



DIN PROPERTIES PVT. LTD.

Din Properties Pvt. Ltd.

“Din Homes Private Housing Scheme at Chiniot”

REPORT ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

April-2024



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Quality Control Sheet



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NOTES				

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EXECUTIVE SUMMARY

ES-1. Title and Location of The Project

The "Din Homes Private Housing Scheme, Chiniot" is geographically located at Mouza kot Khuda Yar, Chakbandi & Talib, Chak Jhumra Road, Tehsil & District Chiniot. with coordinates 31°40'23.34"N 73°2'17.22" E.

ES-2. Identification of Project and Proponent

The proposed Project consists of the construction of housing scheme under the name of "Din Homes Private Housing Scheme, Chiniot" with project and proponent detail is given as under:-

Name of proponent	Mr. Hashaam Ali
Developer	Din Properties Pvt. Ltd. (SECP Attached as Annexure-I)
Name of project	"Din Homes Private Housing Scheme, Chiniot"
Location/ Address of the site	Mouza kot Khuda Yar, Chakbandi & Talib, Chak Jhumra Road, Tahsil & District Chiniot.
Salient Feature of the project	The salient features of the project are of Residential Plots (1613), Parks/Open Spaces (12), Public Buildings (09), Commercial Plots (285), Solid Waste Site (01), Graveyard (01) and Society Office (01), Parking, Mortgaged Plots.
Major process during construction	Excavations, Concrete, Mixing, Road Works, Elevation, Finishing.
Estimated cost of project	2.76 billion PKR
Plot area of the project	The total plot area of project is 788.70 Kanals,
Electricity connection capacity	8.36 MW
Project completion duration	01 year approx.

ES-3. Details of Consultants

Asian Consulting Engineers Pvt Ltd is providing their services to conduct environmental assessment for the project. ASIAN is an independent consulting company working in the field of water and environment. The company provides consulting services and sustainable solutions for infrastructure projects, industrial projects and social development projects. The environmental team deploy for the project consists of following:

Table 0-1, Environmental Impacts Assessment Team

Sr. No.	Team Member	Position Held	Qualifications
1	Aleem Butt	Chief Environmentalist Team Leader- EIA	M.Phil. Environmental Sciences, Government College University (GCU) Lahore M.Sc. Environmental Sciences, Punjab University (PU), Lahore NEBOSH, Lead Auditor
2	Noman Ashraf	Environmental Specialist	M.Phil. Environmental Sciences, Government College University (GCU) Lahore PGD, Environmental Law University of the Punjab, Lahore
3	Ayesha Rasheed	Environmentalist	BS Hons Environmental Sciences, Government College University (GCU) Lahore
4	Engr. Maryam	Environmental Engineer	B.Sc. Environmental Engineering, University of Engineering & Technology (UET) Lahore
5	Asma Butt	Sociologist	M.Sc. Sociology, university of the Punjab
6	Engr. Umair Tallat	Sr. Field Engineer	M.S. Environmental Engineering, NUST Islamabad
7	Muhammad Abbas	Environmentalist	M.S. Environmental Sciences, PU Lahore

The contact details for the company are given as under:-

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Address: C-3, Jhelum Block, Green Forts-II, Lahore, Pakistan.

ES-4. Brief Outline of Project

The proposed project is the construction of housing scheme under the name of "Din Homes Private Housing Scheme, Chiniot" for land measuring 788.70 Kanals. The salient features of the project are of Residential Plots (1613), Parks/Open Spaces (12), Public Buildings (09), Commercial Plots (285), Solid Waste Site (01), Graveyard (01) and Society Office (01), Parking, Mortgaged Plots. The estimated cost of the project is 2.76 billion PKR. The total of area break-up along with residential, commercial plots, parks/open spaces and public buildings schedule is:

Table 0-2, Area for each Amenity and Schedule of Plots (Area Break-up)

Land Use	Area in Kanals	Percentage
Residential Plots	313.85	39.80
Roads/Parking	319.23	40.48
Public Buildings	11.85	1.50
Public Buildings for DC	11.85	1.50
Parks/Open Spaces	55.22	7.00
Commercial	57.79	7.33
Graveyard	16.27	2.06
Society Office	1.14	0.14
Solid Waste Plot	1.00	0.13
Disposal Station	0.50	0.06
Total	788.70	100%

Table 0-3, Schedule of Residential Plot

Block	Category			Total	Area (Kanal)
	3 Marla (20' X 33.75')	5 Marla (25' x 45')	10 Marla (35' x 65')		
A	24	299	149	472	128.66
B	0	383	0	383	79.78
C	633	125	0	758	105.41
Total	657	807	149	1613	313.85

Table 0-4, Schedule of Commercial Plot

Block	Category			Total	Area (Kanal)
	1.62 Marla (20' X 22'6")	3.31 Marla (30' X 30')	6.62 Marla (30' x 60')		
A	15	154	0	169	27.14
B	0	54	62	116	30.65
C	0	0	0	0	0
Total	15	208	62	285	57.79

Table 0-5, Mortgaged Plots Detail (20%)

Block	Plot Numbers	Area (Kanal)
A	Residential plots 84 to 119 & 455 to 472	13.82
C	Residential plots 75 to 94, 151 to 280, 290 to 409, 480 to 577, 658 to 682 & 694 to 758	60.45
Total		74.27

Table 0-6, Detail Of Parks/Open Spaces

Block	Plot Numbers	Area (Kanal)
A	1 to 05	23.27
B	06 to 09	17.84
C	10 to 12	14.11
Total		55.22

Table 0-7, Detail of Public Buildings

Block	Plot Numbers	Area (Kanal)
A	1 to 02	7.35
B	03 to 08	16.35
Total		23.70

ES-5. Impacts and Mitigation Measures

Sr. No.	Anticipated impacts	Mitigation measures
Pre-Construction Phase		
Project Location		
01	Land Acquisition and Resettlement during Pre-Construction	As all the land is already owned by proponent- Din Properties Pvt. Ltd and designated as a residential area so no mitigatory measures are required to be discussed.
02	Topography	Visual changes to the topography will be permanent and need no mitigation measures except that the project design should consider aesthetic concerns.
03	Layout Planning	All structural, layout and engineering designing of project should be in strict accordance with the applicable bylaws, building codes and engineering parameters.
04	Seismic Hazard	The structures of the proposed project will be designed and constructed to withstand moderate earthquakes. For seismic hazard analysis, updated structural and seismic evaluations will be consulted
05	Water Quality	A detailed ground water hydrological study and water reservoir assessment is being conducted to foresee the impact of water extraction and recharge, so that there is no negative impact on the surrounding area

Sr. No.	Anticipated impacts	Mitigation measures
		and the delivery of services. - Water supply system should be designed in a way so as to supply sufficient water including requisite amount of water during firefighting at all the intended places with sufficient pressure head. The layout should be such that no consumer would be without water supply, during the repair of any section of the system. - All the distribution pipes should be preferably laid one meter away or above the sewer lines. - Location of water storage tanks should be planned carefully. Water storage tanks meant for drinking should not be located directly beneath any sanitary plumbing or any other pipes conveying non-potable water. - Water storage tanks must be provided with a cover, designed to prevent the entry of dust, roof water, surface water, birds, animals or insects. - Water filtration units or water filtration plant of required capacity should be proposed in the design of proposed project in order to avoid any bacterial contamination in the drinking water.
06	Sewerage and Storm Water Drainage System	- All sewer lines including trunk, lateral and branch sewer lines must be designed considering the future population and waste generation rate; - In all cases, the sewer line should be laid deeper than the water pipeline (the difference between top of the sewer and bottom of water pipeline should be at least 300 mm) - Adequate planning for treated effluent disposal and sludge disposal is required to ensure an environmentally benign treatment process; and - An efficient storm water drainage system with adequate capacity should be designed according to National Plumbing Code, U.S.A and Building Code of Pakistan
07	Air Quality	Provision of green areas/plantation should

Sr. No.	Anticipated impacts	Mitigation measures
		be given in the design in order to absorb the emissions due to project activities.
Construction Phase		
Physical Impacts		
08	Soil Erosion and Contamination due to construction activities	• Good engineering practices will help in controlling soil erosion at construction sites. Following measures will be adopted as per site conditions: • Soil contamination can be curtailed by reducing the oil spill at project construction areas by well maintaining the construction vehicles as well as generators. • Confining excavations to the specified spots as per the approved engineering drawings. Unnecessary excavations need to be avoided. • Septic tanks of adequate capacities should be constructed for receiving and treating wastewater from all temporary worksite toilets and construction camps to avoid soil contamination; • The Contractor is required to impart proper training to his workforce in the handling and proper disposal of solid waste. • Proper drainage facility will be provided to avoid the water accumulation, which will minimize the soil contamination. • Proper solid waste management plan should be developed by the Contractor and implemented to avoid the litter and any other waste problems.
09	Surface and Ground Water Contamination during construction activities	• Septic tank and artificial drainage pipe should be developed and attached to natural drainage. • The Contractor should instruct its staff not to throw any of the waste and the other scarified/scrapped materials directly into the river or canal passing from the project area in order to avoid contamination. • Construction camps should be established in areas with adequate natural drainage channels in order to facilitate flow of the effluents. • Avoid accidental spills of oils and lubricants through good practice. Prepare and

Sr. No.	Anticipated impacts	Mitigation measures
		implement Emergency Response Procedures in case of any spill hazard.
10	Visual Aesthetics & Landscape Changes	Material stockpiles should be removed as soon as work is completed and the area re-landscaped. During work, these stockpiles should be covered with tarpaulin and watered regularly.
11	Ambient Air Quality	- Tuning of vehicles should be made mandatory to reduce the emissions of NOx, SOx, CO and PM10. - Equipment and vehicles powered with diesel should be well maintained to minimize particulate emissions. - Haul-trucks carrying, earth, sand, aggregate and other materials should be kept covered during transportation of materials and during storage at site, with tarpaulin. - The fugitive dust emission will not be a problem because the roads are paved but for the precautionary measure sprinkling of water-by-water trucks will be done.
12	Ambient Noise Levels & Vibration	- The contractor will make arrangements to bring the noise level within applicable limits (including proper tuning of vehicles and mufflers/silencers). - Movements of trucks and other construction machinery causing high noise levels must be restricted at night time to avoid disturbance to the nearby locality. Truck drivers will be instructed not to play loud music, especially at night and stop the use of horns.
13	Disposal of Construction Debris and Garbage	- A site waste management plan shall be made the responsibility of the construction contractor to provide for the designation of an appropriate waste storage area on the site and a schedule for the timely collection and removal of construction debris to an approved dump site. - The construction waste will be disposed of on an approved (from TMA/Punjab-EPA) dumping site. Client will bound the contractor to hire an EPA approved vendor which shall in turn dispose of the waste in

Sr. No.	Anticipated impacts	Mitigation measures
		government notified landfill/disposal area. - Client will engage a third-party contractor to collect organic waste from site and then convert into compost. - Arrangements shall be made for regular garbage collection and removal of sewage from the construction site.
14	Traffic Annoyance	During the construction phase traffic control measurement will be implemented. All construction materials will be transported to the site at night time due to at night time traffic flow very low in the project area.
15	Solid Waste (Construction, Municipal and Hazardous Waste)	- Solid waste generated during construction and camp sites should be safely disposed of at designated waste disposal sites. - Proper labelling of waste containers, including the identification and quantity of the contents, hazard contact information should be carried out. - Training of employees involved in the transportation of hazardous material regarding emergency procedures should be ensured. - Construction workers and supervisory staff should be encouraged and educated to practice waste minimization, reuse and recycling to reduce quantity of the waste. - A comprehensive plan for construction waste management should be adopted.
16	Occupational Health and Safety	- PPEs will be provided to workers during constructional activities. - First aid will be provided to project-related employees. Especially the workers dealing with loading and unloading of material. - Workers will be trained in the operation of different construction equipment while following safety protocols. - Job Hazard Analysis involves breaking down each task into individual steps, identifying potential hazards at each step, and determining preventive measures to ensure worker safety. - Provide comprehensive training to ensure workers are equipped to safely perform

Sr. No.	Anticipated impacts	Mitigation measures
		tasks, reducing the occurrence of accidents and injuries. • Environmental awareness will be conducted, ensuring all workers are equipped with safety boots, helmets, gloves, and protective masks, and consistently monitored for proper usage. In case of accidents, the contractor will provide free medical treatment to the community. • Conduct hygiene training for employees to promote awareness and good practices. • Regularly inspect and maintain machinery to ensure proper functionality. • Preparing layout plan for camp site, indicating safety measures taken by the contractor, e.g., firefighting equipment, safe storage of hazardous material, first aid, security, fencing, and contingency measures in case of accidents • All potable drinking water supplies to be tested regularly on monthly basis during the entire construction phase
17	Community Health and Safety	• There should be proper control on construction activities and particularly oil spillage/ leakage of vehicles, machinery and equipment • Efforts should be made to create awareness about road safety among the drivers operating construction vehicles • Provision of proper safety and diversion signage at sensitive/accident-prone spots • Setting up speed limits in the construction areas in close consultation with the local stakeholders • Keeping out of non-working persons, particularly children, off work sites.
18	Emergency Response to Natural and Man-made Disasters	• Emergency Response Plan should be implemented in close consultation with the District Rescue Service, fire-fighting department, bomb disposal squad and paramedics. In addition, training of the staff/employees regarding the emergency procedures/plans should be regularly conducted.

Sr. No.	Anticipated impacts	Mitigation measures
Ecological Environment		
19	Flora and Fauna	- The master plan of project consists of development of green area and parks which will improve the overall biodiversity of the area. Any trees cleared during construction works will be that will be transplanted in the green areas/parks and green belts of the proposed housing society. - Special measures shall be adopted to minimize impacts on the wild birds, such as avoiding noise generating activities during the critical periods of breeding - Wastes shall be properly disposed of to prevent it being eaten by animals, as it may be hazardous to them.
Social Environment		
20	Social/ Cultural Conflicts	- Local labor should be preferably employed for the construction works; - Careful planning and training of work force to minimize disturbance to the local people; - Public notification through media during the entire construction phase to avoid any inconvenience in accessibility to the locals.
Operational phase		
21	Water Resources	- Water meters should be installed and water quantification logs will be maintained. - At the time of construction of house or any other public building, people should be encouraged to install auto shutoff water taps to prevent water wastage - Groundwater abstraction should be scheduled according to the aquifer parameters to ensure sustainable withdrawal of the groundwater - Water filters should be installed with the water supply sources, if required on the basis of laboratory test reports. - An awareness campaign should be launched to educate the people about the importance of economical use of water.
22	Waste water Generation due to operation of Housing	The wastewater will be domestic in nature and will be treated in septic tank before the

Sr. No.	Anticipated impacts	Mitigation measures
	Scheme	final disposal. • Solid waste bins/containers should be placed at appropriate location along the roads and in streets to avoid entrance of solid waste into sewers. • Residents should be educated not to throw solid waste in wastewater sewers. • Regular cleaning of grit chambers and sewer lines should be ensured to remove grease, grit, and other debris that may lead to sewer backups • Inspection of the condition of sanitary sewer structures should be carried out frequently by the proponent.
23	Soil	• Proper maintenance of sewerage and drainage pipes should be ensured. Special arrangements should be made in rainy season to avoid accumulation of rainwater/ for draining of rainwater resulting in contamination of soil. • An efficient system for collection of solid waste should be implemented by the proponent to avoid heaps of solid waste which may result in degradation and contamination of soil. • An awareness campaign should be launched for citizen awareness to maintain cleanliness in the Project Area. Penalties should be made for illegal parking of vehicles on unpaved surfaces.
24	Air Emissions due to operations	• Regular vehicle checks to control/ensure compliance with PEQS. Vehicles with excessive smoke emissions should be monitored and penalties should be imposed in case of non-compliance. • Roadside tree plantations as applicable and feasible under local climatic conditions. Plants should be selected in accordance to their ability to absorb emissions; • Use of gas generators should be preferred for low emissions. • Open burning of waste should be prohibited. • Awareness should be raised among the

Sr. No.	Anticipated impacts	Mitigation measures
		citizen/residents regarding protection of environment through placement of signboards at appropriate places preferably on the roadsides, distribution of leaflets, brochures and advertisements on social media.
25	Noise	- Signs for sensitive zones (health centers / educational institutions etc.) should be pasted to disallow the use of pressure horns - People should be educated to promote using of less horns e.g., by placing signboards at road side - Setting up of functional halls should be allowed in the commercial areas. Noise in late night events should be prohibited.
26	Solid Waste Management & Disposal	- An efficient and responsive general municipal solid waste collection, disposal, and management system should be strictly implemented. - Waste bins should be provided at various convenient locations in the parks and the marketplaces for solid wastes by the passers-by. They should be regularly emptied and replaced, if found damaged and unserviceable. - Throwing of garbage and solid wastes onto greenbelts or vacant plots should be prohibited and fine should be imposed in the case of noncompliance. - The solid waste generated by the residents of the Project shall be collected in the waste bins, and placed at all houses and containers will be placed at various locations keeping in view the design criteria. The solid waste in the containers will be collected through the waste management vehicles and finally will be disposed of at the proposed disposal site.
27	Fire and Explosions Hazard	- Routine inspection should be carried out to check that the area around the generator is free of clutter and no flammable material is present; - Fire control and extinguishing personal should be allocated and trained on handling and controlling accidental

Sr. No.	Anticipated impacts	Mitigation measures
		spillage of flammable substances that may trigger fires; - Standard fire and smoke detection and protection devices such as fire alarms, fire hoses and hydrants should be provided in all critical areas / mega buildings of the proposed Project; - Equipment should be regularly examined and maintained by a reputable fire safety and security company; - Fire awareness materials should be placed in strategic locations and assembly points should be communicated regularly to residents. "No smoking signs and policy should be displayed, as appropriate and actions to be taken against those not adhering to this order; and - Fire safety management should be prepared and implemented.
28	Security issues	A comprehensive Security Plan is developed and implemented for the proposed project which includes construction of a security check post on the main entrance gate consisting of security guards. The aim of the security is to check out the in and out movements of vehicles and to monitor all the security related issues. The security towers are also built at boundary walls of the site. The boundary wall will be secured through fence wire. The walk through gates will also be installed for checking of the workers and visitors. In addition to this the security guards regularly monitor in and around the whole society to ensure proper security. Moreover, the security cameras will be installed and will be control through common control room
29	Ecological Aspect	- Maintenance of the green areas and the protection of saplings to ensure better environmental conditions; - Keep areas weed free. Weeds should be monitored weekly and removed no less than every two weeks. Use of chemicals for weed control and suppression needs to be approved by the concerned authorities.

