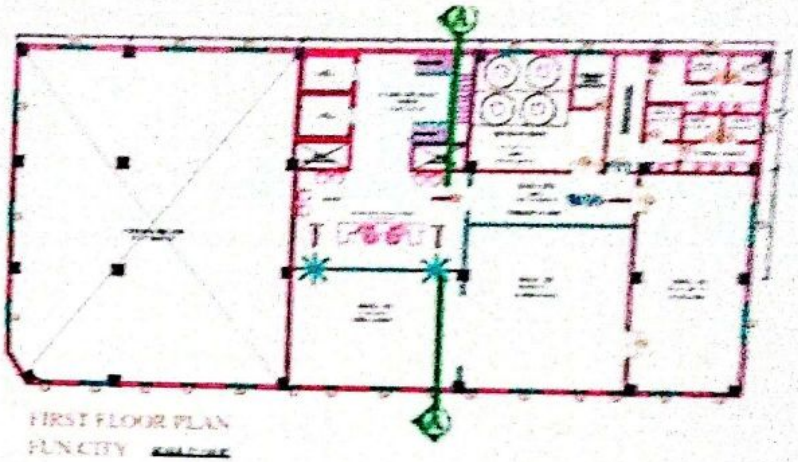
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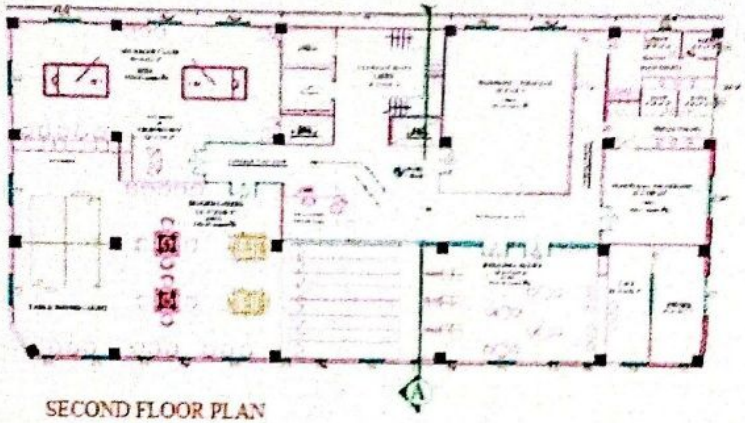
GROUND FLOOR PLAN
CINEMA WITH ATTACHED
FOOD COURT



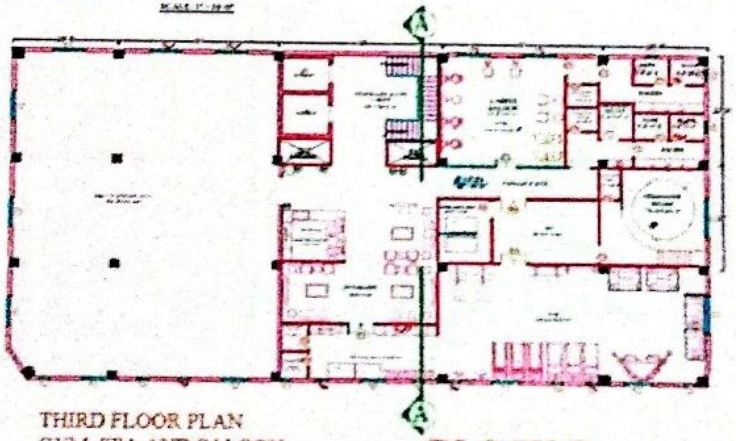
FIRST FLOOR PLAN
FUN CITY

BLOCK B

Scanned with CamScanner



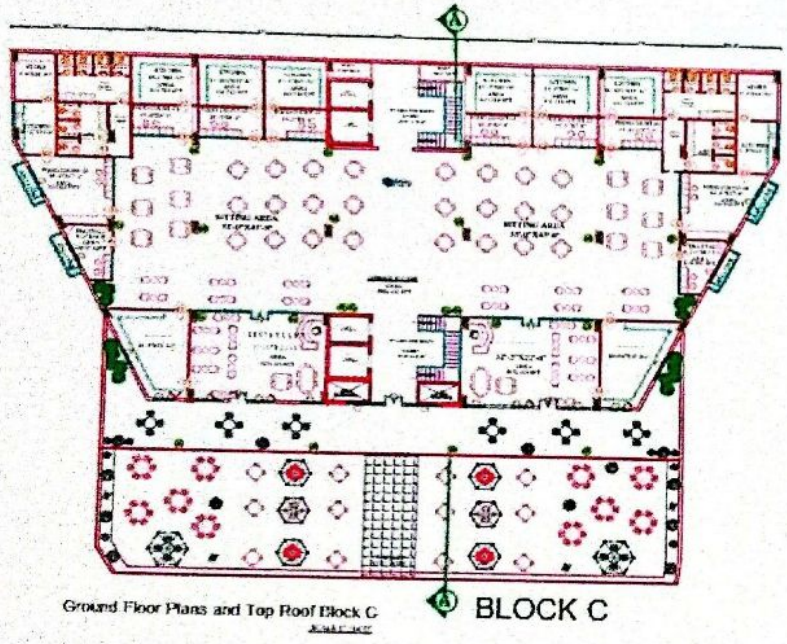
SECOND FLOOR PLAN
SPORTS COMPLEX



THIRD FLOOR PLAN
GYM, SPA AND SALOON

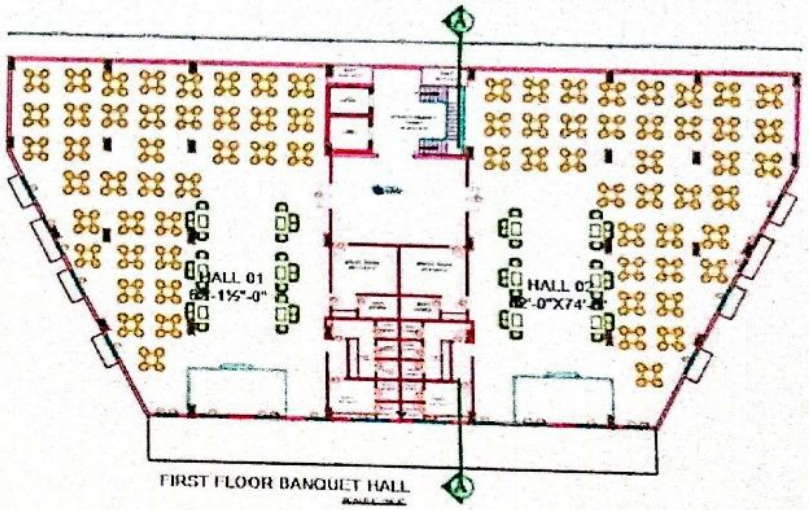
BLOCK B

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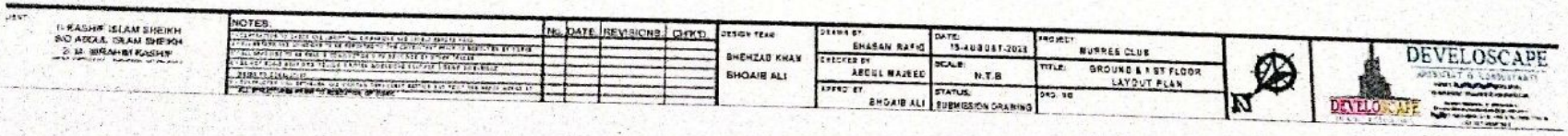
Ground Floor Plans and Top Roof Block C