Sr. No.	Anticipated impacts	Mitigation measures
		Use of fertilizers should be strictly monitored in order to avoid any incident. Natural nutrients should rather be preferred.
30	Socio Economic	During operational phase, employment opportunities will be generated and economic activity will increase due to setting up of shops / market in the planned housing scheme.

ES-6. Proposed Monitoring Plan

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS, an Environmental Monitoring Program should be formulated for construction and operation phase of the project. During construction phase, Construction Contractor will be responsible for monitoring of all environmental parameters (ambient air, noise level, surface and ground water, solid waste and traffic surveys), while the proponent will be responsible for monitoring of environmental parameters (ambient air, noise level, and ground water). This project does not fall in category of industries so the schedule of monitoring is self-defined:

Table 0-8, Proposed Monitoring Plan During Construction

Sr. No.	Parameters	Monitoring schedule
1	Air Quality	Quarterly
2	Noise	Monthly
3	Water	Quarterly
4	Solid waste	Annually
5	Traffic survey	Annually

Table 0-9, Proposed Monitoring Plan During Operational

Sr. No.	Parameters	Monitoring schedule
1	Air Quality	Quarterly
2	Noise	Monthly
3	Water	Quarterly

SECTION - 1: INTRODUCTION

Housing is a basic necessity; its absence exacerbates inequities, hindering productivity and human development. Good shelter policy can be an important contributor to social equity and overall development, and a source of financial stability and economic resilience.

Globally, over a billion people, roughly one out of every seven, have no access to decent quality housing, and some 3 billion will need housing by 2030. Out of the 1,033 million people living in slums and informal settlements, nearly 600 million, or 60%, live in Asia: some 370 million (36%) in East Asia and Southeast Asia, and 227 million (22%) in Central Asia and South Asia. The number is on the increase as about 127,000 individuals come to Asia's cities daily. The housing gap is the worst in lower- and middle-income countries where urbanization and population growth are outpacing the formal housing supply, and an ever-growing number of people are housing-cost burdened or live in inadequate shelter.

Housing development in Pakistan has been a critical aspect of the country's urbanization and economic growth. With a rapidly growing population and increasing urbanization rates, the demand for affordable and quality housing has become more pressing than ever. Over the years, various initiatives and policies have been implemented to address the housing needs of the people, aiming to improve living standards, foster economic development, and alleviate poverty.

The development of housing societies in Chiniot, Pakistan, has been instrumental in catering to the growing population and urbanization trends in the region. Chiniot, known for its rich cultural heritage and economic significance, has witnessed an increasing demand for residential spaces due to factors such as population growth, urban migration, and improving living standards.

Moreover, the development of housing societies in Chiniot has not only provided housing solutions but has also contributed to the overall infrastructure development and economic growth of the region. It has attracted investment, created employment opportunities, and stimulated economic activity in various sectors, thereby fostering local development and prosperity.

Din properties Private Limited intends to develop the sustainable housing scheme named as Din homes Private Housing Scheme at Chiniot.

United Nations Sustainable Development Goals (SDGs)

Access to affordable and adequate housing is also one of the United Nations Sustainable Development Goals, specifically Goal 11 which aims to make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable.

1.1 Identification of Project

The proposed project falls under Schedule II Section H-1 "Housing Societies more than 300 kanals" of EIA/IEE Regulations 2022 read with Punjab Environmental Protection Act (PEPA), 1997 (amended 2012). The total proposed area of project is 788.70 Kanals which is more than 300 kanals and

thus it requires Environmental Impact Assessment (EIA).

1.2 Purpose of Report

The purpose of the Environmental Impact Assessment study (EIA) study is to identify the possible beneficial and adverse environmental impacts of the project as presently envisaged and propose the applicable mitigation measures to be implemented during the construction and operational stages of the project in order to minimize the negative impacts and preparation of Environmental Management Plan (EMP) to obtain No Objection Certificate (NOC) from EPA-Punjab. This EIA report has been prepared keeping in view the following regulations and guidelines:

- Punjab Environmental Protection Agency Regulations, 2022 for review of IEE and EIA.
- Guidelines for Preparation and Review of Environmental Reports- 1997

1.3 Identification of Project and Proponent

The proposed Project consists of the construction of housing scheme under the name of "Din Homes Private Housing Scheme, Chiniot" with project and proponent detail is given as under:-

Name of proponent	Mr. Hashaam Ali CNIC: 36402-89528029 Address: Green Town, House Number 94/S, Street 2, Pakpattan
Developer	Din Properties Pvt. Ltd. (SECP Attached as Annexure-I)
Name of project	"Din Homes Private Housing Scheme, Chiniot"
Location/ Address of the site	Mouza kot Khuda Yar, Chakbandi & Talib, Chak Jhumra Road, Tahsil & District Chiniot.
Salient Feature of the project	Residential Area (1613 Plots), Parks/Open Spaces (12), Public Buildings (09 Plots), Commercial Area (285 Plots), Solid Waste (01), Graveyard (01) and Society office (01).
Major process during construction	Excavations, Concrete, Mixing, Road Works, Elevation, Finishing.
Estimated cost of project	2.76 billion PKR
Plot area of the project	The total plot area of project is 788.70 Kanals,
Electricity connection capacity	8.36 MW
Project completion duration	01 year approx.

1.4 Details of Consultants

Asian Consulting Engineers Pvt Ltd is providing their services to conduct environmental assessment for the project. ASIAN is an independent consulting company working in the field of water and environment. The

company provides consulting services and sustainable solutions for infrastructure projects, industrial projects and social development projects. The environmental team deploy for the project consists of following:

Table 1-1, Environmental Impacts Assessment Team

Sr. No.	Team Member	Position Held	Qualifications
1	Aleem Butt	Chief Environmentalist Team Leader-EIA	M.Phil. Environmental Sciences, Government College University (GCU)Lahore M.Sc. Environmental Sciences, Punjab University (PU), Lahore NEBOSH, Lead Auditor
2	Noman Ashraf	Environmental Specialist	M.Phil. Environmental Sciences, Government College University (GCU) Lahore PGD, Environmental Law University of the Punjab, Lahore
3	Ayesha Rasheed	Environmentalist	BS Hons Environmental Sciences, Government College University (GCU) Lahore
4	Engr. Maryam	Environmental Engineer	B.Sc. Environmental Engineering, University of Engineering & Technology (UET) Lahore
5	Asma Butt	Sociologist	M.Sc. Sociology, university of the Punjab
6	Engr. Umair Tallat	Sr. Field Engineer	M.S. Environmental Engineering, NUST Islamabad
7	Muhammad Abbas	Environmentalist	M.S. Environmental Sciences, PU Lahore

The contact details for the company are given as under:-

Asian Consulting Engineers Private Limited

Tel: +92 42 35450914-5 | **Fax:** +92 42 35450916 | **Mobile:** +92 321 4260133

E-mail: arslan.hanif@asiancon.com, aleem.butt@asiancon.com

Address: C-3, Jhelum Block, Green Forts-II, Lahore, Pakistan.

1.5 Nature, Size and Location of The Project

The proposed housing project is planned to be developed at Mouza kot Khuda Yar, Chakbandi & Talib, Chak Jhumra Road, Tahsil & District Chiniot for land measuring 788.70 Kanals. According to the master plan of Chiniot, the status of the proposed site is already residential, which comprises mix use developments. The components of the project include both linear and non-linear features, which are shown below:

Non-Linear Features:	Linear Features:
Houses of various sizes;	Power Distribution Network
Commercial areas	Roads

Non-Linear Features:	Linear Features:
Parks/open Spaces	Drainage
Graveyard	Sewage System
Public Buildings	Water Supply System
Society Office	Sui Gas
Mortgaged Plots	Communication Network
Solid Waste Management Site	-
Parking	-



Figure 1-1, Location Map of Din Homes Private Housing Scheme

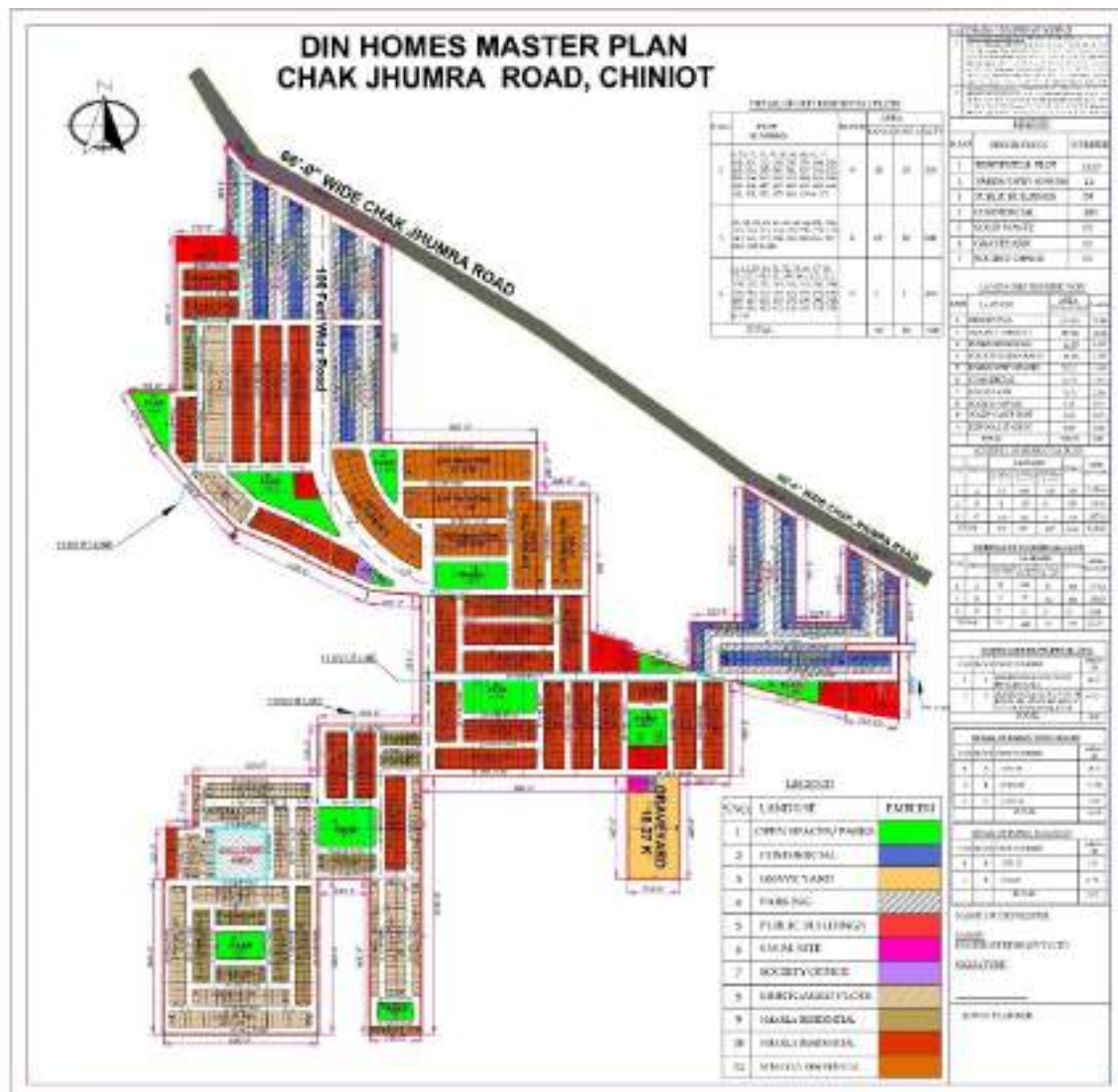


Figure 1-2, Detailed Master Plan of Chiniot

SECTION - 2: SCREENING AND SCOPING OF PROJECT

2.1 Screening of the Project

According to the IEE and EIA Regulations, 2022, read with Punjab Environmental Protection Act (PEPA), 1997 (amended 2012), the proposed project falls under Schedule II Section H-1 "Housing Societies more than 300 kanals" .

The total proposed area of project is 788.70 Kanals which is more than 300 kanals and thus it requires Environmental Impact Assessment (EIA).

2.2 Spatial and Temporal Boundaries of Environmental Assessment

Spatial Boundaries	Temporal Boundaries
REGIONAL: Impact could extend to the region surrounding the proposed Project. - Wastewater Impact - Surface water Impact - Population growth - Changes in land use patterns - Infrastructure demand - Cultural and social dynamics - Natural Resources	YEAR ROUND: Significant throughout the year. - Increased traffic congestion - Noise pollution - Air pollution - Waste generation - Energy consumption - Water demand - Changes in community dynamics - Infrastructure maintenance needs
LOCAL: Impact limited to the local area in close proximity to the proposed Project. - Noise and Air Pollution - Safety and Security - Traffic and Parking - Aesthetic Impact	SEASONAL: Significant on a seasonal basis, depending on nature of valued environmental component (VEC). - Flood - Temperature variations - Changes in precipitation patterns

2.3 Important Issues and Concerns Raised During Consultation

During the survey, respondents were inquired about their views regarding the proposed project. Majority of the respondents had positive thinking and they were in favour of the project. But few respondents showed their concerns during the construction phase, citing worries about dust, noise, and traffic. Additionally, during the operational phase, concerns were raised about traffic, parking, safety, security, and the provision of community facilities.

During the survey, respondents were inquired about their views regarding the perceived impacts of the project during construction and operational phase. The views are:

- There will be noise and dust pollution
- There will be security and safety issues
- There will be traffic and parking issues

2.4 Significant Impacts and Factors to be Determined

- Infrastructure Development
- Environmental Impact
- Traffic and Parking
- Noise and Air Pollution
- Safety and Security
- Aesthetic Impact
- Community Facilities

SECTION - 3: ANALYSIS OF ALTERNATIVE

3.1 General

It provides an analytical overview of the different alternatives that have been considered in the Project. The analysis has been carried out critically so as to justify the need of the Project and the selected options. Besides the economic viability, environmental sustainability and social soundness has also been considered for analyzing various alternatives for the proposed Project. The various alternatives which have been considered during the conduct of the study are as follows:

3.2 No Project Option

The "no project" option can be applied for any and every project. Exercising this option means abandonment of the project altogether and continuing with the existing position i.e., status quo. This option could save the entire project cost of millions of rupees. As mentioned earlier, there is a serious shortfall of housing unit all over the country. Due to rapid urban sprawl and population explosion, demand for housing units is increasing tremendously as compared to availability. The "no project" option would mean further aggravating this availability-demand deficit in the housing sector, which cannot be afforded. Construction of the project is an attempt by Din Properties (Pvt.) Ltd. to reduce the growing gap between availability and demand of housing units for population of Chiniot and nearby settlements. Non-construction of the project would therefore mean worsening the situation and depriving resident of Chiniot for the opportunity of owning a modern housing scheme.

From socio-economic perspective, the "no action" alternative is also not a suitable option as the numerous benefits to be gained from the development both locally and nationally would not be realized and the resources in the area would continue to be underutilized as the land lies deserted.

Thus, "No Project Option" is not the feasible option in terms of environmental and socio- economic benefits.

3.3 Site/Location Alternatives

3.3.1 Site 1:

The Proposed Project Site 1 is located near Chiniot Jhumra Road and Sargodha Faisalabad Road, which are connected to Chiniot Ring Road. This proposed site/ land is the ownership of Din Properties Pvt. Ltd and at present, the status of the site is already residential.



3.3.2 Site 2:

The Proposed Project Site 2 is situated adjacent to Faisalabad Sargodha Road in what is currently an industrial zone. Within close proximity to this site lies Bismillah Tower Industry, located approximately 0.80 kilometers away. The proponent seeks land conversion approval to facilitate the establishment and development of a housing society in this area.



3.3.3 Reason of Selection and Rejection

Site 1	Site 2
The site 1 is preferable as it is already in residential area and no land conversion will be required.	The site 2 is not preferable as it falls in industrial area and it requires land conversion.

3.4 Design/ Technology Alternatives

Green Building Materials: Utilizing environmentally friendly building materials such as recycled concrete, sustainably sourced wood, and energy-efficient insulation will reduce the environmental impact of construction and improve indoor air quality for residents.

Energy-Efficient Technologies: Integrating energy-efficient technologies such as LED lighting, high-performance windows, and energy-efficient appliances will reduce utility costs for residents and minimize the carbon footprint of the housing society.

Green Infrastructure: Incorporating green infrastructure elements such as parks, green roofs, and permeable pavement will mitigate stormwater runoff, reduce flooding risks, and improve overall environmental sustainability within the housing society.

Community Spaces and Amenities: Designing inclusive community spaces and amenities such as parks, playgrounds, community centers, and urban gardens will promote social interaction, physical activity, and overall well-being among residents.

Mixed-Use Development: Integrating commercial, retail, and recreational facilities within the housing society will create a vibrant mixed-use environment that supports local businesses, reduces commuting distances, and enhances the overall livability of the community.

Assess the environmental sustainability of design and technology alternatives, considering factors such as energy efficiency, resource conservation, and carbon footprint. Sustainable alternatives minimize environmental impact and promote responsible stewardship of natural resources.

3.5 Environmental Alternatives

3.5.1 Electricity Alternatives

The primary source of electricity would be FESCO. In case of emergency, two generators will be used with each capacity of 50 KV. Additionally, there are plans to install solar panels in the future as a sustainable energy alternative.

3.5.2 Water Alternatives

Groundwater will be used as the main water source for both construction and operation. Furthermore, a filtration plant will be set up to ensure residents have access to safe drinking water during the operational phase.