BLOCK C

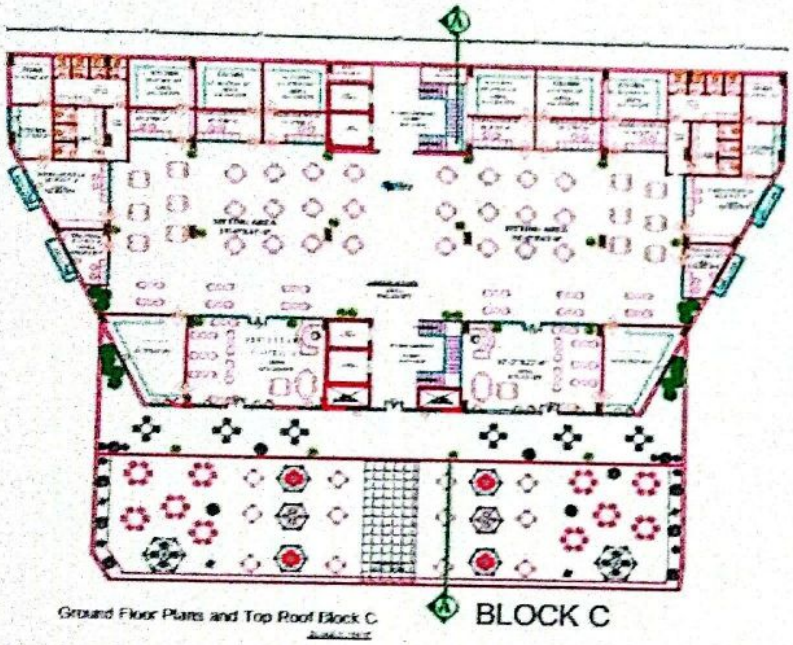


FIRST FLOOR BANQUET HALL

BLOCK C

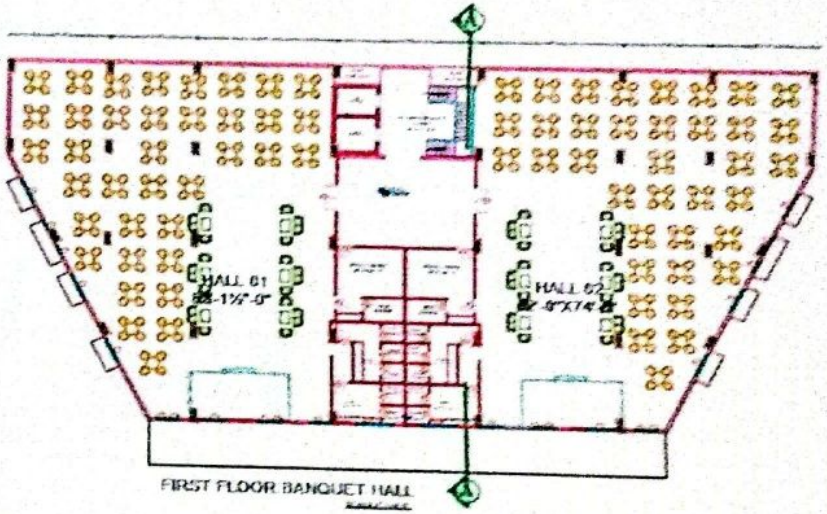


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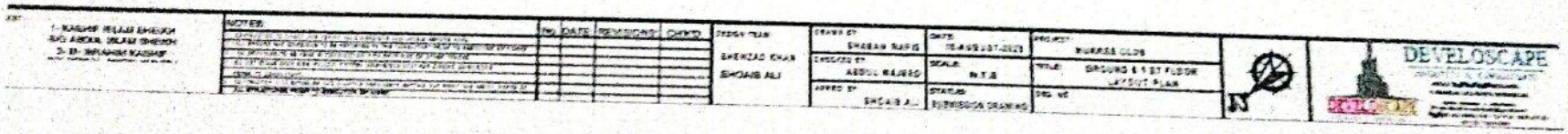
Ground Floor Plans and Top Roof Block C

BLOCK C

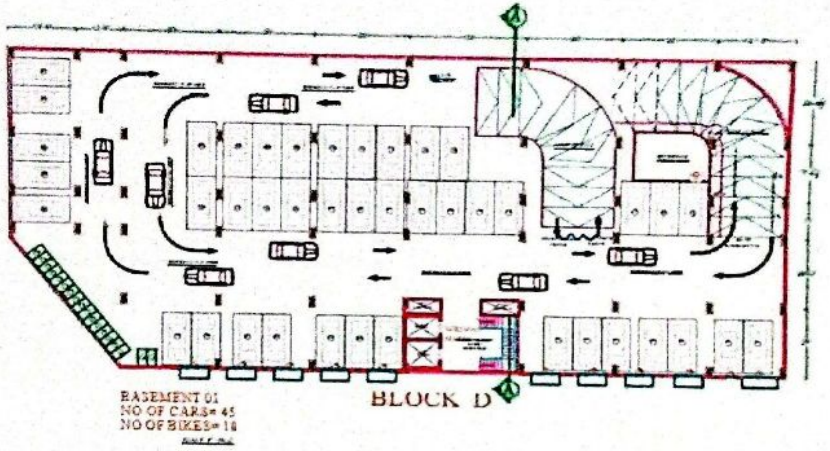


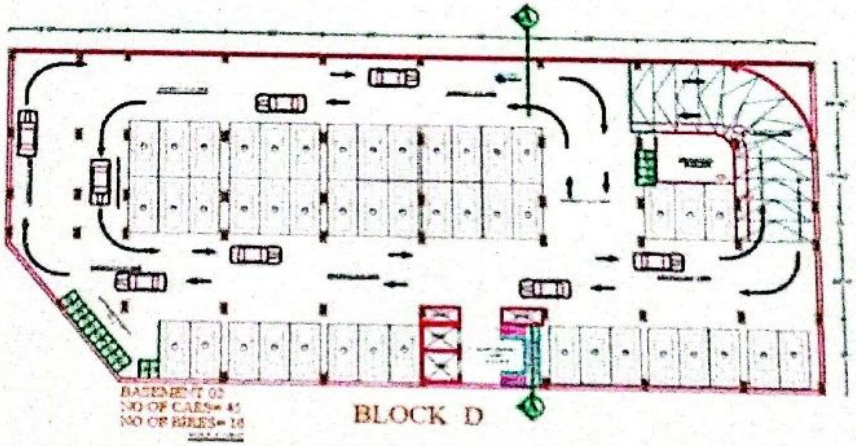
FIRST FLOOR BANQUET HALL

BLOCK C

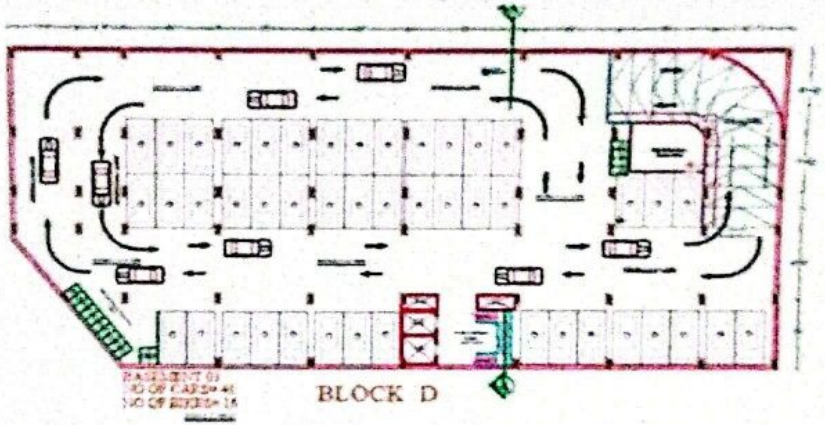


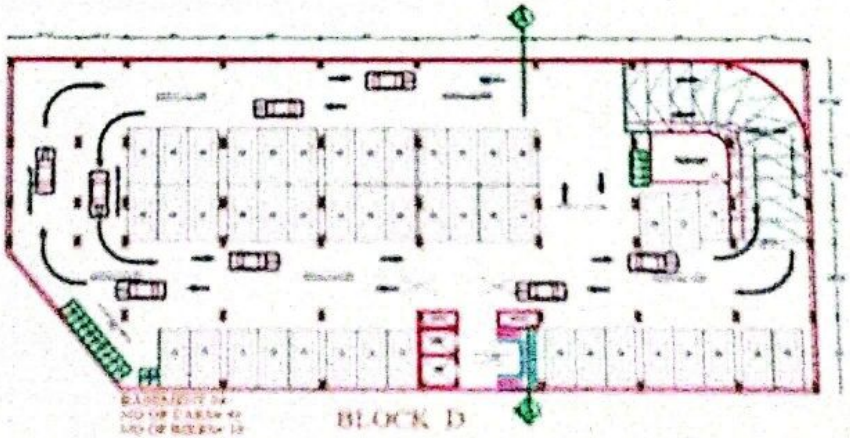
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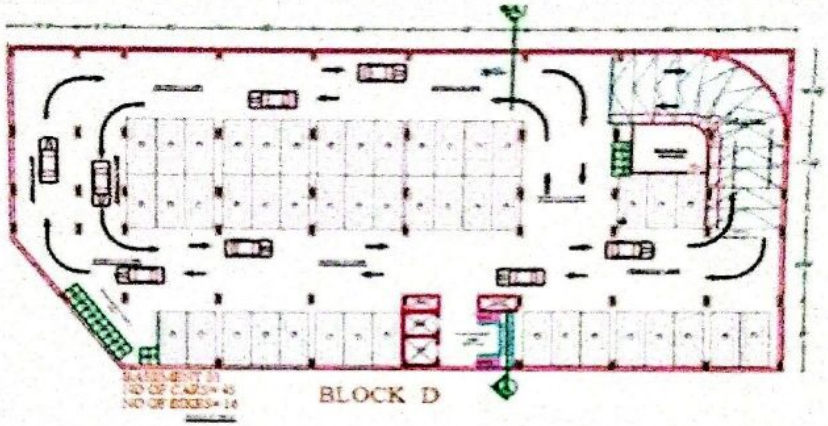