3.5.3 Solid Waste

A solid waste management site and disposal station is planned within the proposed project site. Implement a thorough waste segregation plan where residents separate recyclable materials, organic waste, and non-recyclable waste at their homes. Use separate bins or containers for each type of waste to make the segregation process easier and increase recycling rates. Educate residents about the significance of recycling and promote participation through awareness initiatives and incentives.

3.6 Economic Alternatives

The establishment of the housing society will create job opportunities for neighboring communities both during its construction and throughout its operational phase. Creating job opportunities during the construction and operation of nearby communities is economically advantageous, as it supports local communities and stimulates the economy.

SECTION - 4: DESCRIPTION OF THE PROJECT

4.1 Type and Category of Project

The proposed Project is essentially a non-linear housing Project with some components which are of linear nature such as construction of road, water supply and sewerage pipes and gas pipe lines.

The proposed project falls under Schedule II Section H-1 "Housing Societies more than 300 kanals" of EIA/IEE Regulations 2022, read with Punjab Environmental Protection Act (PEPA), 1997 (amended 2012). The total proposed area of project is 788.70 Kanals which is more than 300 kanals and thus it requires Environmental Impact Assessment (EIA), before commencement of construction activities of housing project and allied facilities.

4.2 Objectives of the Project

The objectives of the proposed Project are:

- To improve living condition in Chiniot by providing planned and an affordable housing scheme;
- To enhance commercial and economic activities in the project area;
- To provide various services viz: road network, drainage network, water supply network and sanitary sewerage system, to the people living there.
- To provide employment opportunities both directly (workers and employees) and indirectly by accelerating the business activities in the project area.
- To improve scenic value of the project area; and
- To provide high quality and state-of-the-art living for general public
- Indirectly the project will also improve the living standards of the people and strengthen the economy.

4.3 Location and site layout

The Din Homes Private Housing Scheme, is located at Mouza kot Khuda Yar, Chakbandi & Talib, Chak Jhumra Road, Tehsil & District Chiniot.

The location of the project site is given below;

- North: Mixed use development (Residential and Commercial)
- South: Agricultural
- East: Agricultural
- West: Agricultural



Figure 4-1, Location Map of Din Homes Private Housing Schem

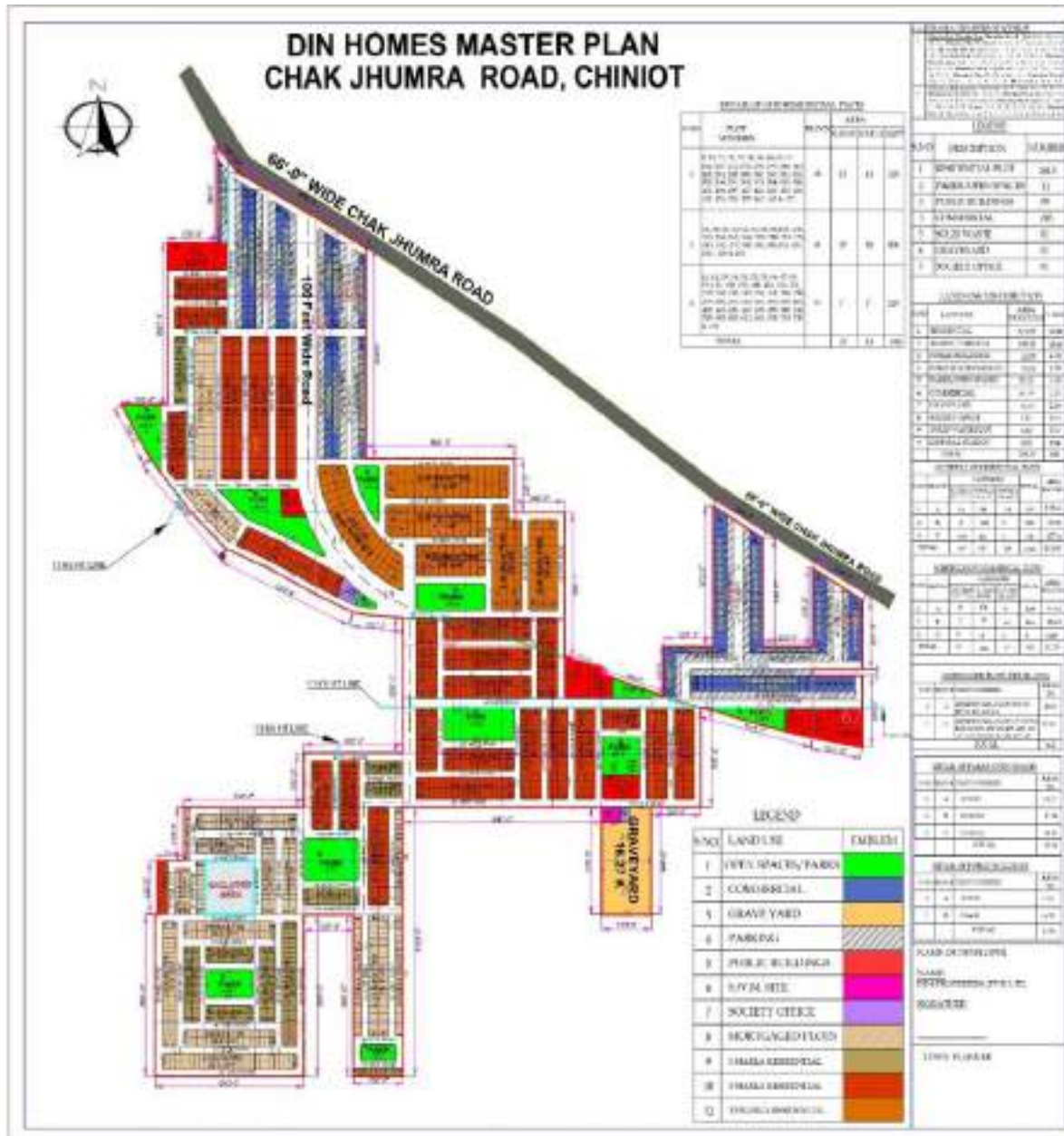


Figure 4-2, Detailed Master Plan of Chiniot

4.4 Land Use Plan

The "Din Homes Private Housing Scheme, Chiniot" comprises of following features.

Total Area : 788.70 Kanals

The salient features of the project are of Residential Plots (1613), Parks/Open Spaces (12), Public Buildings (09), Commercial Plots (285), Solid Waste Site (01), Graveyard (01) and Society Office (01), Parking, Mortgaged Plots. The estimated cost of the project is 2.76 billion PKR. The total of area break-up along with residential, commercial plots, parks/open spaces and public buildings schedule is:

Table 4-1, Area for each Amenity and Schedule of Plots (Area Break-up)

Land Use	Area in Kanals	Percentage
Residential Plots	313.85	39.80
Roads/Parking	319.23	40.48
Public Buildings	11.85	1.50
Public Buildings for DC	11.85	1.50
Parks/Open Spaces	55.22	7.00
Commercial	57.79	7.33
Graveyard	16.27	2.06
Society Office	1.14	0.14
Solid Waste Plot	1.00	0.13
Disposal Station	0.50	0.06
Total	788.70	100%

Table 4-2, Schedule of Residential Plot

Block	Category			Total	Area (Kanal)
	3 Marla (20' X 33.75')	5 Marla (25' x 45')	10 Marla (35' x 65')		
A	24	299	149	472	128.66
B	0	383	0	383	79.78
C	633	125	0	758	105.41
Total	657	807	149	1613	313.85

Table 4-3, Schedule of Commercial Plot

Block	Category			Total	Area (Kanal)
	1.62 Marla (20' X 22'6")	3.31 Marla (30' X 30')	6.62 Marla (30' x 60')		
A	15	154	0	169	27.14
B	0	54	62	116	30.65
C	0	0	0	0	0
Total	15	208	62	285	57.79

Table 4-4, Mortgaged Plots Detail (20%)

Block	Plot Numbers	Area (Kanal)
A	Residential plots 84 to 119 & 455 to 472	13.82
C	Residential plots 75 to 94, 151 to 280, 290 to 409, 480 to 577, 658 to 682 & 694 to 758	60.45
Total		74.27

Table 4-5, Detail of Parks/Open Spaces

Block	Plot Numbers	Area (Kanal)
A	1 to 05	23.27
B	06 to 09	17.84
C	10 to 12	14.11
Total		55.22

Table 4-6, Detail of Public Buildings

Block	Plot Numbers	Area (Kanal)
A	1 to 02	7.35
B	03 to 08	16.35
Total		23.70

Land is the property of Din Properties Pvt. Ltd. Land Ownership documents are attached as Annexure II.

4.5 Road Access

Proposed project is located near Chiniot Jhumra Road and Sargodha Faisalabad Road, which are connected to Chiniot Ring Road. The project location and major roads in the project area is given as under-



Figure 4-3, Road Access Map of Din Homes Private Housing Scheme Chiniot

4.6 Vegetation Feature on Site

The current status of the project site is already declared as residential. A few trees are present at the periphery of some plots that will be transplanted in the green areas/parks and green belts of the proposed housing society. A few shrubs and herbs can be seen as the major vegetation at the project site.

4.7 Cost And Magnitude of The Project

Main activities will be taken during construction phase are construction of infrastructure, installation of machinery and other basic facilities. As it is a housing society so, the activities take place during operation will be according to the consumers. The cost of the project is about approximately 2.76 billion PKR.

4.8 Schedule of Implementation

The completion duration of the project is 01 year approx. There will be a symmetrical process. The process is divided in to 03 phases.

4.8.1 Pre- Construction Phase

This phase includes:

- Site investigation & evaluation
- Budgeting
- Design
- Schedules of working
- Obtaining all relevant NOC

4.8.2 Construction Phase

This phase includes:

- Management team & Construction Crew
- Excavation
- Construction
- Mitigation process
- Managing safety
- Monitoring & Evaluation

4.8.3 Project Operation Phase

This phase includes:

- Implementation of mitigation plan
- Implementation of fire safety plan
- Security management
- Shops & Houses development

4.9 Water Requirement and Wastewater Generation

4.9.1 Construction Phase

During construction phase, ground water will be the sole utilization source to carry out all construction activities.

Table 4-7, Water Requirement and Wastewater Generation During Construction Phase

Estimated No. of Construction workers	100
Average water demand gallon/capita/day (as per WASA)	50
Sub Total for Residential water demand g/d	5,000
Average water demand	
Total	5,000
For Peak Hour Water Demand @ plus 50% on average	
Extra 50% of average water demand	2,500
Total Water Demand g/d	7,500
Total Waste Water Generated g/d	6,000
Total Waste Water Generated m³/d	22.7

4.9.2 Operational Phase

For development stage of the project the ground water will be used. Water requirement is given in following table;

Table 4-8, Water Requirement and Wastewater Generation During Construction Phase

Proposed No. of Residential Units		1613
Estimated No. of person per Unit		6
Total Persons		9,678
	Domestic Water Demand (Residential)	
	Proposed No. of Person	9,678
A	Average water demand gallon/capita/day	50
	Sub Total for Residential water demand g/d	483,900
B	Institutional and Commercial Water Demand	
	For Community Center/Public Building	
	Proposed no. of Person	1935.6
	(20% of People of the total population)	
B-1	Average water demand g/c/d	3
	Sub Total (B-1) g/d	5,807
	For Educational Institution and Commercial Area	

	Proposed No. of Person	1451.7
	(15% of People of the total population)	
B-2	Average water demand g/c/d	8
	Sub Total (B-2) g/d	11,614
	Average water demand	
C	Total of (sub-total A-C)	501,320
	For Peak Hour Water Demand @ plus 50% on average	
D	Extra 50% of average water demand	250,660
	Total Water Demand g/d	751,981
	Total Waste Water Generated g/d	601,584
	Total Waste Water Generated m3/d	2,277

4.10 Power Requirement/ Power Source

4.10.1 Construction Phase

The main source of electricity/electric power during construction phase will be diesel generators for construction camps and construction machinery.

4.10.2 Operational Phase

The predicted total electrical load 8.36 MW which would be fulfilled by Faisalabad Electric Supply Company (FESCO). For emergency purpose, generators will be installed.

4.11 Solid Waste Management

4.11.1 Construction Phase

During construction phase, both domestic and construction waste will be generated. The construction waste will be disposed on approved landfill site from Punjab-EPA whereas the domestic waste will be managed through the EPA approved waste management contractor. The estimated quantity of solid waste generated during construction phase would be:

Table 4-9, Estimated Quantity of Solid Waste Generated During Construction Phase

Estimated No. of Construction Workers	100
Total Solid Waste Generated Kgs/d	50
Total Solid Waste Generated Tons/d	0.05

4.11.2 Operational Phase

Only domestic waste will be generated from the project site. To ensure effective management of solid waste, an area of about 1.00 kanals is

designated for Solid waste plot whereas disposal station would be construed at 0.50 kanals. The overall solid waste would be managed by the proponent that will further be monitored by Punjab EPA. The estimated quantity of solid waste generated during operational phase would be:

Table 4-10, Estimated Quantity of Solid Waste Generated During Operational Phase

Estimated No. of Proposed Perrons	9,678
Total Solid Waste Generated Kgs/d	4,839
Total Solid Waste Generated Tons/d	4.839

4.12 Restoration & Rehabilitation Plan

The main areas to be considered for the site restoration include the construction area along the existing roads but in this case no road will damage if any then it will be restoring to its original condition. The construction of the Housing Scheme will be in the boundary walls of the site. The restoration work comprises the removal of temporary construction works.

No individual will have to leave the area for this project so there will be no resettlement issues. Only small shrubs and herbs are present on project site. To mitigate the impact, trees will be plant accordingly.

4.12.1 Government Approvals

The proponent has obtained planning permission from District council, Chiniot. The project is seeking to be approved from different Government agencies and for these approvals; NOC/Environmental Approval is required from EPA.

SECTION - 5: DESCRIPTION OF ENVIRONMENT

This chapter describes the baseline conditions, which cover the existing physical, ecological, and socio-economic environment of the Project Area as well as the Study Area. Information on these aspects has been derived from the desk study of available data, field visits to the Project/Study Area and information obtained through detailed consultation with the Government departments and other agencies.

5.1 Baseline Physical Environment

5.1.1 Topography

Chiniot city lies on left bank of the Chenab River and is located on a small rocky hill. Much of the surrounding area consists of alluvial plains, interspersed with rocky outcroppings of slate and sandstone that reach up to 400 feet in height around Chiniot.

5.1.2 Geology

The project site is located in Punjab which is a vast plain of alluvial material, deposited by Indus basin and five main rivers crossing the Punjab Plain. The alluvial deposits underlying the site are deposited by the river Ravi and its tributaries. The thickness of alluvial deposits in Chiniot is thought to be more than 300 m which are underlain by the basement rocks of the Indian shield.

5.1.3 Seismology

The project site falls in the Punjab plain which shows low to moderate level of seismicity. The project region has also been subjected to severe shaking in the past due to earthquakes in the Himalayas. The epicentres of low to moderate magnitude earthquakes recorded in the Punjab Plain are associated with the subsurface fractures in the basement rocks which are concealed by the thick alluvial deposits.

Probabilistic seismic hazard assessment recently carried out for Chiniot area as part of the revision of seismic provisions of the Building Code of Pakistan shows that the project area falls in Zone 2A. Seismic zone of Pakistan is shown in figure below. It is therefore recommended that the project structures should be designed to cater the requirements of Zone 2A of Building Code of Pakistan (2007). Based on the evaluation of tectonic setting and seismicity of the project region, it is recommended that the important project structures should be designed to withstand a peak horizontal ground acceleration from 0.8 to 1.6 m.sq/sec.

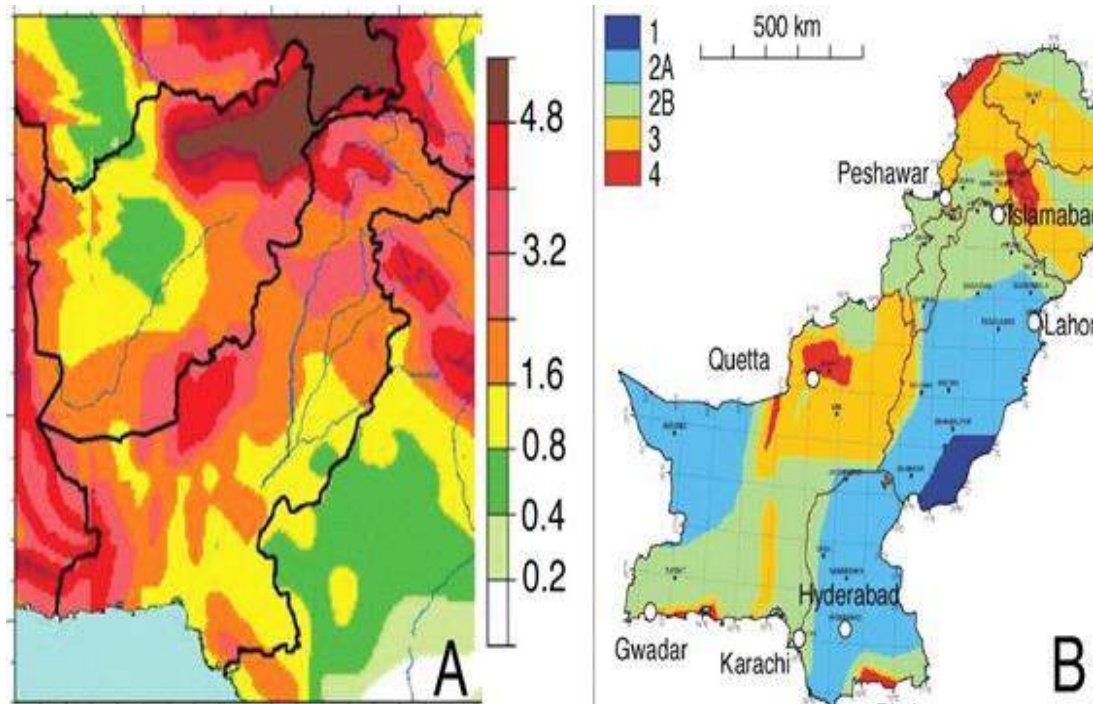


Figure 5-1, Seismic Zone of Pakistan (Geological Survey of Pakistan)

5.1.4 Soil

The top natural soil layer comprises fine grained soils i.e., lean clay/ silty clay. Thickness of this layer is approximately 4.0 m. Approximately 1.0 m thick top part of this stratum was characterized to be contaminated with waste water as identified by its pungent smell. Silty sand is present as a second natural soil layer with a thickness of 5.0 to 9.0 m. 2.0 to 6.5 m thick layer of lean clay/ silty clay exists under the layer of Silty Sand. Thereafter, silty sand interbedded with 4.5 m thick lean clay/ silty clay extends down to maximum explored depth of 30 m.