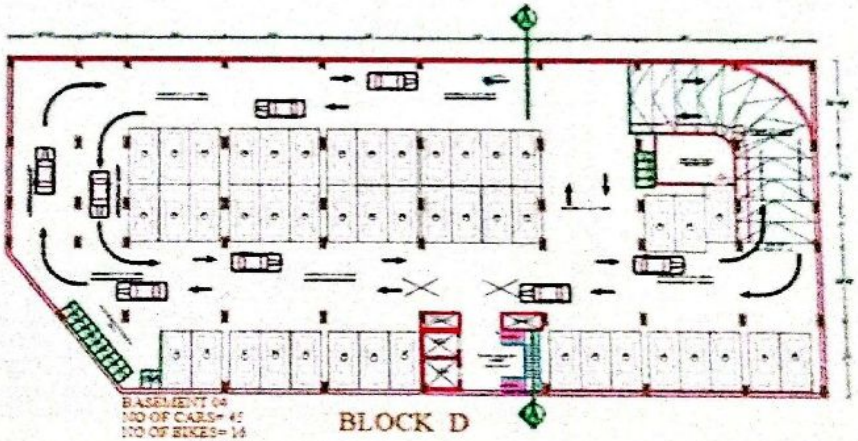
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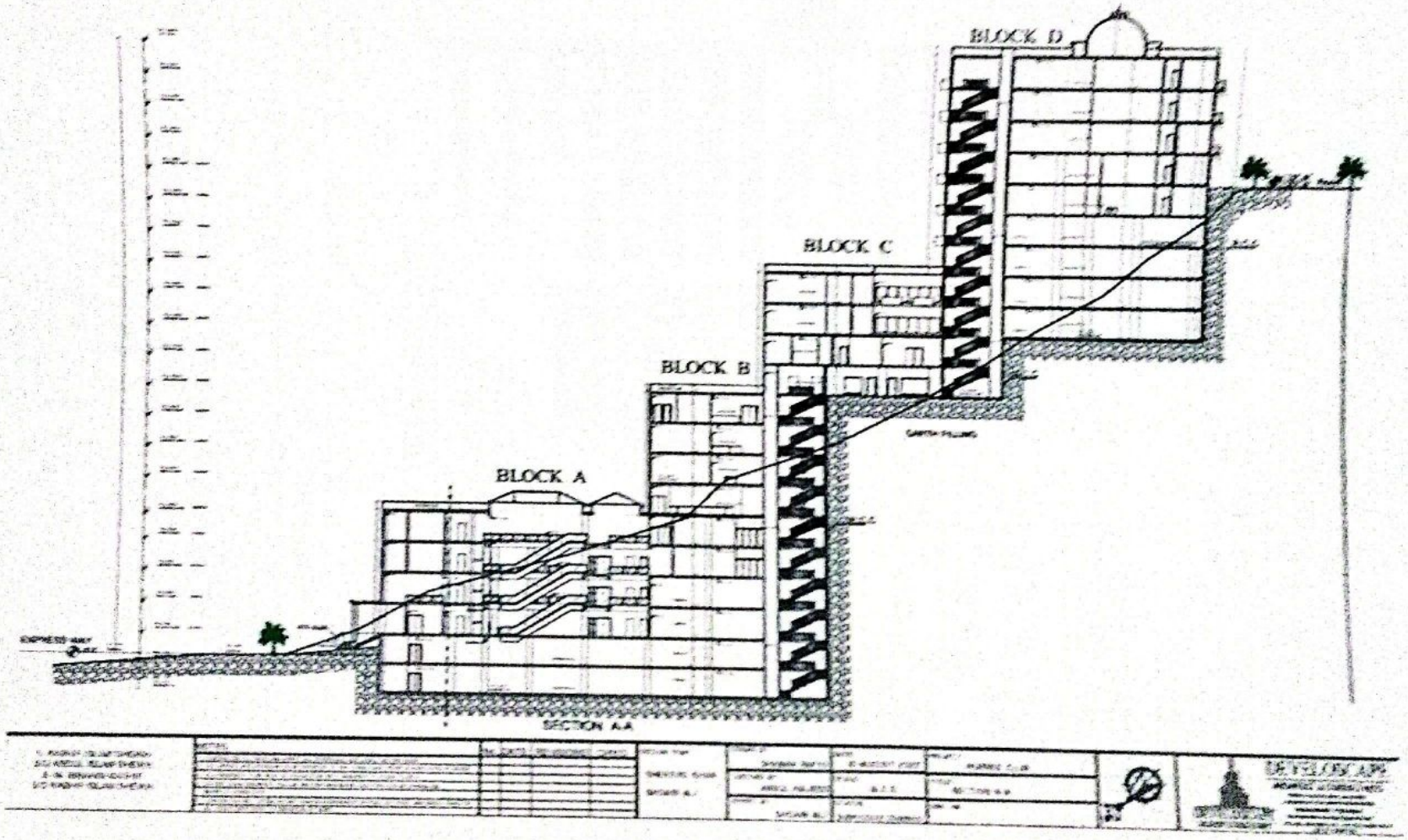


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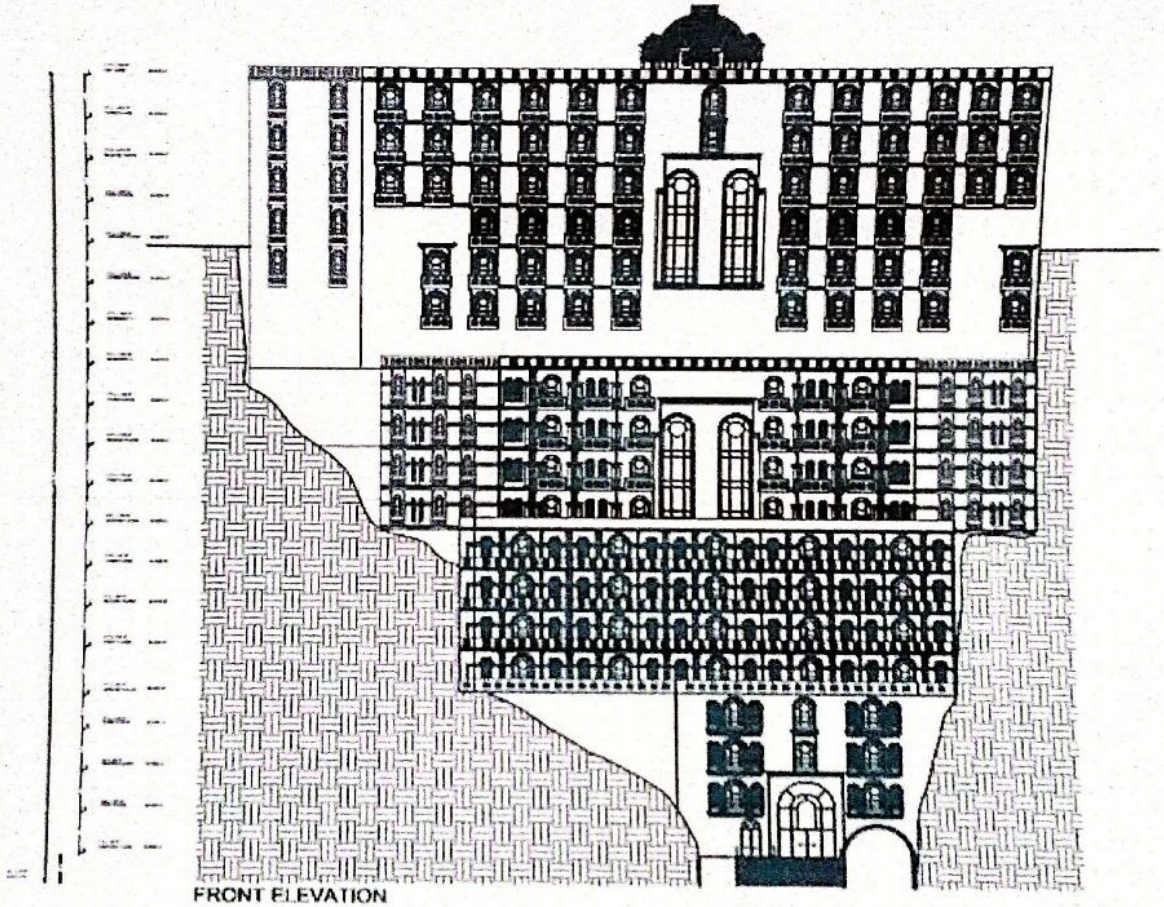




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FRONT ELEVATION

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Annex-III Ambient Air Quality and Noise Monitoring results

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04/EPA(Lab)/Validation/Rep/2023
Dated 31.08.2023