5.1.5 Climate

Annually climate of Chiniot maximum at 45 °C and minimum at 21 °C is being recorded. Chiniot has a very hot and very dry climate in summer. The minimum temperature recorded in winter was 5 °C. Typically, the temperature reaches 45°C (114 °F) in the summer. Wind and storms are quite uncommon during the summer. The month with the most rain in Chiniot is July, with an average rainfall of 70 mm. The rainless period of the year lasts for 3.4 months, from October 6 to January 20. The month with the least rain in Chiniot is November, with an average rainfall of 2mm.

5.1.6 Average temperatures and precipitation

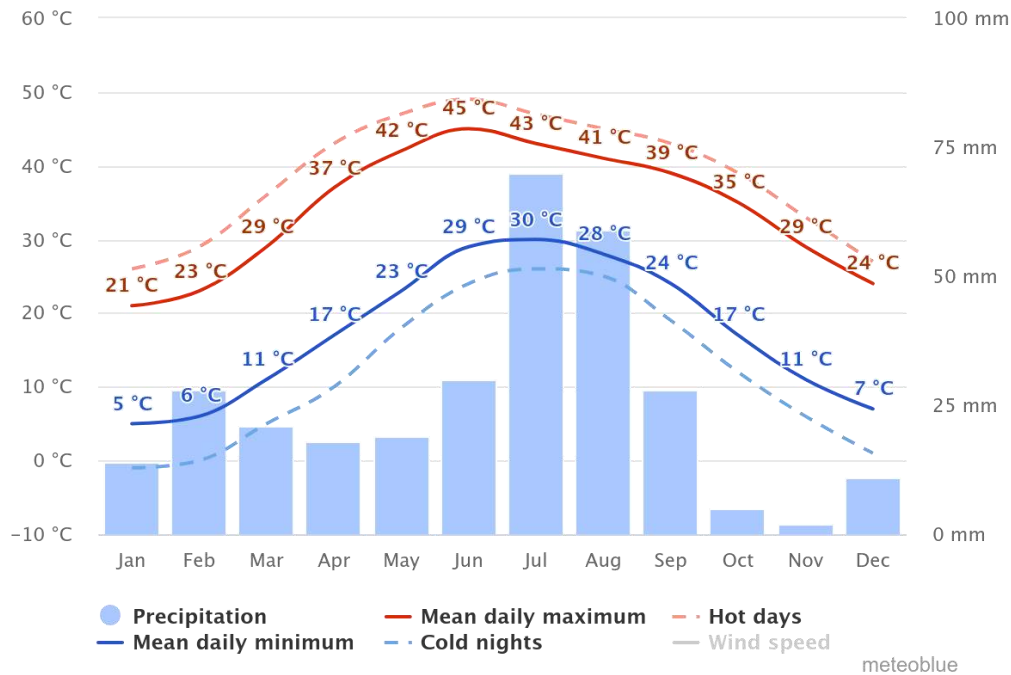


Figure 5-2, Average Temperatures and Precipitation

5.1.7 Cloudy, sunny, and precipitation days

The graph shows the monthly number of sunny, partly cloudy, overcast and precipitation days. Days with less than 20% cloud cover are considered as sunny, with 20-80% cloud cover as partly cloudy and with more than 80% as overcast.

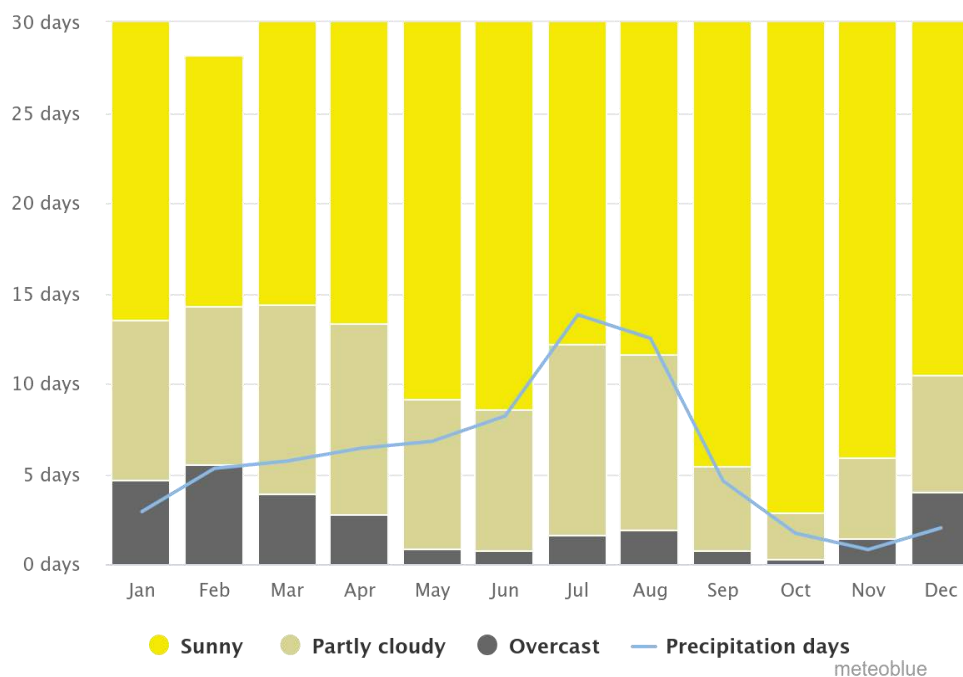


Figure 5-3, Cloudy, Sunny, and Precipitation Days

5.1.8 Precipitation Amounts

The precipitation diagram for Chiniot shows on how many days per month, certain precipitation amounts are reached. In tropical and monsoon climates, the amounts may be underestimated.

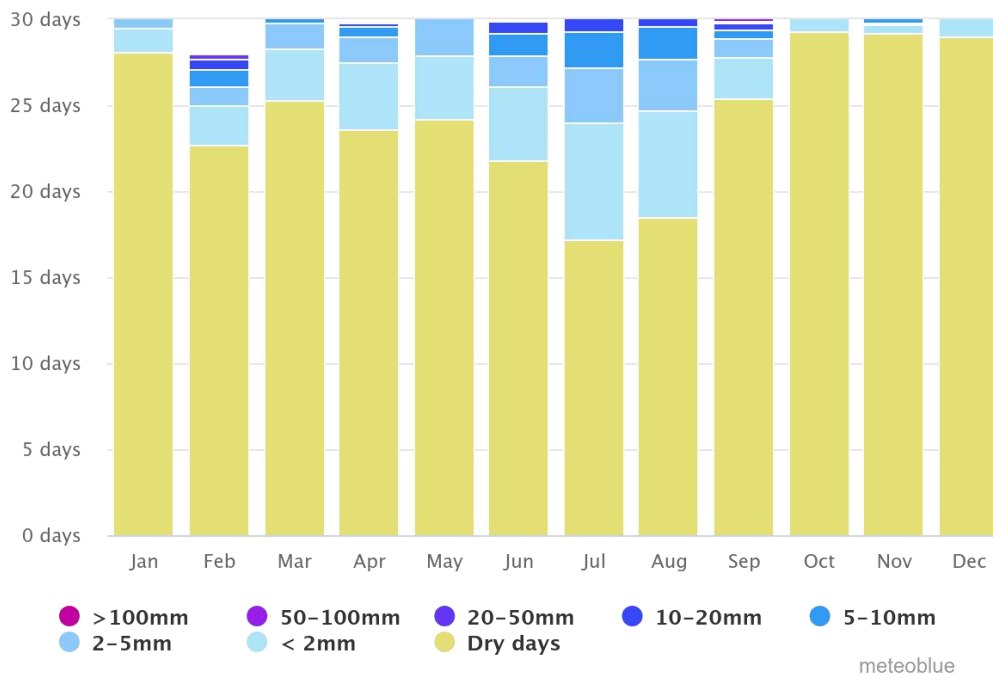


Figure 5-4, Mean Precipitation

5.1.9 Wind Speed

The diagram for Chiniot shows the days per month, during which the wind reaches a certain speed.

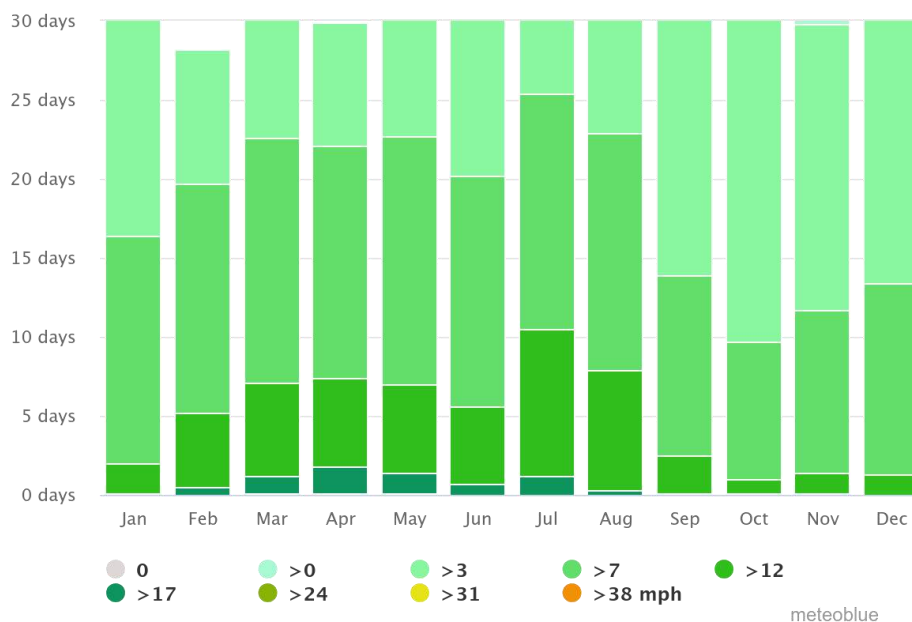


Figure 5-5, Average Wind Speed (Meteoblu)

5.1.10 Wind Rose

The wind rose for Chiniot shows how many hours per year the wind blows from the indicated direction.

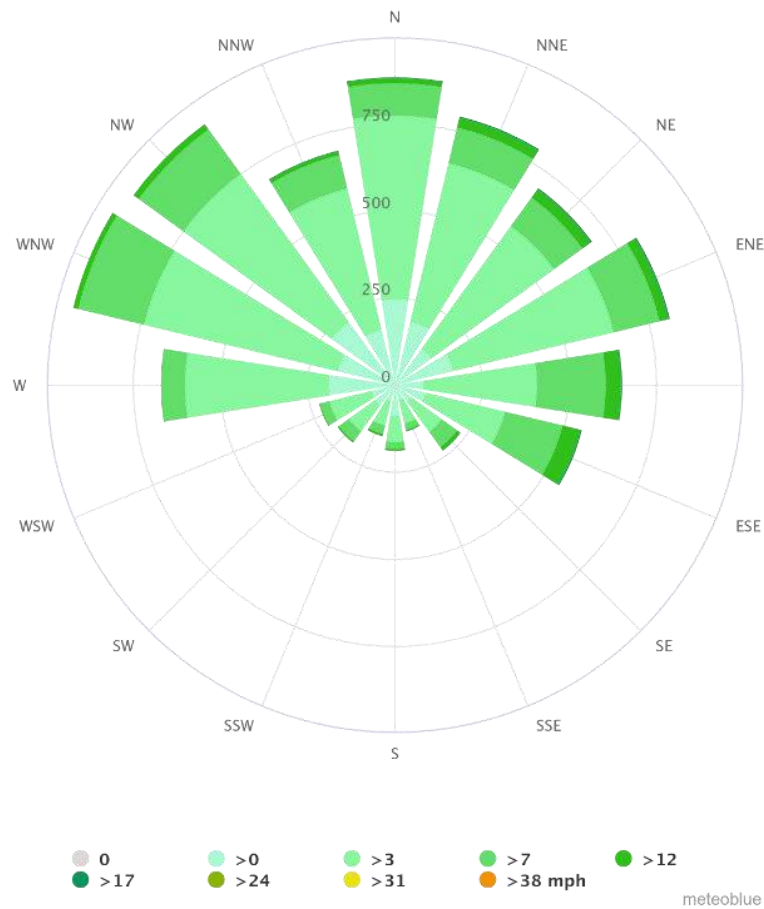


Figure 5-6, Wind Rose

5.2 Water Resources

5.2.1 Surface Water

A river is situated near project site known as Chenab River at the distance of about 10 kilometres the project site also has a canal named as Talib Canal at the distance of 1.16 kilometre.



Figure 5-7, Surface Water Resources Near the Project Site

A surface water sample was taken from Talib Canal. There were no standards available for surface water.

Result Table:

Table 5-1 Surface Water Analysis at Main Canal Sahiwala

Surface Water Analysis Results			
Lab Analysis			
Parameter	Analysis Method	Result	MU (CI95%)
pH**	SMWW 4500 H ⁺ B	7.76	± 0.04
Biochemical Oxygen Demand (BOD ₅) *	SMWW 5210-B	<5	N.A.
Chemical Oxygen Demand (COD)**	SMWW 5220 D	<5	± 4.088
Total Suspended Solids (TSS)**	SMWW 2540 D	386	± 2.2633
Total Dissolved Solids (TDS)**	SMWW 2540 C	138	± 8.0226
Phenolic Compounds (as Phenols) *	SMWW 5530 D	0	N.A.
Grease and Oil**	SMWW 5520 B	0.5	± 0.73
Chloride (Cl ⁻)**	SMWW 4500 Cl ⁻ B	09	± 1.73
Fluoride (F ⁻)**	SMWW 4500 F ⁻ D	0.13	± 0.0505
Cyanide (CN ⁻)*	SMWW 4500 CN ⁻ F	0	N.A.
An-ionic Detergents (as MBAs) *	SMWW 5540-C	0	N.A.
Sulfate (SO ₄ ²⁻) **	SMWW 4500 SO ₄ ²⁻ D	46	± 5.972
Sulfide (S ²⁻) *	SMWW 4500 S ²⁻ F	0	N.A.

Ammonia (NH ₃) *	SMWW 4500-NH ₃ C	0	N.A.
Cadmium (Cd)	SMWW 3113 B	<0.006	N.A.
Chromium (Cr)	SMWW 3113 B	<0.004	N.A.
Copper (Cu)	SMWW 3113 B	0.165	N.A.
Lead (Pb)	SMWW 3113 B	<0.005	N.A.
Mercury (Hg)	SMWW 3112 B	<0.001	N.A.
Selenium (Se)	SMWW 3114 B	<0.01	N.A.
Nickel (Ni)	SMWW 3113 B	< 0.02	N.A.
Silver (Ag)	SMWW 3113 B	<0.002	N.A.
Total Toxic Metals	Calculated Value	0.2971	N.A.
Zinc (Zn)	SMWW 3111 B	0.045	N.A.
Arsenic (As)	SMWW 3114 B	<0.005	N.A.
Barium (Ba)	SMWW 3113 B	<0.0035	N.A.
Iron (Fe)	SMWW 3113 B	0.0721	N.A.
Manganese (Mn)	SMWW 3111 B	0.015	N.A.
Boron (B)	SMWW 3113 B	<0.02	N.A.
Residual Chlorine (Cl ₂) *	SMWW 4500 Cl- B	0	N.A.

5.2.2 Wastewater

The domestic wastewater will undergo treatment in a septic tank prior to final disposal. The nallah is approximately 3 km away from the proposed project site. A dedicated system for wastewater disposal has been established for safe disposal.



Figure 5-8, Distance of nallah from the Project Site

The location map of the Ultimate Disposal of Din Homes Housing Scheme in Chiniot is given below and attached as Annexure VIII.