ENVIRONMENTAL PROTECTION AGENCY
GOVERNMENT OF THE PUNJAB
National Hockey Stadium, Gate No. 08
Gaddafi Stadium Complex, Lahore

Validation for Wastewater & Drinking Water

Facility /Project Name & Address Phone	Murree Club (pvt) Ltd. Murree Club (pvt) Ltd Express Way, Moza Ayubi, Lower Topa, Murree.	Sampling Point	Ground Water

Waste Water (WW) Treatment facility: Primary / Secondary / Tertiary / NA

Drinking Water (W) Treatment Facility:

Total WW collected Sample ____ Total Collected Drinking water samples

Sample Tag for testing parameter is assigned on sample container	Yes	NO	NA
Sample is preserved properly for each testing parameter	Yes	NO	NA
Sample size is adequate for testing the target parameters	Yes	NO	NA
Wastewater Flow Measurement performed to ensure sample representativeness	Yes	NO	NA

No. of Waste Water outlets	Waste Water Flow m^3/hr from each outlet (Optional)	Water intake m^3/hr (Optional)	Water Mass balance compiled during sampling (Optional) Yes / No	Sample Type: Grab / Composite
				Grab

Parameter	Matrix W	Matrix WW	Container	Sample Size	Preservation	Yes	NO	NA
Coliform, Total or Fecal			Sterile Container	100 mL	Refrigerate 6 C			
Coliform, Total or Fecal, Chlorinated Water			Sterile Container	100 mL	0.008% Thiosulphate & cooled 6 C			
Color, Turbidity			P,G	500 mL	Cool 6 C			
Hardness, Total			P,G	500ml	HNO3 to pH <2			
Nitrogen, Nitrate + Nitrite, Phenolic Compounds, Oil & Grease, COD, NH3			P,G	2000 mL	H2SO4 to pH < 2, Cool 6C			
Metals, General			P,G Rinsed 1.1 HNO3	500 mL	HNO3 to pH < 2			
Cyanide, Total			P,G	500 mL	NaOH to pH > 12, Cool 6C			
Pesticides, General			Glass	1 Liter	Cool 6 C			

Field Parameters*

Field parameter		pH meter, Model Make	Measurement Method	Calibrated In Field Yes / NO	Measured value
pH					
Temp					
Cl					

* Field testing parameters only be validated by RAs, ROs, DD (Labs)

Remarks for Sample Quality (If Any):-

Signature
Name of EPA Officer with office Address
Inspectors /RAs / ROs or ADs/DDs
Muhammad Amir Baig
Research Officer
Environmental Protection Agency
Govt of the Punjab Rawalpindi

Dated 04-08-2023

Mr. Nayyar Humair
Chemist NEPL

Signature
Name of Assistant /Deputy Analyst, Analyst with Name of Private Lab along with Address

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ENVIRONMENTAL PROTECTION AGENCY
GOVERNMENT OF THE PUNJAB
National Hockey Stadium, Gate No. 08
Gaddafi Stadium Complex, Lahore

Validation for Stack & Ambient Monitoring / Sampling

Emission Monitoring under CTM-34 or CTM-39				
Facility Name & Address Phone	Murree club (pvt) Ltd Murree Club (Pvt). Ltd. Expressway, Moza Anwari, Lower Topa, Murree	No of Stacks /Sampling Point	01	
Industry Category	Commercial building.			
Analyzer Model & Make	Ecotech Ambient Air Analyzer, Australia			
Average stack emission Values of CO, NOx (in mg/nM3)				
Excess Air / Excess Oxygen (%age):-				
Analyzer exposed for Ramp-Up phase to the sample gas for 5 minutes		Yes	NO	NA
Analyzer flow rate and EC temperature monitored during calibration and testing		Yes	No	NA
Test Data Phase of sample gas recorded with 15 second interval		Yes	No	NA
All key requirements to ensure QA/QC compiled for said EPA approved Method		Yes	No	NA
Particulate Matter (PM) Monitoring / Sampling under USEPA Method 5 / 17				
Model & Make of Iso-kinetic PM Assembly				
The PM sampling train is complete as per Method 5 & 17		Yes	No	NA
Leak Test performed prior to sampling		Yes	No	NA
Field data Sheet for PM Sampling filled during PM sampling		Yes	No	NA
Data for determining of "K" factor & DGM "Y" Factor filled during sampling		Yes	No	NA
All method key requirements during sampling were compiled to ensure QA/QC		Yes	No	NA
Filter of Particulate matter is suitable for metal Testing		Yes	No	NA
SOx sampling as per Method 8 (Thorin Indicator Method)				
The right absorbent solution are available for SOx Sampling		Yes	No	NA
The equipment is capable to maintain flow rate @ 2.0LPM or as per method 8 requirement		Yes	No	NA
Sampling for SOx is performed as per method		Yes	No	NA
Ambient Air Quality Monitoring by Automatic Monitors for CO, O3, SO2, NOx, PM2.5 & PM10				
In case of continuous monitoring at a site, One Point QC Check Single analyzer & Zero/span check is performed every 14 days.		Yes	No	NA
The CE of NOx analyzer is ensured to be maintained within 96% - 104.1%		Yes	No	NA
Zero/span check is performed prior to starting ambient monitoring		Yes	No	NA
All key requirements for Critical & Operational Criteria for ambient air monitoring by automatic monitors were compiled during monitoring		Yes	No	NA
The measuring techniques of monitors comply PEQS		Yes	No	NA
Ambient Air Sampling of SPM, PM10, Pb by High Volume Sampler				
In case of Sampling for SPM through samplers, the flow rate of sampler comply PEQS (1.1m3/min).		Yes	No	NA
Calibration of Sampler performed prior to sampling		Yes	No	NA
Vehicular Emissions & Noise Measurement				
Sampling of Vehicle emissions and noise measurement have been performed as per method and SOPs		Yes	No	NA

Remarks (If Any):-

Dated 02.08.2022

Signature
Name of EPA Officer with office Address
Muhammad Amin Baig
Research Officer
Environmental Protection Agency
Govt. of the Punjab, Rawalpindi

Mr. Nayyar Humair
Chemist
Signature
Name of Assistant /Deputy Analyst, Analyst

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National Cleaner Production Center Foundation
Registered under Section 42 of the Companies Ordinance, 1984

Ambient Air and Drinking Water Analysis Report of Murree Club (Pvt). Ltd.