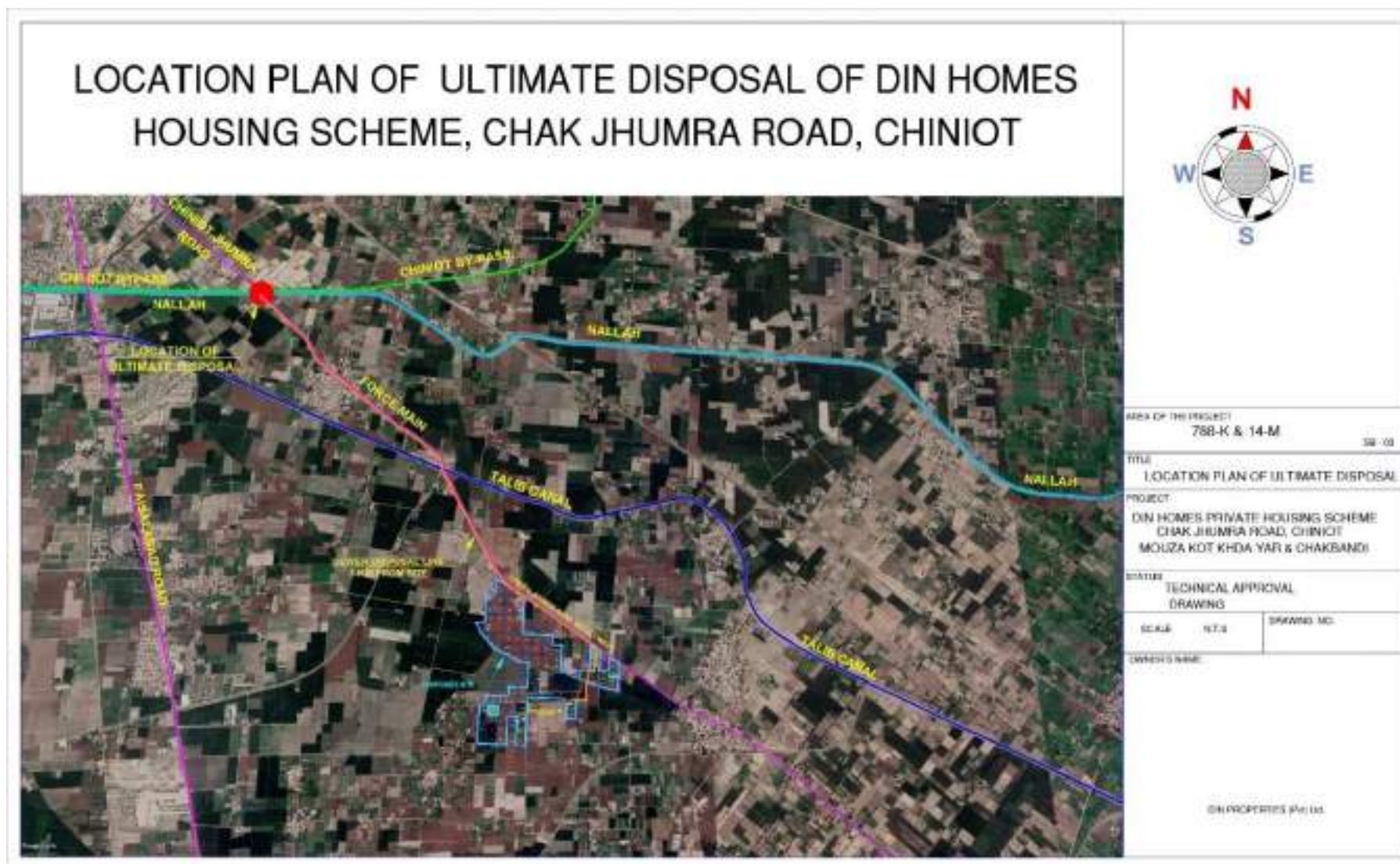


Figure 5-9 Location of Ultimate Disposal of Din Homes Housing Scheme, Chiniot

5.2.3 Ground Water

In the project area, the main source of water for drinking purposes is ground water. The ground water is supplied by pumping system (motor pump, tube well, hand pump) to the residents of the area. The ground water is of good quality and all its parameters being tested are within the PEQS limits and the water is fit for drinking purposes.

To check the quality of the water in the area, ground water samples were collected from near project site. Different physio-chemical parameters and heavy metals were tested by using standard method employed by SMWW. The results of ground water analysis are presented below and the lab reports are attached as Annexure IX.



Figure 5-10 Ground Water Sampling Locations

Result Tables:

Table 5-2, Ground Water Analysis at Tubewell Site 2

Ground Water Analysis Results					
Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color*	SMWW 2120 C	≤ 15 TCU	0	N.A.	Optimal
Taste*	SMWW 2160 C	Non-Objectionable	Non-Objectionable	N.A.	Optimal
Odor*	SMWW 2150 B	Non-Objectionable	Non-Objectionable	N.A.	Optimal
Turbidity*	SMWW 2130 B	< 5 NTU	0	N.A.	Optimal
Total Hardness (as CaCO ₃)**	SMWW 2340 C	< 500 mg/L	420	± 5.1421	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	< 1000 mg/L	758	± 8.0226	Optimal
pH**	SMWW 4500 H ⁺ B	6.5- 8.5	7.53	± 0.04	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.005	N.A.	Optimal

Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	<0.0035	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/L	<0.02	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	<0.006	N.A.	Optimal
Chloride (Cl ⁻) **	SMWW 4500 Cl ⁻ B	< 250 mg/L	55	± 1.73	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	<0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.164	N.A.	Optimal
Cyanide (CN ⁻)*	SMWW 4500 CN ⁻ F	≤ 0.05 mg/L	0	N.A.	Optimal
Fluoride (F ⁻)**	SMWW 4500 F ⁻ D	≤ 1.5 mg/L	0.39	± 0.0505	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/L	0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤ 0.02 mg/L	<0.02	N.A.	Optimal
Nitrate (NO ₃ ⁻) **	SMWW 4500 NO ₃ ⁻ D	≤ 50 mg/L	8.80	± 0.132	Optimal
Nitrite (NO ₂ ⁻) *	SMWW 4500 NO ₂ ⁻ B	≤ 3.0 mg/L	0.03	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl ₂) *	SMWW 4500 Cl ⁻ B	0.5 mg/L	0	N.A.	Optimal
Phenolic Compounds (as Phenols) *	SMWW 5530 D	NGVS mg/L	0	N.A.	-
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.033	N.A.	Optimal
Microbiological Analysis					
Total Coliforms*	SMWW 9222 B	0 CFU / 100 mL	0	N.A.	Optimal
Fecal Coliforms *	SMWW 9222 D	0 CFU / 100 mL	0	N.A.	Optimal

Table 5-3 Ground Water Analysis at Hand Pump

Ground Water Analysis Results					
Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color*	SMWW 2120 C	≤ 15 TCU	0	N.A.	Optimal
Taste*	SMWW 2160 C	Non-Objectionable	Non-Objectionable	N.A.	Optimal
Odor*	SMWW 2150 B	Non-Objectionable	Non-Objectionable	N.A.	Optimal

Turbidity*	SMWW 2130 B	< 5 NTU	0	N.A.	Optimal
Total Hardness (as CaCO ₃) **	SMWW 2340 C	< 500 mg/L	440	± 5.1421	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	< 1000 mg/L	866	± 8.0226	Optimal
pH**	SMWW 4500 H ⁺ B	6.5- 8.5	7.52	± 0.04	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.005	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	<0.0035	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/L	<0.02	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	<0.006	N.A.	Optimal
Chloride (Cl ⁻) **	SMWW 4500 Cl ⁻ B	< 250 mg/L	17	± 1.73	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	<0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.164	N.A.	Optimal
Cyanide (CN ⁻)*	SMWW 4500 CN ⁻ F	≤ 0.05 mg/L	0	N.A.	Optimal
Fluoride (F ⁻)**	SMWW 4500 F D	≤ 1.5 mg/L	1.36	± 0.0505	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/L	0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤ 0.02 mg/L	<0.02	N.A.	Optimal
Nitrate (NO ₃ ⁻) **	SMWW 4500 NO ₃ ⁻ D	≤ 50 mg/L	5.24	± 0.132	Optimal
Nitrite (NO ₂ ⁻) *	SMWW 4500 NO ₂ ⁻ B	≤ 3.0 mg/L	0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl ₂) *	SMWW 4500 Cl ⁻ B	0.5 mg/L	0	N.A.	Optimal
Phenolic Compounds (as Phenols) *	SMWW 5530 D	NGVS mg/L	0	N.A.	-
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.037	N.A.	Optimal
Microbiological Analysis					
Total Coliforms*	SMWW 9222 B	0 CFU / 100 mL	0	N.A.	Optimal
Fecal Coliforms *	SMWW 9222 D	0 CFU / 100 mL	0	N.A.	Optimal

The analysis results indicate that all the parameters are in compliance with the PEQS.

5.2.4 Air Quality

Presently has a low population with low traffic. Although, there is no industry nearby the project site and is covered with shrubs, herbs and small trees and areas. In view of this, the criteria of ambient air quality pollutants (NO_x, SO_x, PM, CO etc), in the area are expected to be well within the acceptable limits. Proper plantation on green belts, avenues and green areas will help to maintain the air quality of the area in future.

The ambient air quality and noise level monitoring was conducted and compared against the Punjab Environmental Quality Standards (PEQS) for Nitrogen Dioxide (NO₂), Nitrogen Oxide (NO), NO_x, Sulphur Dioxide (SO₂), Carbon Monoxide (CO), Particulate Matter (PM₁₀), Particulate Matter (PM_{2.5}) and Total Particulate Matter (TSP) during 24 hours at the project site.

The ambient air and noise level monitoring was conducted for 24 hours at the project site. The GPS coordinates of ambient air quality and noise level monitoring location are 31° 40'23.34" N 73° 2'17.22" E and 31°46'40.44" N 73°2'48.79" E. The ambient air quality and noise monitoring was carried out by Asian Environmental Services Pvt. Ltd (AES). Ambient Air and Noise Quality Monitoring results are provided in below tables.

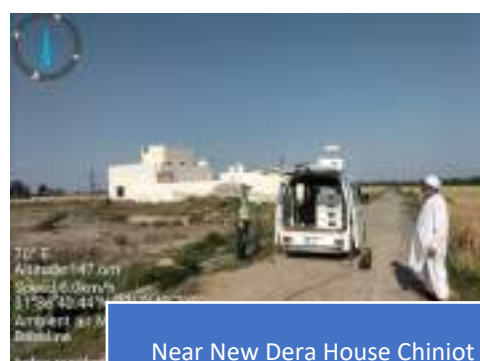


Figure 5-11 Ambient Air Monitoring Location

Result Tables:

Table 5-4, Average Obtained Concentrations of Ambient Air Monitoring at Outside of Site 2 Chiniot

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS	Remarks
Nitrogen Dioxide (NO ₂) *	µg/m ³	24Hours	1.00	21.60	80.0	Optimal
Nitrogen Oxide (NO)*	µg/m ³	24Hours	1.00	17.81	40.0	Optimal
NO _x *	µg/m ³	24Hours	1.00	39.35	120.0	Optimal
Sulphur Dioxide	µg/m ³	24Hours	1.00	31.91	120.0	Optimal

(SO ₂) *						
Carbon Monoxide (CO) *	mg/m ³	24Hours	0.01	0.93	05.0	Optimal
Particulate Matter (PM ₁₀) *	µg/m ³	24Hours	1.00	76.77	150	Optimal
Particulate Matter (PM _{2.5}) *	µg/m ³	24Hours	1.00	19.07	35	Optimal
Total Particulate Matter (TSP)	µg/m ³	24Hours	1.00	102.54	500	Optimal

Table 5-5 Average Obtained Concentrations of Ambient Air Monitoring at Near New Dera House Chiniot

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS	Remarks
Nitrogen Dioxide (NO ₂) *	µg/m ³	24Hours	1.00	21.20	80.0	Optimal
Nitrogen Oxide (NO)*	µg/m ³	24Hours	1.00	17.16	40.0	Optimal
NO _x *	µg/m ³	24Hours	1.00	38.31	120.0	Optimal
Sulphur Dioxide (SO ₂) *	µg/m ³	24Hours	1.00	30.09	120.0	Optimal
Carbon Monoxide (CO) *	mg/m ³	24Hours	0.01	0.88	05.0	Optimal
Particulate Matter (PM ₁₀) *	µg/m ³	24Hours	1.00	98.54	150	Optimal
Particulate Matter (PM _{2.5}) *	µg/m ³	24Hours	1.00	21.08	35	Optimal
Total Particulate Matter (TSP)	µg/m ³	24Hours	1.00	125.45	500	Optimal

The result of ambient air monitoring at monitored locations shows that the values of all monitored parameters are well below the PEQS limits. The details of ambient air monitoring points along with monitoring location is provided in Annexure IX.

5.2.5 Noise

Major source of noise generation is vehicular traffic (particular loaded and unloaded truck, van) along the main road. Noise levels were monitored at different location of the project site. Noise level of the project area was monitored at project site using digital sound meter and the results are presented below and reports are attached as Annexure IX.

Table 5-6, Noise Level Monitoring at Outside of Site 2 Chiniot

Sr. No.	Time	Noise dB(A)		PEQS
1	15:00	51	Day Time	55
2	16:00	50		

3	17:00	53		
4	18:00	54		
5	19:00	50		
6	20:00	51		
7	21:00	50		
8	22:00	44	Night Time	45
9	23:00	41		
10	00:00	40		
11	01:00	39		
12	02:00	38		
13	03:00	32		
14	04:00	34		
15	05:00	31		
16	06:00	38	Day Time	55
17	07:00	40		
18	08:00	43		
19	09:00	45		
20	10:00	46		
21	11:00	49		
22	12:00	52		
23	13:00	54		
24	14:00	53		

Table 5-7 Noise Level Monitoring at Near New Dera House Chiniof

Sr. No.	Time	Noise dB(A)		PEQS
1	16:00	54	Day Time	55
2	17:00	52		
3	18:00	52		
4	19:00	51		
5	20:00	49		
6	21:00	53		
7	22:00	46	Night Time	45
8	23:00	42		
9	0:00	44		
10	01:00	41		
11	02:00	39		
12	03:00	34		
13	04:00	30		
14	05:00	34		

15	06:00	36	Day Time	55
16	07:00	40		
17	08:00	46		
18	09:00	48		
19	10:00	49		
20	11:00	54		
21	12:00	52		
22	13:00	51		
23	14:00	49		
24	15:00	50		

The results of ambient air noise monitoring are well below the limits with respect to the PEQS.

5.2.6 Solid Waste

Only domestic waste will be generated from the project site. To ensure effective management of solid waste, an area of about 1.00 kanals is designated for Solid waste plot whereas disposal station would be construed at 0.50 kanals. The overall solid waste would be managed by the proponent that will further be monitored by Punjab EPA.

5.3 Biological Environment

5.3.1 Fisheries

Schizothorax richardsonii, *Oncorhynchus mykiss*, *Glyptosternum reticulatum*, *Schizothorax sp.* and *Cyprinus carpio* are the key fisheries species found in River Chenab. The project site is located at about 10 km from the river. So, no impact on aquatic biology or fisheries is expected.

5.3.2 Biodiversity

Natural capital of a country mainly includes all of the country's wilderness areas and scenic landscapes, including also with their associated flora and fauna. Pakistan has a total of nine major ecological zones. The contribution of the "Natural Capital" is recognized at three distinct levels: species, genera, and communities (habitat and ecosystem) both collectively and within each level, the range or variety of the resources are referred to as the "Biological Diversity". The term has relevance for each of Pakistan's administrative units' district, province, and particularly country. The more the number of species, genera, and habitats and ecosystems present within these units, the greater is said to be the biodiversity. The biodiversity of the area, with this background, is discussed as under.

5.3.3 Flora

Among trees, Kikar (*Acacia arbica*) and Shisham (*Dalbergia sissoo*) are most

common. Another common tree found in the area is Beri (*Zizyphus jayuba*). Other important types found are Shirin (*Albizzia lebbek*), Jand (*Prosopis spicigera*), Van or Jal (*Salvadora abeoides*), Sarkanda, Aak (*Calotropis hamiltonii*) and Karir (*Capparis aphylla*). Among fruit trees, Date palm, guava and citrus trees are commonly found. The *Munikana* is the characteristic plant of the Chenab and plays a very important part in agriculture. The wood procured from the trees in the area is utilized for manufacturing of various stylish furniture for which Chiniot City is famous throughout the Country.

There is wild growth of Mesquite bushes and some Eucalyptus trees in the areas along the canals, roads and barren land but natural forest cover has been significantly reduced in the past.

5.3.4 Fauna

The beasts of prey found in the Chiniot district are wolf and the wild cat. Wolf is almost non-extinct due to the development of Thall area and habitation. The wild cat, locally called as Bager-Billa, seldom attacks man if it is not harassed. Ravine deer is also available in the area. Jackals are numerous along the Chenab and so are foxes. Pigs are found in various Bellas along the river. Hares are seen more or less all over the district. Domestic livestock include buffalo, cattle, goats and sheep. Donkeys are kept to pull carts in the area. Camel may be found occasionally. Livestock are mainly farm fed. Goats and sheep herds may be raised by feeding on wastelands in the district.

Among the game birds Taliar, sandgrouse, goose, duck and quail are available in plenty. Wild geese (Koonj) also migrate to the area during winter. Partridges are found all over the district. Several venomous snakes inhabit in the district especially in the area lying between Chenab and the Jhelum but their number is on the decrease.

5.3.5 Rare or endangered species

There are no game reserves or protected lands/areas or endangered or rare species either in the area in the range of 5km from the project site.

5.4 Socio-Economic Environment

5.4.1 Population

According to 2020 census, the population of Chiniot was 1,369,740. The estimated population in housing scheme, based on an average 6.67 residents per residential plots is 43,861 persons.

5.4.2 Language

Languages spoken in Chiniot are Punjabi and Urdu.

5.4.3 Major Crops

The main crops of Chiniot are cotton, wheat and rice.

5.4.4 Education and institutions

The education of Chiniot is increasing day-by-day, with its literacy of Chiniot is also increasing. Literacy of Chiniot is about 65%. As education is a must in today's life for a person, government of Chiniot has a great care of it and is developing educational institutions and upgrading the old ones. A lot of intelligent students of Chiniot are getting education in world best institutes outside the country like UK, Australia, Malaysia and China. Institutions including welfare, education (schools & colleges) and Islamic institutions are widely present in Chiniot, making it suitable for housing purposes.

5.4.5 Transportation and Communication

Chiniot is very well-connected with the rest of Pakistan by a main highway and a rail line. The nearest international airport is Faisalabad International Airport, which is 35.91 kilometres from the project site and the Chenal Nagar Railway Station is at 14.94 km away from the project site.



Figure 5-12, Distance of Nearest Airport and Railway Station from project Site

5.4.6 Aesthetic Values

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

5.4.7 Archaeological and Historical Treasures

Archaeological or historical treasures within the project area are not available.

5.5 Lab Reports of Environmental Analysis

Testing of different parameters was done from a certified laboratory named as Asina Environmental Services Private Limited in order to check the quality of different environmental parameters. The copy of the lab reports of these parameters (ambient air analysis, water quality analysis and noise) is attached as Annexure IX.

5.6 Suitability of Site

The proposed land is the property of Din Properties Pvt. Ltd and designated as a residential area as per Master plan of Chiniot district. Since the land has already been converted, as evidenced attached as Annexure II, there is no requirement for further land conversions. Therefore, the project site is ideally suited for the development of a housing society.