EPA Validation Officer Details	EPA Certified Lab Details
Name: M. Amin Baig / Naseer Ahmed **Designation:** Research Officer / Research Assistant	**Name:** Mr. Nayyar Humair **Designation:** Chemist

REFINERY P.O. MORGAH, RAWALPINDI (PAKISTAN)
TELEPHONE: (+92-51) 5450424, FAX: (+92-51) 5486876
EMAIL: ncpc.rwp@gmail.com Website: www.ncpc.com.pk

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National Cleaner Production Center Foundation

Registered under Section 42 of the Companies Ordinance, 1984

NCPC/EL/F20-9/15082023
August 15, 2023

Test Report of Ambient Air Analysis
Murree Club (Pvt.) Ltd.

Sample Description: Ambient Air Analysis	**Contact Person:** Mr. Nayyar Humair
Date of Testing: 02-04,-08-2023	**Customer's Address:** Express Way, Moza Arwari, Lower Topa, Murree.
Date of Reporting: 15-08-2023	**No. of Samples:** 01
Sample No: EL/24/5	

Sr. No	Parameters	Results	PEQS	Unit
1.	Carbon Monoxide (CO)	3.92	**5.0** (08 Hours)	mg/Nm^3
2.	Sulphur Dioxide (SO_2)	1.43	**120** (24 Hours)	µg/Nm^3
3.	Nitrogen Dioxide (NO_2)	18.5	**80** (24 Hours)	µg/Nm^3
4.	Nitrogen Oxide (NO)	7.10	**40** (24 Hours)	µg/Nm^3
5.	Ozone (O_3)	3.57	**130** (01 Hours)	µg/Nm^3
6.	Respirable Particulate Matter (PM_{10})	60.1	**150** (24 Hours)	µg/Nm^3
7.	Respirable Particulate Matter ($PM_{2.5}$)	13.6	**15** (1 Hours)	µg/Nm^3

PEQS: Punjab Environmental Quality Standards.

Remarks:

1. This report shall not be reproduced / made part of any investigation / inquiry or for any litigation purpose.
2. NCPC laboratory is an EPA certified laboratory (Certificate No. 168/DD (Lab) /EPA /05 /2019) w.e.f May 28, 2019.

Environmental Lab Incharge
Date: 15-08-2023

Coordinator NCPC
Date: 15-08-2023

REFINERY P.O. MORGAH, RAWALPINDI (PAKISTAN)
TELEPHONE: (+92-51) 5450424, FAX: (+92-51) 5486876
EMAIL: ncpc.rwp@gmail.com Website: www.ncpc.com.pk

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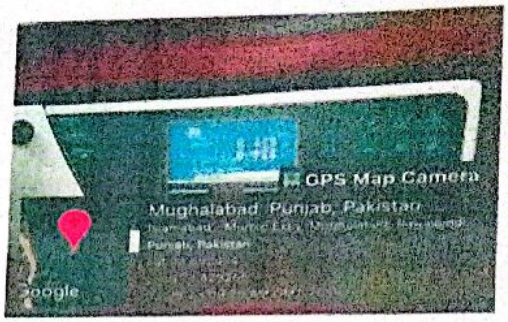
NCPC
"Cleaner the Beautiful"

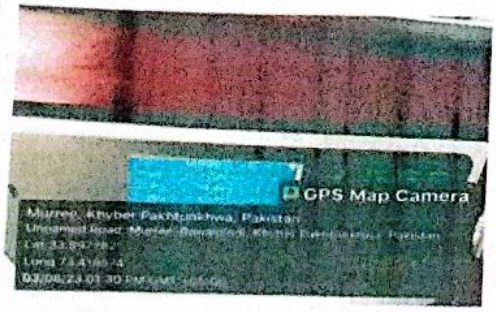
RECPnet

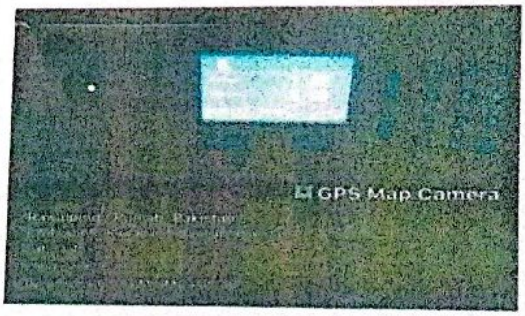
National Cleaner Production Center Foundation

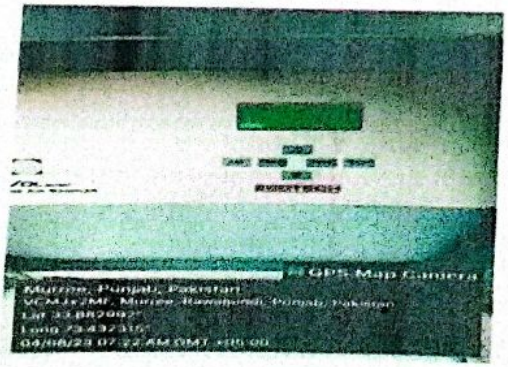
Registered under Section 42 of the Companies Ordinance, 1984













REFINERY P.O. MORGAH, RAWALPINDI (PAKISTAN)
TELEPHONE: (+92-51) 5450424, FAX: (+92-51) 5486876
EMAIL: ncpc.rwp@gmail.com Website: www.ncpc.com.pk

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National Cleaner Production Center Foundation

Registered under Section 42 of the Companies Ordinance, 1984

NCPC/EL/F20-9/15082023
August 15, 2023

Test Report of Noise Monitoring Analysis
Murree Club (Pvt.) Ltd.

Sample Description: Noise Level	**Contact Person:** Mr. Nayyar Humair
Date of Testing: 04-08-2023	**Customer's Address:** Express Way, Moza Arwari, Lower Topa, Murree.
Date of Reporting: 15-08-2023	**No. of Samples:** 01
Sample No: EL/24/5	

Sr. No	Sampling Locations	PEQS (Residential Area) 55 dB (A) Day Time 45 dB (A) Night Time
1	Point 1	47.2

PEQS: Punjab Environmental Quality Standards.

REMARKS:

1. This report shall not be reproduced / made part of any investigation / inquiry or for any litigation purpose.
2. Test performed by NCPC EPA certified laboratory (Certificate No. 168/DD(Lab) /EPA /05 /2019) w.e.f May 28, 2019, but Noise monitoring is not certified.