SECTION - 6: POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATIONS

This section presents the overall impacts (either beneficial or adverse) of pre-construction/design, construction and operation phases of the proposed Project on the physical, ecological and socio-economic environment of the project site. In addition, it also covers the mitigation measures of the potential adverse environmental and social impacts.

Impacts of the proposed project were identified on the basis of detailed review and analysis of secondary data available for all environmental parameters in Project Area, site surveys and expert opinion on prevailing site conditions and sensitive receptors.

6.1 Methods for Evaluation of Impacts

For the assessment of environmental as well as social potential impacts, following tools were used for:

- Project Interaction Matrix
- Checklists
- Overlays

6.1.1 Project Interaction Matrix

Interaction matrix is a two-dimensional matrix wherein the project actions are placed along one axis (i.e., along y-axis) and on the other axis there are different environmental parameters likely to be affected by the proposed project actions grouped into categories i.e., Physical, Ecological & Socio-economic Environment. Interaction matrix is used in this project due to the following reasons:

- It provides cause-effect relationship between the project actions and resulting consequences impacts.
- It provides nature (+ve or -ve) and weighting of different impacts.
- It provides cumulative impacts of a project.

Matrix grouped project actions into temporal phases. For the impact assessment, project interaction matrix is used by dividing the project action into different phases (Preconstruction, construction and operation). The environmental impacts are divided into three main categories including physical, ecological and socio-economic domains. The environmental impacts of the project actions are identified and weighed into the following categories:

- +3 = Extremely Beneficial
- +2 = Potentially Positive
- +1 = Slightly Positive
- 0 = Insignificant

- -1 = Slightly Negative
- -2 = Potentially Negative
- -3 = Extremely Negative

The assignment of significance is based on the previous knowledge and professional judgment of EIA team experts. The project impact matrix has been developed and attached in Annexure V. It may be noted that the environmental parameters, which are not related to the implementation of the projects, have not been considered in the matrix.

6.1.2 Checklist

The assignment of significance is based on the previous knowledge and professional judgment of EIA team experts. The project Checklist has been developed for "without" and "with mitigation" is attached as Annexure VI. It may be noted that the environmental parameters, which are not related to the implementation of the projects, have not been considered in the matrix.

6.1.3 Overlays

In order to identify the spatial based (location based) impacts, overlays are used. An overlay is based on a set of transparent maps each of which represents the spatial distribution of environmental characteristics (for example susceptibility to erosion). Information for an array of variables is collected for the standard geographical units within the study area and recorded in a series of maps typically one for each parameter. These maps are overlaid to produce a composite map. The resulting composite maps characterize the area's physical, ecological, socio-economic and other relevant characteristics relative to the location of the proposed Project.

6.1.4 Characteristics of Impacts

The predicted impacts have been characterized; various aspects of the impacts include:

- Nature (direct/indirect)
- Duration of impact (Short term, medium term, long term)
- Geological extend (local, regional)
- Timing (Project phase)
- Reversibility of impact (Reversible/Irreversible)
- Likelihood of the impact (certain, likely, unlikely, rare)
- Impact consequence severity (major, moderate, minor)
- Significance of impact (High, medium, low)

The above aspects of environmental characterization are defined in Error! Reference source not found.

Table 6-1, Impact Characterization

Nature	Direct: The environmental parameter is directly changed by the project. Indirect: The environmental parameter changes as a result of change in another parameter
Duration of Impacts	Short-term: lasting only for the duration of the project such as noise from the construction activities. Medium-term: Lasting for a period of few months to a year after the project before naturally reverting to the original condition such as loss of vegetation due to clearing of campsite, contamination of soil or water by fuels or oil. Long-term: lasting for a period much greater than medium term impact before naturally reverting to the original condition such as loss of soil due to soil erosion.
Geographical Extent	Local, regional (spatial dimension)
Timing	Construction and Operation
Reversibility of Impact	Reversible: when a receptor resumes its pre-project condition. Irreversible: when a receptor does not or cannot resume its pre-project condition.
Likelihood of the Impact	Almost Certain: Impact expected to occur under most circumstances. Likely: Impact will probably occur under most circumstances. Possibly: Impact may possibly occur at some time. Unlikely: Impact could occur at some time. Rare: Impact may occur but only under exceptional circumstances.
Impact Consequences severity	Major: When an activity causes irreversible damage to a unique environmental feature; causes a decline in abundance or change in distribution over more than one generation of an entire population of species of flora and fauna: has long term effects (period of years) on socioeconomic activities of significance on regional level. Moderate: When an activity causes long-term (period of years), reversible damage to a unique environmental feature; causes reversible damage or change in abundance or distribution over one generation of a population of flora or fauna: have short-term effects (period of years) on socioeconomic activities of significance on regional level. Minor: When an activity causes short-term (period

	of a few months), reversible damage to a unique environmental feature; slight reversible damage to a few species of flora or fauna within a population over a short period; has short-term (period of months) effects on socioeconomic activities of local significance. Negligible: when no measurable damage to physical, socioeconomic, or biological environment above the existing level of impact occurs.
Significance of Impact	Categorized as High, Medium, Low Based on the consequence, likelihood, reversibility, geographical extent, and duration: level of public concern: and conformance with legislative of statutory requirements.

The impact characterization due to Design, Location, Construction and operational phase is given in their respective sections.

6.2 Environmental Impacts and Their Mitigation During Site Selection Phase

Anticipated impacts of the proposed project have been assessed during site selection, design, construction and operational phase as per Sectoral Guidelines for Housing Estates and New Town Development issued by Pak EPA.

Site selection for a self-sustained housing project is a critical task as it may have serious implications in the future. Inappropriate location of housing scheme may lead to serious operational and environmental concerns. It may lead to increased cost. As per Sectoral Guidelines for Housing Schemes of Pak EPA, site having adverse natural conditions like wetland, flood prone areas, land with excessive slope, land prone to seismic activity or landslide, land with inadequate water and unstable soil conditions should be avoided as these conditions may affect sustainability and future acceptability of the project area. A site previously used for deep mining/ waste disposal/ ground water schemes/ or industrial use resulting in soil and ground water contamination or for petroleum extraction activities etc. can adversely affect the functionality of the project.

The proposed site located at Mouza kot Khuda Yar, Chakbandi & Talib, Chak Jhumra Road, Tahsil & District Chiniot has been evaluated on the basis of above-mentioned parameters. Detailed geological & geotechnical investigations and hydrology study of the Project Area reveals that no adverse natural/ man-made conditions exist in the Project Area. Site does not fall in environmental sensitive or critical areas. No historic and cultural resources exist in the Project Area hence suitable for development of Housing scheme.

6.3 Environmental Impact and Their Mitigation During Pre-Construction/design Phase

6.3.1 Environmental Impacts Regarding Project Location

As already discussed in the location alternative that the current site is already owned by the proponent and is best suitable with reference to studied dimensions of raw material root planning, and green cycle development. Therefore, it is established that this location is the best for development of Housing Scheme.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Land Acquisition and Resettlement	Direct	Medium term	Local	Reversible	Rare	Negligible	Low

Mitigation Measures

As all the land is already owned by proponent- Din Properties Pvt. Ltd and designated as a residential area so no mitigatory measures are required to be discussed.

6.3.2 Topography

The topography in the Project Area will change due to the construction of various project related structures such as houses, buildings, roads etc.

Mitigations Measures

Visual changes to the topography will be permanent and need no mitigation measures except that the project design should consider aesthetic concerns.

6.3.3 Layout Planning

Incompatible layout plan and engineering design of the project's structures can undermine the overall aesthetic beauty and ambience of the Project Area. Also, low utilization of the available spaces and designing the structures without considering the prospective and futuristic needs can result in structures with low social acceptability and functionality.

Incompatible planning and engineering design of the structures with little spaces between adjacent buildings can result in congested structures with poor ventilation, low air circulation and reduced sunlight, inconveniences of movements of the pedestrians, difficulty in transporting materials through

narrow passages and blockage of sunlight. Such structures will in turn have other environmental and social consequences such as restriction of free movement of persons and vehicles. This impact will be permanent and moderate adverse in nature.

Mitigations Measures

All structural, layout and engineering designing of project should be in strict accordance with the applicable bylaws, building codes and engineering parameters.

6.3.4 Seismic Hazard

According to Building Code of Pakistan, most parts of the Project Area lie in zone "2A" of the Earthquake Zones Classification of the Uniform Building Code (UBC-1997) of the United States. Upper Moderate intensity earthquake impacting the project site can adversely impact the development. Project structures may be affected negatively in case of earthquake tremors and the significance of damage depends upon the severity of earthquake.

Mitigations Measures

The structures of the proposed project will be designed and constructed to withstand moderate earthquakes. For seismic hazard analysis, updated structural and seismic evaluations will be consulted

6.3.5 Water Quality

Water consumption may seriously impact the local area water requirements and share in the long run and affect water supply system of surrounding areas due to excessive withdrawal of water.

Drinking water contamination can originate due to improper design of internal water network of the proposed project. If the pipes and the overhead water storage tanks are not scheduled to be cleaned properly, they may lead to bacteriological contamination of the potable/drinking water and thus will lead to infectious diseases/health problems to the staff and patients of the proposed Housing scheme. Furthermore, design and location of water storage tanks may also impact the water quality. This will be a moderate adverse impact.

Mitigations Measures

- A detailed ground water hydrological study and water reservoir assessment is being conducted to foresee the impact of water extraction and recharge, so that there is no negative impact on the surrounding area and the delivery of services.
- All the distribution pipes should be preferably laid one metre away or above the sewer lines.

- Location of water storage tanks should be planned carefully. Water storage tanks meant for drinking should not be located directly beneath any sanitary plumbing or any other pipes conveying non-potable water.
- Water storage tanks must be provided with a cover, designed to prevent the entry of dust, roof water, surface water, birds, animals or insects.
- Water filtration units or water filtration plant of required capacity should be proposed in the design of proposed project in order to avoid any bacterial contamination in the drinking water.

6.3.6 Sewerage and Storm Water Drainage System

Large volumes of wastewaters are expected to be generated during operational phase of the proposed project which need to be managed properly through an efficient sewerage system. Improper designed sewer may not carry the waste load, leading to failure and financial loss. The alignment of sewer lines and sewerage pumping station must be properly planned; else it may lead to both technical and social problems along with environmental issues of back flow creating foul smell and unhygienic conditions.

Accumulation of silt in sewers in low areas over time, overflows, blockages, power outages, harmful working conditions for the workers cleaning sewers etc. are some of the issues that needs to be critically looked into during the sewer system design. Adequate planning for treated effluent and sludge disposal is required to ensure an environmentally benign treatment process. This impact is permanent and moderate negative in nature.

Mitigations Measures

- All sewer lines including trunk, lateral and branch sewer lines must be designed considering the future population and waste generation rate;
- In all cases, the sewer line should be laid deeper than the water pipeline (the difference between top of the sewer and bottom of water pipeline should be at least 300 mm)
- Adequate planning for treated effluent disposal and sludge disposal is required to ensure an environmentally benign treatment process; and
- An efficient storm water drainage system with adequate capacity should be designed according to National Plumbing Code, U.S.A and Building Code of Pakistan.

6.3.7 Air Quality

Development of Din Homes will deteriorate the air quality in the Project Area. Air quality of the Project Area may be affected mainly due to increase in number of vehicles in operation phase. Dust may be generated from unpaved surfaces in proposed Project Area. Air quality may also be deteriorated due to emissions from exhaust of vehicles in the operation phase. The impact will be temporary and moderate adverse.

Mitigations Measures

- Provision of green areas/plantation should be given in the design in order to absorb the emissions due to project activities

6.4 Environmental Impact and Their Mitigation During Construction Phase

Anticipated Impacts during Construction Phase and the recommended mitigation measures have been described below:

6.4.1 Physical Impacts

A) Soil Contamination

Soil Construction activities such as excavation, filling and disposal of materials (both solid and liquid) will affect the existing soil conditions in the Project Site and in its nearby surroundings. Spillage from the generator or from moving vehicle will cause contamination of soil at construction sites.

Construction Camp site will generate about 0.5 kg/person/day solid wastes from site camps and construction debris from construction activities. Although quantity of waste is much less, inappropriate disposal methods will have a negative impact on the physical environment of the project area.

During the construction stage of the project, large quantity of waste materials, chemicals, fuel and lubricants will be used apart from the generation of solid waste and liquid waste from the construction camps. Fuels and chemicals will be stored at the site for their immediate use, which will contaminate the soil.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Soil Contamination and Erosion (Construction Phase)	Direct	Short Term	Local	Irreversible	Likely	Moderate	Low

Mitigation Measures

Good engineering practices will help in controlling soil erosion at construction sites. Following measures will be adopted as per site conditions:

- Soil contamination can be curtailed by reducing the oil spill at project construction areas by well maintaining the construction vehicles as well as generators.
- Confining excavations to the specified spots as per the approved engineering drawings. Unnecessary excavations need to be avoided.
- Septic tanks of adequate capacities should be constructed for receiving and treating wastewater from all temporary worksite toilets and construction camps to avoid soil contamination;
- The Contractor is required to impart proper training to his workforce in the handling and proper disposal of solid waste.
- Proper drainage facility will be provided to avoid the water accumulation, which will minimize the soil contamination.
- Proper solid waste management plan should be developed by the Contractor and implemented to avoid the litter and any other waste problems.

B) Contamination of Surface and Groundwater Resources

A river is situated near project site known as Chenab River at the distance of about 10 kilometers the project site also has a canal named as Talib Canal at the distance of 1.16 kilometer.

During Construction phase, water demand will be enhanced and chances of contamination of water reservoirs will increase. Water will be required for site preparation, water sprinkling to control dust, construction activities, curing, domestic and for other use of labor and staff onsite. Construction waste and wastes from worker's camps, if left unattended may result in forming leachate that can percolate through the soil strata and reach underground water table and hence, may end up contaminating it. There is a probability that various liquids like fuel, lubricant oil and other oily products, which are used during the construction phase may contaminate any groundwater source and surface water bodies, if they are not handled properly. Sewage is generated from the construction camps. This may contaminate the surface water bodies, if not disposed of properly.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Ground Water	Direct	Short-	Local	Irreversible	Unlikely	Minor	Medium

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Contamination (Construction Phase)		term					
Surface Water Contamination (Construction Phase)	Indirect	Short-term	Regional	Reversible	Rare	Minor	Medium

Mitigation Measures

Sewage from construction camp will be disposed off using septic tank which has been designed properly keeping in view the following parameters:

- Soil stratigraphy at site
- Depth of groundwater table
- Discharge of sewage from construction camp

The septic tank will be designed, constructed, and verified by the supervision consultant. The example of the septic tank is shown below.

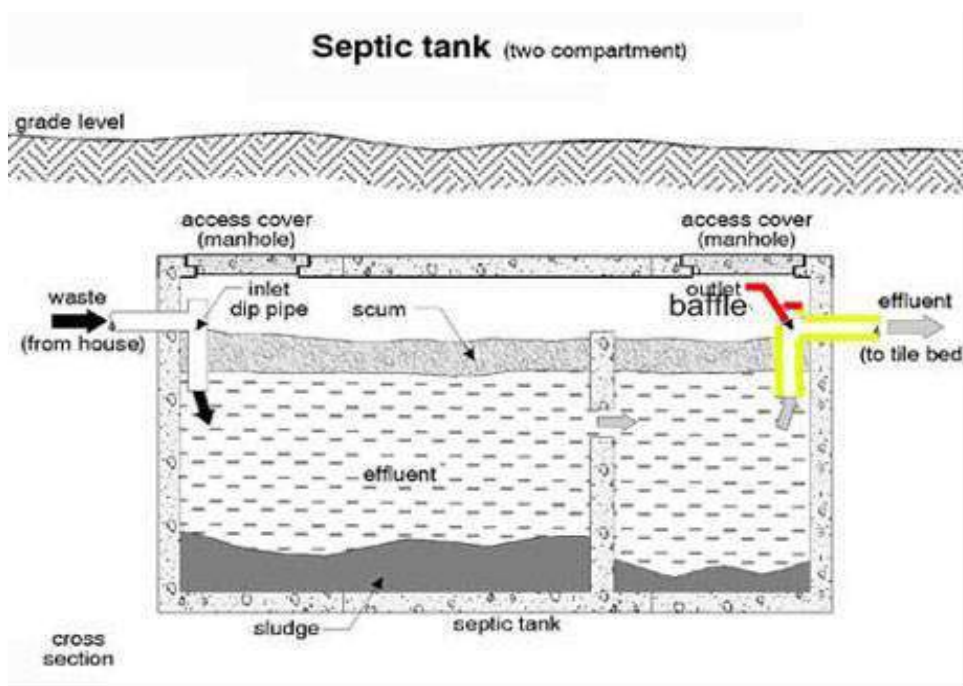


Figure 6-1, Septic Tank

Septic tank and artificial drainage pipe should be developed and attached to natural drainage.

The Contractor should instruct its staff not to throw any of the waste and the

other scarified/scrapped materials directly into the river or canal passing from the project area in order to avoid contamination.

Construction camps should be established in areas with adequate natural drainage channels in order to facilitate flow of the effluents.

Avoid accidental spills of oils and lubricants through good practice. Prepare and implement Emergency Response Procedures in case of any spill hazard.

C) Visual Aesthetics & Landscape Changes

Visual intrusion from large piles of excavated and construction material is one of the possible adverse impacts during the construction phase of the project. This impact is considered to be temporary and low adverse in nature.

Mitigations Measures

Material stockpiles should be removed as soon as work is completed and the area re-landscaped. During work, these stockpiles should be covered with tarpaulin and watered regularly.