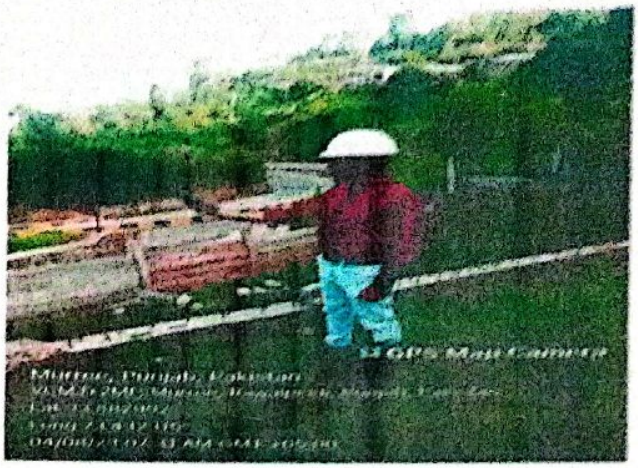
Environmental Lab Incharge
Date: 15-08-2023

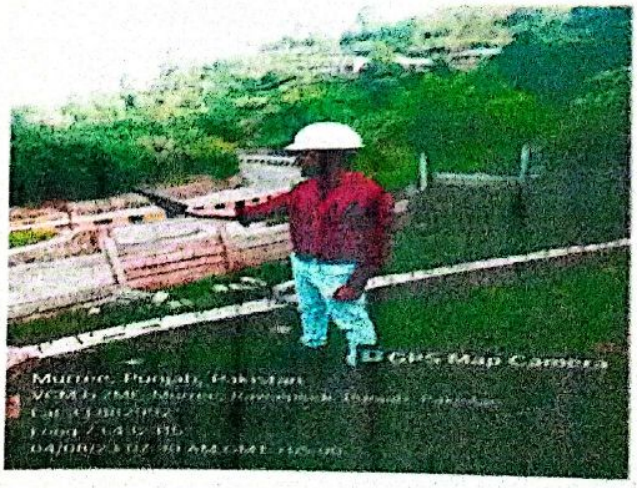
Coordinator NCPC
Date: 15-08-2023

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Annex-IV Groundwater Quality Results

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NCPC/EL/F20-9/15082023
August 15, 2023

Test Report of Drinking Water Analysis
Murree Club (Pvt.) Ltd.

Sample Description: Drinking water	**Contact Person:** Mr. Nayyar Humair
Date of Testing: 04-08-2023	**Customer's Address:** Express Way, Moza Arwari, Lower Topa, Murree.
Date of Reporting: 15-08-2023	**No. of Samples:** 01
Sample No: EL/24/6	

Sr. No.	Parameter	Results	PEQS	LOD	Units
1.	pH	7.1	6.5-8.5	0.01	-
2.	TDS	339	< 1000.0	1.0	mg/L
3.	Chloride	17.4	< 250.0	0.24	mg/L
4.	Total Hardness	316	< 500.0	0.1	mg/L
5.	Alkalinity	148	-	0.5	mg/L
6.	Turbidity	< 0.1	< 5.0	0.1	NTU
7.	Nitrate	< 0.1	≤ 50	0.1	mg/L
8.	Odor	Odorless	Non-Objectionable	-	-
9.	Taste	Sweet	Non-Objectionable	-	-
10.	Color	< 1.0	≤ 15 TCU	1.0	Pt/Co
11.	Sodium	6.5	-	0.0037	mg/L
12.	Potassium	0.301	-	0.0009	mg/L
13.	Calcium	96	-	1.0	mg/L
14.	Magnesium	18	-	1.0	mg/L
15.	Sulphate	32.5	-	0.41	mg/L
16.	Carbonates	< 0.12	-	0.12	mg/L
17.	Bi-Carbonates	1.2	-	1.2	mg/L
18.	Conductivity	552	-	1.0	µs/cm
19.	Total Coliform	Negative	Must not be detectable in any 100mL sample	-	Cfu/100mL
20.	Fecal Coliform	Negative	Must not be detectable in any 100mL sample	-	Cfu/100mL
21.	E. Coli	Negative	Must not be detectable in any 100mL sample	-	Cfu/100mL

PEQS: Punjab Environmental Quality Standard
NGVS: No Guideline Value Set

BDL: Below Detection Limit
MPN: Most Probable Number

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Note:

1. All Parameters results are in mg/L except pH, Colour, Turbidity, Electrical Conductivity, Total Coliform, Faecal Coliform and E. Coli

REMARKS:

1. This report shall not be reproduced / made part of any investigation / inquiry or for any litigation purpose.
2. Tests performed by EPA certified laboratory. NCPC is an EPA Certified Laboratory (Certificate No. 168/DD (Lab) /EPA /05 /2019) w.e.f May 28, 2019.

Environmental Lab Incharge
Date: 15-08-2023

Coordinator NCPC
Date: 15-08-2023

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Annex-V Glossary

Ambient air quality	Ambient air quality refers to the quality of outdoor air in our surrounding environment. It is typically measured near ground level, away from direct sources of pollution.
Biodiversity	The variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable.
Carbon dioxide (CO2)	A colorless gas that is naturally produced by animals and people in the exhaled air and the decay of plants.
Carbon monoxide	A highly poisonous, odorless, tasteless and colorless gas that is formed when carbon material burns without enough oxygen.
Climate	Climate is the long-term pattern of weather in a particular area.
EIA	Environmental Impact assessment (EIA) is the assessment of the environmental consequences of a plan, policy, program, or actual projects prior to the decision to move forward with the proposed action.
EMP	Environmental management plans describe how an action might impact on the natural environment in which it occurs and set out clear commitments from the person taking the action on how those impacts will be avoided, minimized and managed so that they are environmentally acceptable.
Fauna	The animals of a particular region, habitat, or geological period.
Flora	The plants of a particular region, habitat, or geological period.
PEQS	The Punjab Environmental Quality Standards (PEQS) are quality standards to regulate the air emissions and effluents of industry and other big polluters.
Noise Pollution	Noises that disturb the environment and people's ability to enjoy it, for example continually sounding house alarms, loud music, air conditioning or other electrical units and aircraft or motor engines.
Geology	The fields of study concerned with the solid Earth.

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Tourism	The act and process of spending time away from home in pursuit of recreation, relaxation, and pleasure, while making use of the commercial provision of services.
Livelihood	(The way someone earns) the money people need to pay for food, a place to live, clothing, etc.:
Aesthetic value	The emotional or spiritual value attributed to a work of art or nature because of its beauty or other factors associated with aesthetic preference.
Legislation	the process of making or enacting laws.