D) Impact on Ambient Air Quality

Due to the construction activities like excavation, clearing, levelling and compaction with the use of machinery like batching plants, excavators, dump truck and other transport vehicles etc. Most of these are using diesel engines that generate noise and exhaust emissions. The possibility of exhaust emissions increases when old vehicles/plants are utilized for the execution purposes. Generally, the above activity is generating particulate- matter (PM₁₀), smoke, dust, CO and NO_x in the ambient air, which is deteriorating the air quality and resulting in impacts on human health, fauna and flora. The movement of heavy machinery and vehicles on the dirt tracks is also causing dust emissions. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Air Quality Deterioration (Construction Phase)	Direct	Short term	Local	Irreversible	Possibly	Minor	Medium

Mitigation Measures

- Tuning of vehicles should be made mandatory to reduce the emissions of NO_x, SO_x, CO and PM₁₀.

- Equipment and vehicles powered with diesel should be well maintained to minimize particulate emissions.
- Haul-trucks carrying, earth, sand, aggregate and other materials should be kept covered during transportation of materials and during storage at site, with tarpaulin.
- The fugitive dust emission will not be a problem because the roads are paved but for the precautionary measure sprinkling of water-by-water trucks will be done.

E) Impact on Ambient Noise Levels & Vibration

During the implementation of the project a large amount of equipment and construction machinery will be utilized for construction. The equipment would include excavators, concrete mixer, trucks and other machinery and vehicles. The operation and movement of such equipment will increase the noise and vibration in the Project Area and Neighbourhood residential may be disturbed by the noisy activities. The impact will be significant when compared to the without project situation.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Noise (Construction Phase)	Direct	Short term	Local	Reversible	Possibly	Minor	Medium

Mitigation Measures

- The contractor will make arrangements to bring the noise level within applicable limits (including proper tuning of vehicles and mufflers/silencers).
- Movements of trucks and other construction machinery causing high noise levels must be restricted at night time to avoid disturbance to the nearby locality. Truck drivers will be instructed not to play loud music, especially at night and stop the use of horns.

F) Disposal of Construction Debris & Garbage

During construction phase of the Project, construction waste will produce, the disposal of which, if not managed properly could have negative impacts on the site and surrounding areas. Clearing of shrubs and grass could pose a fire hazard and affect air quality if burned on location. Construction materials including concrete waste, wood, steel, packaging plastics etc. could be dispersed that may result in the blockage of drainage channels if not disposed of at approved disposal sites.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Construction Debris & Garbage (Construction Phase)	Direct	Short term	Local	Reversible	likely	Moderate	Medium

Mitigations Measures

- A site waste management plan shall be made the responsibility of the construction contractor to provide for the designation of an appropriate waste storage area on the site and a schedule for the timely collection and removal of construction debris to an approved dump site.
- The construction waste will be disposed of on an approved (from TMA/Punjab-EPA) dumping site. Client will bound the contractor to hire an EPA approved vendor which shall in turn dispose of the waste in government notified landfill/disposal area.
- Client will engage a third-party contractor to collect organic waste from site and then convert into compost.
- Arrangements shall be made for regular garbage collection and removal of sewage from the construction site.

G) Traffic Annoyance

Due to construction activities, there is little increase in traffic flow on link roads for regular income and outgoing of construction vehicles. Due to increase in the traffic flow the locals may be affected in respect of traffic delays in and around the project site

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Traffic Annoyance (Construction Phase)	Direct	Short Term	Regional	Irreversible	Likely	Moderate	Medium

Mitigation Measures

During the construction phase traffic control measurement will be implemented. All construction materials will be transported to the site at night time due to at night time traffic flow very low in the project area.

H) Solid Waste (Construction, Municipal and Hazardous Waste)

Different type of waste is likely to be generated during the construction phase of the project. The municipal waste will be in the form of food, cans, paper and wastewater from construction camps toilets and washing yards. Construction waste will include excavated soil, sand, gravel, rocks, asphalt, pieces of concrete, bricks, wood, metal pieces and electrical wires whereas hazardous waste can be comprised of paints and construction chemicals. All these, if left unattended, can become a source of nuisance and environmental pollution in the Project Area. Insecure and unhygienic disposal of the solid wastes particularly garbage and trash may cause degradation of soil and land. Insecurely disposed of heaps of wastes containing kitchen garbage and food waste can serve as breeding grounds for the disease spreading vectors and rodents. These impacts are temporary and moderate adverse in nature.

Mitigation Measures

- Solid waste generated during construction and camp sites should be safely disposed of at designated waste disposal sites.
- Proper labelling of waste containers, including the identification and quantity of the contents, hazard contact information should be carried out.
- Training of employees involved in the transportation of hazardous material regarding emergency procedures should be ensured.
- Construction workers and supervisory staff should be encouraged and educated to practice waste minimization, reuse and recycling to reduce quantity of the waste. A comprehensive plan for construction waste management should be adopted.

I) Occupational Health and Safety

Health risks and work safety problems may result at the workplace/camps if the working conditions provide unsafe and/or unfavourable working environment due to storage, handling and transport of construction materials. The health and safety issues are also associated with the malfunctioning in operation of construction machinery and equipment which may cause minor to severe injuries to workers. This impact is permanent and high adverse in nature.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Occupational Health and Safety	Direct	Medium	Local	Reversible	Likely	Minor	Low

Mitigation Measures

- PPEs will be provided to workers during constructional activities.
- First aid will be provided to project-related employees. Especially the workers dealing with loading and unloading of material.
- Workers will be trained in the operation of different construction equipment while following safety protocols.
- Job Hazard Analysis involves breaking down each task into individual steps, identifying potential hazards at each step, and determining preventive measures to ensure worker safety.
- Provide comprehensive training to ensure workers are equipped to safely perform tasks, reducing the occurrence of accidents and injuries.

Environmental awareness will be conducted, ensuring all workers are equipped with safety boots, helmets, gloves, and protective masks, and consistently monitored for proper usage. In case of accidents, the contractor will provide free medical treatment to the community.

Conduct hygiene training for employees to promote awareness and good practices. Regularly inspect and maintain machinery to ensure proper functionality.

Preparing layout plan for camp site, indicating safety measures taken by the contractor, e.g., firefighting equipment, safe storage of hazardous material, first aid, security, fencing, and contingency measures in case of accidents All potable drinking water supplies to be tested regularly on monthly basis during the entire construction phase

J) Community Health and Safety

The construction activities and vehicular movement at construction sites and access service roads may also result in accidents along road side as the local communities may not be familiar with the presence of heavy equipment and machinery. This is a permanent and high adverse impact. Quality of ground water and surface water resources available in the nearby local communities may get contaminated due to the construction activities, oil spillage and leakage, roadside accidents etc.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Community Health and Safety	Indirect	Short Term	Local	Reversible	Likely	Moderate	Medium

Mitigation Measures

- There should be proper control on construction activities and particularly oil spillage/ leakage of vehicles, machinery and equipment
- Efforts should be made to create awareness about road safety among the drivers operating construction vehicles
- Provision of proper safety and diversion signage at sensitive/accident-prone spots
- Setting up speed limits in the construction areas in close consultation with the local stakeholders
- Keeping out of non-working persons, particularly children, off work sites

K) Emergency Response to Natural and Man-made Disasters

Natural Disasters such as earthquakes & flooding and other disasters triggered by humans such as act of terror etc. may occur, and must be considered to avoid or for minimize their impacts. This impact will be permanent and moderate in nature

Mitigations Measures

Emergency Response Plan should be implemented in close consultation with the District Rescue Service, fire-fighting department, bomb disposal squad and paramedics. In addition, training of the staff/employees regarding the emergency procedures/plans should be regularly conducted.

6.4.2 Ecological Impact

A) Flora

The current status of the project site is already declared as residential. A few trees are present at the periphery of some plots along with herbs, shrubs and weeds present on project site that will be cleared during construction phase

Mitigations Measures

The master plan of project consists of development of green area and parks which will improve the overall biodiversity of the area. Any trees cleared

during construction works will be that will be transplanted in the green areas/parks and green belts of the proposed housing society.

B) Fauna

During construction phase the existing population of mammals and reptiles of the proposed areas will be affected due to disturbance arising from activities involving movement of machinery and vehicular traffic, movement of labor, camping, etc. The existing animals will leave the directly affected areas due to activities and human intervention. Some animals particularly reptiles may get killed during the earthwork's operations. Moreover, the movements of the mammals and reptiles will be restricted during the construction phase.

Birds as well will tend to move away from the nearby areas and find shelter and food elsewhere due to the activities mentioned above for fear of being hunted / trapped.

Noise generated from machinery particularly during the night hours will even scare the wildlife residing in habitats located at some distance from the areas. This impact is indirect, site- specific, temporary, reversible and medium significant.

Mitigation Measures

- Special measures shall be adopted to minimize impacts on the wild birds, such as avoiding noise generating activities during the critical periods of breeding
- Wastes shall be properly disposed of to prevent it being eaten by animals, as it may be hazardous to them.

6.4.3 Social/ Cultural Conflicts

During the construction phase of the project, conflicts may arise between labor force and local community. Use of local resources and products by the construction workers can generate stress on the local biophysical resources. Furthermore, difference in cultural values may also cause discomfort to local residents. This impact is temporary and moderate adverse in nature.

Mitigation Measures

- Local labor should be preferably employed for the construction works;
- Careful planning and training of work force to minimize disturbance to the local people;
- Public notification through media during the entire construction phase to avoid any inconvenience in accessibility to the locals.

6.4.4 Positive Impacts

Following are the positive social impacts of the proposed project.

A) Impact on Economy

Implementation of housing schemes has been linked with economic development so the proposed project will play a significant role in the economic development of a region, as well as the nation as a whole. Due to the construction of the proposed project, economic activity will be generated in the Project Area as the laborers and semi-skilled staff will have an opportunity to work for the construction of the proposed project. This will help in developing their skills and capacities. This is a moderate positive impact.

B) Impact on Employment

Implementation of the society will lead to employment generation which will have beneficial impacts on the socio-economic conditions of the area. According to the baseline survey, the proposed project will create direct and indirect employment opportunities. Direct employment includes skilled or unskilled labor while indirect employment includes jobs created in support of the economic zone like hotels, restaurants, retail stores, sports, banks and local transportation. It will also generate employment opportunities for women workers. Therefore, the proposed project would open new avenues for alternative sources of income and employment in different sectors.

C) Impact on Standard of Living

Standard of living means good living condition, happiness and satisfaction of people living near the proposed project. People living in the community will experience gradual changes brought about by the construction and full operation of the proposed project. The experiences will have great impact on the quality of life of the people. Completion and operation of the proposed project will increase income of the people which will raise the standard of living. Increased economic activities will promote development of business, trade and commerce which leads to the generation of income and employment. These activities would help to meet the basic needs of housing, health, education and food that will ultimately improve their living condition, quality of life and assuages poverty.

D) Risk Assessment

Risk assessment is done for construction phase which will describe the potential impacts/hazards so that the precautions/control may adopt accordingly.

Table 6-2, Risk Assessment Guidelines

Risk Magnitude/ Severity	Assigned Values	Probability/ Likelihood	Assigned Values
Low	1	Highly Unlikely	1
Medium	2	Unlikely	2
High	3	Possible	3
Extreme	4	Likely	4
Catastrophic	5	Very likely	5

**Table 6-3, Risk Assessment During Construction and Operational Phase of
Din Homes Private Housing Scheme**

Hazard	Source	Duration Hours/day	Severity S	Likelihood L	Risk amount S*L
Noise	Generators and excavation	8	2	4	8
Dust	Excavation and transportation of construction materials	8	3	4	12
Vibration	Excavation	8	2	3	6
Falling objects	Construction activities	8	4	2	8
Ergonomics	No proper posture for Work	8	3	3	9
Work load	Continues work	8	2	3	6
Temperature	Sunlight during summer	8	3	4	12
Fire	Flammable materials, electrical short circuit	8	3	4	12
Work at height	----	During work	3	4	12
Air pollution	Vehicles and generator	During their working	3	5	15

Likelihood →	1	2	3	4	5
Severity ↓					
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

Green colour boxes (1-5): Low risk and unlikely to cause health impact.

Yellow colour boxes (6-12): Noticeable risk. It has potential to cause medium impacts.

Red colour boxes (15-25): High risk & cause high level health impacts.

E) Controls

All most all the risks which can occur in this project during both construction and operational phase not fall in high-risk area except air pollution. But there is still need of controls which are given below:

- Generator should put at such place where its noise does not disturb the community as well as the workers during construction, during operation it should place on the top of the building and should place in closed canopy.
- New technology generator should be used and its proper maintenance to avoid the air emission.
- Regular tuning of construction vehicles and generators.
- To avoid the dust water should sprinkle after specific duration.
- PPE should be provided to workers.
- Job rotation to avoid work pressure.
- Proper holdings, controls and use of PPEs for safe work at height.

6.5 Environmental Impacts and Mitigations Measures During the Project Operation

Anticipated impacts during Operational Phase and the recommended mitigation measures have been described below

6.5.1 Water Resources

Water resources may be affected during operational phase. Excessive withdrawal of groundwater for a prolonged period of time without adequate recharge may affect availability of water. Careless behaviour of residents may result in wastage of water, pollution of groundwater due to percolation of polluted water/ leaked oil during maintenance etc. into groundwater.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Water Resources (Operational Phase)	Direct	Short Term	Local	Irreversible	Unlikely	Minor	Medium

Mitigations Measures

- Water meters should be installed and water quantification logs will be maintained.
- At the time of construction of house or any other public building, people should be encouraged to install auto shutoff water taps to prevent water wastage
- Groundwater abstraction should be scheduled according to the aquifer parameters to ensure sustainable withdrawal of the groundwater
- Water filters should be installed with the water supply sources, if required on the basis of laboratory test reports.
- An awareness campaign should be launched to educate the people about the importance of economical use of water.

6.5.2 Waste Water

Improper operation and maintenance of sewerage system may lead to illegal ingress of municipal solid waste into manholes/sewers, deposition of silt/sludge reducing capacity of sewers significantly, choking of sewer resulting in stagnant of wastewater in the streets or in low lying areas. Stagnant wastewater may cause inconvenience to pedestrians, foul smell, unhygienic environment and health issues.

The waste water poses the threat to fresh water resource if not been treated. Additionally, it may deteriorate quality of downstream and may also be threat to the local flora and fauna.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Wastewater-Operational Phase	Direct	Medium Term	Local	Reversible	Possibly	Moderate	Medium

Mitigation Measures

- The wastewater will be domestic in nature and will be treated in septic tank before the final disposal.
- Solid waste bins/containers should be placed at appropriate location along the roads and in streets to avoid entrance of solid waste into sewers.
- Residents should be educated not to throw solid waste in wastewater sewers.

- Regular cleaning of grit chambers and sewer lines should be ensured to remove grease, grit, and other debris that may lead to sewer backups
- Inspection of the condition of sanitary sewer structures should be carried out frequently by the proponent.

6.5.3 Soil

In the operational phase of the project, soil may get contaminated/ degraded due to many factors including accumulation of wastewater/rain water, illegal parking of vehicles on unpaved surfaces, spillage of oil and paint during maintenance, heaps of solid waste etc.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Soil (Operational Phase)	Direct	Short Term	Local	Irreversible	Likely	Moderate	Low

Mitigation Measures

- Proper maintenance of sewerage and drainage pipes should be ensured. Special arrangements should be made in rainy season to avoid accumulation of rainwater/ for draining of rainwater resulting in contamination of soil.
- An efficient system for collection of solid waste should be implemented by the proponent to avoid heaps of solid waste which may result in degradation and contamination of soil.
- An awareness campaign should be launched for citizen awareness to maintain cleanliness in the Project Area. Penalties should be made for illegal parking of vehicles on unpaved surfaces.

6.5.4 Air Quality

Air quality of the Project Area may be affected in the operational phase mainly due to increased vehicular movement and open burning of solid waste and garden waste. Poor maintenance of vehicles, use of low-quality fuel, lubricants and oil result in generation of CO, NOx, SOx and PM10 which deteriorate the air quality in the Project Area. Operation of generators in case of emergency, if not managed properly may contribute to deterioration of the air quality. Practice of open burning of garden waste and other municipal solid waste may further deteriorate air quality.

Deteriorated air quality may result in causing public health risks, nuisance and other potential adverse impacts on environment.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Air Emissions - Operational Phase	Direct	Short term	Local	Irreversible	Possibly	Minor	Medium

Mitigations Measures

- Regular vehicle checks to control/ensure compliance with PEQS. Vehicles with excessive smoke emissions should be monitored and penalties should be imposed in case of non-compliance.
- Roadside tree plantations as applicable and feasible under local climatic conditions. Plants should be selected in accordance to their ability to absorb emissions;
- Use of gas generators should be preferred for low emissions.
- Open burning of waste should be prohibited.
- Awareness should be raised among the citizen/residents regarding protection of environment through placement of signboards at appropriate places preferably on the roadsides, distribution of leaflets, brochures and advertisements on social media.

6.5.5 Noise

During the operational phase, the noise levels are anticipated to increase mainly due to traffic related noise pollution and due to commercial activities in the Project Area. Poorly maintained vehicles having faulty silencers, and use of pressure horns by the drivers are main sources of noise pollution. Fireworks and use of drums on the domestic and other occasions are also source of noise pollution.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Noise (Operational Phase)	Direct	Short term	Local	Reversible	Possibly	Minor	Medium

Mitigations Measures

- Signs for sensitive zones (health centers / educational institutions etc.) should be pasted to disallow the use of pressure horns

- People should be educated to promote using of less horns e.g., by placing signboards at road side.
- Setting up of functional halls should be allowed in the commercial areas. Noise in late night events should be prohibited.

6.5.6 Solid Waste

Solid waste management is a critical issue in the operational phase. Improper management of solid waste and accumulation of solid waste due to non-collection give rise to various severe issues to environment and health. The types of waste generated during the operational phase of the project include domestic waste from houses, community centres, mosques commercial areas etc.

To ensure effective management of solid waste, an area of about 1.00 kanals is designated for Solid waste plot whereas disposal station would be construed at 0.50 kanals. The overall solid waste would be managed by the proponent that will further be monitored by Punjab EPA.

Presence of solid waste heaps results in degradation of soil and land, choking of sewers if got way, create obnoxious odour due to decay of organic matter, provide breeding places for animals and insects causing spread of disease and may percolate in the ground water in the form of leachate.