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Annex-VI List of Abbreviations

EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
IEE	Initial Environmental Examination
PEQS	Punjab Environment Quality Standards
NOC	No Objection Certificate
Pak-EPA	Pakistan Environmental Protection Agency
PEPA	Pakistan Environmental Protection Act 1997
CO	Carbon Monoxide
Sox	Sulphur Oxides
NOx	Nitrogen Oxides
PM	Particulate Matter
TORs	Terms of References
NCS	National Conservation Strategy
BAP	Biodiversity Action Plan
NEP	National Environment Policy
PTDC	Pakistan Tourism Development Corporation
PAF	Pakistan air force college
NCPC	National Cleaner Production Centre Foundation
SuDS	Sustainable Urban Drainage Systems
PPE	Personal Protective Equipment

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Annex-VII-: Terms of reference

Title:

Murree Club

Location:

Murree Gym Khana Club. Express Way, Near Sozu Adventure Chowk, Moza Arwari, Lower Topa, Murree

Project Proponent:

"Murree Club Private Limited''

Project Description:

Construction and operation of Murree Club for tourist facilitation

EIA requirement:

section 12 of Punjab Environmental Protection Act, 1997 (amended 2017)

Objectives:

An EIA will be conducted for all stages of the project, including preconstruction, construction, and post construction, with the following goals in mind.

- Compatibility with the EPA
- Creating an environmental baseline in the study area and detecting any major environmental issues.
- Assessing these effects and implementing the necessary avoidance, mitigation, and compensation strategies.
- Including identified environmental concerns in project planning and design.
- Present the EIA of the Murree Club at a public hearing and reply to queries generated by the Punjab EPA till the NOC is issue.

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Annex-VIII: List of names, qualifications and roles of team members carrying out the IEE/EIA study

S.no	Name	Qualification	Role and Responsibility
1	Mr. Suhail Akram	MALLB (Sociologist)	Baseline survey, Site reconnaissance, Technical review of report
2	Ms. Nafeesa Hayat	MPhil plant Sciences (Ecologist)	Field monitoring Primary Data collection Report compilation EMMP Data management
3	Mr. Muhammad Ahmad	Bs Management Sciences	Stakeholder Consultation Framework, Inputs to stakeholder consultation plan
4	Mr. Shehzad Khan	Civil engineering	Development of Maps
5	Mr. Muhammad Ibrar	MA International Relation	Stakeholder Consultation Framework, Inputs to stakeholder consultation plan

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Annex-IX Refrences

Aftab, E., & Hickey, G. M. (2010). Forest administration challenges in Pakistan: the case of the Patriata reserved forest and the new Murree development. *International Forestry Review*, *12*(1), 97-105.

Ahmad, T. (2011). Geology of the Himalayan Mountain Range, with special reference to the western Himalaya. Geologi, 63, 142-147.

Clift, P. D., Giosan, L., Blusztajn, J., Campbell, I. H., Allen, C., Pringle, M., . . . Alizai, A. (2008). Holocene erosion of the Lesser Himalaya triggered by intensified summer monsoon. Geology, 36(1), 79-82

Hameed, M., Nawaz, T., Ashraf, M., Ahmad, F., Ahmad, K. S., Ahmad, M. S. A., . . . Ahmad, I. (2012). Floral biodiversity and conservation status of the Himalayan foothill region, Punjab. Pak. J. Bot, 44, 143-149.

Hussain, S. M., Waheed, A., & Asghar, M. N. (2017). EMERGING CHALLENGES IN LAND USE REGULATION SYSTEM: A CASE STUDY OF MURREE, PAKISTAN. *Department of Architecture & Planning, NED University of Engineering & Technology, City Campus Maulana Din Muhammad Wafai Road, Karachi.*, 16.

Kausar, R., Baig, S., & Riaz, I. (2016). Spatio-temporal land use/land cover analysis of Murree using remote sensing and GIS. *Asian Journal of Agriculture and rural Development [en linea]*, *6*(3), 50-58.

Khan, A. N., Collins, A. E., & Qazi, F. (2011). Causes and extent of environmental impacts of landslide hazard in the Himalayan region: a case study of Murree, Pakistan. Natural Hazards, 57(2), 413-434.

Khan, A., & Ahmed, M. (2019). Vegetation loss in Murree Forest, Pakistan. *FUUAST Journal of Biology*, *9*(1), 51-58.

Malik, Z., Hussain, F., & Malik, N. (2007). Life form and leaf size spectra of plant communities Harbouring Ganga Chotti and Bedori Hills during 1999-2000. Int. J. Agric. Biol, 9(6), 833-838.

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Muhammad, S. (2017). *Impact of local Climate change on Plant Biodiversity of Murree Hills* (Doctoral dissertation, Government College University, Lahore.).

Rabbani, R. (1986). Revised working plans for Municipal forest of Murree, and cantonment forest Murree Hills. Rawalpindi District (1986–87 to 1995–96). Murree Municipality, Murree, Pakistan.

Ullah, R. (2009). Evaluation Of Soil Productivity Under Different Cropping Patterns On Sloppy Lands (Terraces) In Pothowar. Arid Agriculture University, Rawalpindi.

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Annex-x Tree Plantation plan

The primary goal of afforestation/plantation of appropriate species in the project area is to reduce the hazards caused by the planned project, increase green cover, and improve the general environment of the area. Afforestation will not only minimize the risk, but will also boost the carrying capacity of the land in numerous ways. Plantation will begin immediately during construction. Planting indigenous tree species is critical for preserving biodiversity and ecological equilibrium. It is also critical to avoid global warming, soil erosion, and pollution. Afforestation cleans the environment while participating in the reduction of carbon dioxide levels. Along with the importance of road development, afforestation will serve to improve the socioeconomic condition of the area and project sustainability.

Objectives

- To reintroduce native species.
- To enhance air quality and decrease pollution.
- To improve the beauty of the environment by adding colour to the landscape.
- To improve the quality of our living environment by actively planting, properly maintaining, and preserving trees and other vegetation.
- To protect and conserve the project area's flora and biodiversity.

Rehabilitation Plan

- Potential in/around of the project area Total number of plants to be planted is approximately **250.**
- The total area required for this particular plantation is approximately **1500m^2**. (If spaces for the plantation is available on both sides of the road, then the plantation will be done on both sides acquiring linearly on one side and approximately the same at the other side of the road, then same will be considered as liner plantation).
- Total cost on this particular plantation over all activities in the project area is approximately Rs. **250000** Moreover, total three years cost of maintenance is approximately **36000 PKR**.

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- The **500** plants may be purchased from available stock of Forest department (On priority) market rate= **500** per plant and total plants are **300**.
- The total cost of plantation including purchasing of plants and three years' maintenance will be Rs. **286000 PKR**. Approximately Rs. **300** will be the cost for a single tree to be planted and maintained for three years. The project area can be afforested and vegetation cover can be improved by adopting standard afforestation techniques.

Note: The above calculations are approximate and provided on the basis of available data.

Table: Recommended Species for Plantation of the Project Area

S.no	Botanical Name	Habit
1	*Pinus gerardiana*	Tree
2	Salix babylonica	Tree
3	*Robinia pseudoacacia*	Tree
4	*Pinus roxburghii*	Tree
5	*Pinus wallichiana*	Tree

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