Impact	Nature	Duration	Geo Extend	Reversibility	Likelihood	Consequence	Impact Significance
Solid Waste Disposal - Operational Phase	Direct	Medium Term	Local	Reversible	Possibly	Moderate	Medium

Mitigation Measures

- An efficient and responsive general municipal solid waste collection, disposal, and management system should be strictly implemented.
- Waste bins should be provided at various convenient locations in the parks and the marketplaces for solid wastes by the passers-by. They should be regularly emptied and replaced, if found damaged and unserviceable.
- Throwing of garbage and solid wastes onto greenbelts or vacant plots should be prohibited and fine should be imposed in the case of noncompliance.
- The solid waste generated by the residents of the Project shall be collected in the waste bins, and placed at all houses and containers

will be placed at various locations keeping in view the design criteria. The solid waste in the containers will be collected through the waste management vehicles and finally will be disposed of at the proposed disposal site.

6.5.7 Fire and Explosions Hazard

Improper handling and storage of chemicals, and constructed electric installations can lead to fire and explosion that may in turn cause injury and possible death. Fuel or oil spills around the generator and presence of combustible materials in mega buildings and other specific areas of Din Homes, Chiniot may pose a risk of a fire explosion.

Mitigations Measures

- Routine inspection should be carried out to check that the area around the generator is free of clutter and no flammable material is present;
- Fire control and extinguishing personal should be allocated and trained on handling and controlling accidental spillage of flammable substances that may trigger fires;
- Standard fire and smoke detection and protection devices such as fire alarms, fire hoses and hydrants should be provided in all critical areas / mega buildings of the proposed Project;
- Equipment should be regularly examined and maintained by a reputable fire safety and security company;
- Fire awareness materials should be placed in strategic locations and assembly points should be communicated regularly to residents. "No smoking signs and policy should be displayed, as appropriate and actions to be taken against those not adhering to this order; and
- Fire safety management should be prepared and implemented.

6.5.8 Security Issue

There is need for vigilant security presence in and around the project site round the clock on a permanent basis to guard against any theft and terrorist activities. The security concerns will have to be addressed adequately. Any threat to the security should be dealt with as a major challenge.

Mitigation Measures

- A comprehensive Security Plan is developed and implemented for the proposed project which includes construction of a security check post on the main entrance gate consisting of security guards. The aim of the security is to check out the in and out movements of vehicles and to monitor all the security related issues. The security towers are also built at boundary walls of the site. The boundary wall will be secured through fence wire. The walk through gates will also be installed for checking of the workers and visitors. In addition to this

the security guards regularly monitor in and around the whole society to ensure proper security. Moreover, the security cameras will be installed and will be control through common control room

6.5.9 Ecological Aspect

No adverse impacts are envisaged on ecology of the study area during the operation phase. Flora comprising trees, flowering plants, shrubs etc. shall be planted in and around the project area to enhance the aesthetic value and to control noise and air pollution.

However, mismanagement of green areas/parks may result in clogging of drains, nuisance due to stagnant water, chemical pollution due to use of fertilizers and nuisance/accident/hindrance due to old or broken tree, etc. This impact can be categorized as local, low, short term and low.

Mitigation Measure

- Maintenance of the green areas and the protection of saplings to ensure better environmental conditions;
- Keep areas weed free. Weeds should be monitored weekly and removed no less than every two weeks. Use of chemicals for weed control and suppression needs to be approved by the concerned authorities.
- Use of fertilizers should be strictly monitored in order to avoid any incident. Natural nutrients should rather be preferred.

6.5.10 Landscape Changes

At present, the landscape of the project area is already residential. So, after the development of housing scheme, the landscape of the project area will remain as a result of infrastructure, various housing and building structures and planned plantation of trees. This will permanently change the landscape of the project area and will have a positive impact in terms of socio-economic development of the project area.

6.5.11 Employment Opportunities

During operational phase, employment opportunities will be generated and economic activity will increase due to setting up of shops / market in the planned housing scheme.

6.5.12 Community Development

The project development will provide safe and secure environment for living and commercial activity. Better infrastructure will improve the quality of life in the project area.

6.5.13 Potential Environmental Enhancement Measures

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

- PPEs will be provided during construction & operational activity.
- Air pollution controlling devices will be installed (If required) within the project during construction.
- Sprinkling of water will be done on dusty roads and tracks.
- Constructional waste and domestic solid waste will be disposed-off or utilized properly.
- Select equipment with low noise generating fixtures, such as mufflers, wherever possible and practical.
- All equipment shall be switched off when not in use.
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- Safety signs and boards will be placed during construction.
- Proper SOPs will be followed with proper schedule along with the HSE conditions.
- Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.
- First aid facilities will be made available.

6.6 Positive and Negative Impacts

The positive impacts of the project are given as under:-

- The project demand for workers, both skilled and unskilled. This will include opportunities for local people, both directly on the construction site and also indirectly in related service work. After the construction there will be the manpower required for operational phase of the project as well. This project will provide residential and commercial facilities to the citizens. This project will provide many opportunities for the wage earners and for those people want to settle their own business.
- This Din Homes Private Housing Scheme as well as commercial development has no potential negative impacts on environment as well on the socio-economic feature of community. Anyhow it has some impacts which have discussed as well as their mitigatory measures have well defined in the above section.

SECTION - 7: ENVIRONMENTAL MANAGEMENT AND MONITORING PROGRAM

7.1 Environmental Management Plan

This Chapter provides an overall approach for managing and monitoring the environmental issues and describes the institutional framework and reporting mechanism to implement the Environmental Management Plan (EMP) for the construction of "Din Homes Private Housing Scheme, Chiniot". The EMP has been prepared with the following objectives:

- Provide the details of the project impacts along with the proposed mitigation measures, and a corresponding implementation schedule;
- Define the roles and responsibilities of the project proponent, contractor, and supervisory consultants in order to effectively communicate environmental issues among them;
- Frame a monitoring mechanism, reporting frequency, auditing mechanism and identifying monitoring parameters to ensure that all the mitigation measures are completely and effectively implemented;
- Define the requirements necessary for documenting compliance with EMP and communicating it to all the concerned regulatory agencies.

7.2 EMP Reporting and Review Procedures

The EMP has been divided into the following sections

- Review of regulatory requirements and applicable standards
- Mitigation Management Matrix (MMM)
- Institutional Arrangements for Implementing the EMP
- Environmental Monitoring Plan
- Training program

7.3 Mitigation Management Matrix (MMM)

This matrix identifies the environmental impacts of multipurpose project during the Pre-Construction/Design Phase, construction and operation stages and establishes the linkages between the environmental and social impacts, mitigation strategy and the agencies responsible for execution. The MMM presented in **Table 7-1** identifies the following:

- The mitigation measures recommended in EIA.
- The person/organization directly responsible for adhering to or executing the required mitigation measures.

- The person/organization responsible for ensuring and monitoring adherence to the mitigation measures.
- The parameters which will be monitored to ensure compliance with the mitigation measures.
- The timing at which the mitigation or monitoring has to be carried out.

Table 7-1, Environmental Mitigation and Management Matrix

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
Pre-Construction Phase					
Project Location					
01	Land Acquisition and Resettlement during Pre-Construction	As all the land is already owned by proponent- Din Properties Pvt. Ltd and designated as a residential area so no mitigatory measures are required to be discussed.	--	--	Not Applicable
02	Topography	Visual changes to the topography will be permanent and need no mitigation measures except that the project design should consider aesthetic concerns.	CC	SC and Din Properties (Pvt)Ltd	- Survey and Mapping - Grading and Earthworks - Stormwater Management
03	Layout Planning	All structural, layout and engineering designing of project should be in strict accordance with the applicable bylaws, building codes and engineering parameters.	CC	SC and Din Properties (Pvt)Ltd	- GIS and Mapping Tools - Site Surveys
04	Seismic Hazard	The structures of the proposed project will be designed and constructed to withstand moderate earthquakes. For seismic hazard analysis, updated structural and seismic evaluations will be consulted	CC	SC and Din Properties (Pvt)Ltd	- Building Codes and Standards - Land Use Planning
05	Water Quality	A detailed ground water hydrological study and water reservoir assessment is being	CC	SC and Din Properties (Pvt)Ltd	- Flow Monitoring - Hydrological study - Laboratory Analysis

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		conducted to foresee the impact of water extraction and recharge, so that there is no negative impact on the surrounding area and the delivery of services. - Water supply system should be designed in a way so as to supply sufficient water including requisite amount of water during firefighting at all the intended places with sufficient pressure head. The layout should be such that no consumer would be without water supply, during the repair of any section of the system. - All the distribution pipes should be preferably laid one metre away or above the sewer lines. - Location of water storage tanks should be planned carefully. Water storage tanks meant for drinking should not be located directly beneath any sanitary plumbing or any other pipes conveying non-potable water. - Water storage tanks must be provided with a cover, designed to prevent the entry of dust, roof water,			

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		surface water, birds, animals or insects. Water filtration units or water filtration plant of required capacity should be proposed in the design of proposed project in order to avoid any bacterial contamination in the drinking water.			
06	Sewerage and Storm Water Drainage System	- All sewer lines including trunk, lateral and branch sewer lines must be designed considering the future population and waste generation rate; - In all cases, the sewer line should be laid deeper than the water pipeline (the difference between top of the sewer and bottom of water pipeline should be at least 300 mm) - Adequate planning for treated effluent disposal and sludge disposal is required to ensure an environmentally benign treatment process; and - An efficient storm water drainage system with adequate capacity should be designed according to National Plumbing Code, U.S.A and Building Code of Pakistan	CC	SC and Din Properties (Pvt)Ltd	Efficient design of storm water drainage system and sewer lines

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
07	Air Quality	Provision of green areas/plantation should be given in the design in order to absorb the emissions due to project activities.	CC	SC and Din Properties (Pvt)Ltd	Provision of green areas/plantation
Construction Phase					
Physical Impacts					
08	Soil Erosion and Contamination due to construction activities	- Good engineering practices will help in controlling soil erosion at construction sites. Following measures will be adopted as per site conditions: - Soil contamination can be curtailed by reducing the oil spill at project construction areas by well maintaining the construction vehicles as well as generators. - Confining excavations to the specified spots as per the approved engineering drawings. Unnecessary excavations need to be avoided. - Septic tanks of adequate capacities should be constructed for receiving and treating wastewater from all temporary worksite toilets and construction camps to avoid soil contamination; - The Contractor is required to impart	CC	SC and Din Properties (Pvt)Ltd	- Equipment maintenance. - Placement of solid waste storage containers at project site. - Collection and disposal by Contractor

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		proper training to his workforce in the handling and proper disposal of solid waste. - Proper drainage facility will be provided to avoid the water accumulation, which will minimize the soil contamination. - Proper solid waste management plan should be developed by the Contractor and implemented to avoid the litter and any other waste problems.			
09	Surface and Ground Water Contamination during construction activities	- Septic tank and artificial drainage pipe should be developed and attached to natural drainage. - The Contractor should instruct its staff not to throw any of the waste and the other scarified/scrapped materials directly into the river or canal passing from the project area in order to avoid contamination. - Construction camps should be established in areas with adequate natural drainage channels in order to facilitate flow of the effluents. - Avoid accidental spills of oils and lubricants through good practice. Prepare and implement Emergency	CC	SC and Din Properties (Pvt)Ltd	- Septic tank - Verify that the camp has constructed on adequate natural drainage.

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		Response Procedures in case of any spill hazard.			
10	Visual Aesthetics & Landscape Changes	Material stockpiles should be removed as soon as work is completed and the area re-landscaped. During work, these stockpiles should be covered with tarpaulin and watered regularly.	CC	SC and Din Properties (Pvt)Ltd	Verify that stockpiles should be covered with tarpaulin and watered regularly
11	Ambient Air Quality	- Tuning of vehicles should be made mandatory to reduce the emissions of NOx, SOx, CO and PM10. - Equipment and vehicles powered with diesel should be well maintained to minimize particulate emissions. - Haul-trucks carrying, earth, sand, aggregate and other materials should be kept covered during transportation of materials and during storage at site, with tarpaulin. - The fugitive dust emission will not be a problem because the roads are paved but for the precautionary measure sprinkling of water-by-water trucks will be done.	CC	SC and Din Properties (Pvt)Ltd	- Maintenance of Vehicles - Water Sprinkling - Filled Vehicles covered with tarpaulin
12	Ambient Noise Levels & Vibration	The contractor will make arrangements to bring the noise	CC	SC and Din Properties (Pvt)Ltd	Maintenance of Vehicles

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		level within applicable limits (including proper tuning of vehicles and mufflers/silencers). Movements of trucks and other construction machinery causing high noise levels must be restricted at night time to avoid disturbance to the nearby locality. Truck drivers will be instructed not to play loud music, especially at night and stop the use of horns.			Use of PPEs
13	Disposal of Construction Debris and Garbage	- A site waste management plan shall be made the responsibility of the construction contractor to provide for the designation of an appropriate waste storage area on the site and a schedule for the timely collection and removal of construction debris to an approved dump site. - The construction waste will be disposed of on an approved (from TMA/Punjab-EPA) dumping site. Client will bound the contractor to hire an EPA approved vendor which shall in turn dispose of the waste in government notified landfill/disposal area.	CC	SC and Din Properties (Pvt)Ltd	SC have to ensure that the site waste management plan is properly implemented

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		- Client will engage a third-party contractor to collect organic waste from site and then convert into compost. - Arrangements shall be made for regular garbage collection and removal of sewage from the construction site.			
14	Traffic Annoyance	During the construction phase traffic control measurement will be implemented. All construction materials will be transported to the site at night time due to at night time traffic flow very low in the project area.	CC	SC and Din Properties (Pvt)Ltd	- Timings of the construction vehicles - Grievance Record Register
15	Solid Waste (Construction, Municipal and Hazardous Waste)	- Solid waste generated during construction and camp sites should be safely disposed of at designated waste disposal sites. - Proper labelling of waste containers, including the identification and quantity of the contents, hazard contact information should be carried out. - Training of employees involved in the transportation of hazardous material regarding emergency	CC	SC and Din Properties (Pvt)Ltd	Waste Reduction and Minimization

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		procedures should be ensured. - Construction workers and supervisory staff should be encouraged and educated to practice waste minimization, reuse and recycling to reduce quantity of the waste. - A comprehensive plan for construction waste management should be adopted.			
16	Occupational Health and Safety	- PPEs will be provided to workers during constructional activities. - First aid will be provided to project-related employees. Especially the workers dealing with loading and unloading of material. - Workers will be trained in the operation of different construction equipment while following safety protocols. - Job Hazard Analysis involves breaking down each task into individual steps, identifying potential hazards at each step, and determining preventive measures to ensure worker safety. - Provide comprehensive training to ensure workers are equipped to	CC	SC and Din Properties (Pvt)Ltd	Trainings for workers related to workplace safety during construction.

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		safely perform tasks, reducing the occurrence of accidents and injuries. - Environmental awareness will be conducted, ensuring all workers are equipped with safety boots, helmets, gloves, and protective masks, and consistently monitored for proper usage. In case of accidents, the contractor will provide free medical treatment to the community. - Conduct hygiene training for employees to promote awareness and good practices. - Regularly inspect and maintain machinery to ensure proper functionality. - Preparing layout plan for camp site, indicating safety measures taken by the contractor, e.g., firefighting equipment, safe storage of hazardous material, first aid, security, fencing, and contingency measures in case of accidents - All potable drinking water supplies to be tested regularly on monthly basis during the entire construction phase			

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
17	Community Health and Safety	- There should be proper control on construction activities and particularly oil spillage/ leakage of vehicles, machinery and equipment - Efforts should be made to create awareness about road safety among the drivers operating construction vehicles - Provision of proper safety and diversion signage at sensitive/accident-prone spots - Setting up speed limits in the construction areas in close consultation with the local stakeholders - Keeping out of non-working persons, particularly children, off work sites.	CC	SC and Din Properties (Pvt)Ltd	Provision of proper safety and diversion signage during construction.
18	Emergency Response to Natural and Man-made Disasters	Emergency Response Plan should be implemented in close consultation with the District Rescue Service, fire-fighting department, bomb disposal squad and paramedics. In addition, training of the staff/employees regarding the emergency procedures/plans should be regularly conducted.	CC	SC and Din Properties (Pvt)Ltd	Implementation of Emergency Response Plan
Ecological Environment					

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
19	Flora and Fauna	- The master plan of project consists of development of green area and parks which will improve the overall biodiversity of the area. Any trees cleared during construction works will be that will be transplanted in the green areas/parks and green belts of the proposed housing society. - Special measures shall be adopted to minimize impacts on the wild birds, such as avoiding noise generating activities during the critical periods of breeding - Wastes shall be properly disposed of to prevent it being eaten by animals, as it may be hazardous to them.	CC	SC and Din Properties (Pvt)Ltd	SC to verify that plantation plan is properly implemented.
Social Environment					
20	Social/ Cultural Conflicts	- Local labor should be preferably employed for the construction works; - Careful planning and training of work force to minimize disturbance to the local people; - Public notification through media during the entire construction phase	CC	SC and Din Properties (Pvt)Ltd	- Employment records of contractors - Employment opportunities

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		to avoid any inconvenience in accessibility to the locals.			
Operational Phase					
21	Water Resources	- Water meters should be installed and water quantification logs will be maintained. - At the time of construction of house or any other public building, people should be encouraged to install auto shutoff water taps to prevent water wastage - Groundwater abstraction should be scheduled according to the aquifer parameters to ensure sustainable withdrawal of the groundwater - Water filters should be installed with the water supply sources, if required on the basis of laboratory test reports. - An awareness campaign should be launched to educate the people about the importance of economical use of water.	Din Properties (Pvt)Ltd	Punjab-EPA	Regular Monitoring of ground water level through piezometer
22	Waste water Generation due to operation of Housing Scheme	- The wastewater will be domestic in nature and will be treated in septic tank before the final disposal. - Solid waste bins/containers should	Din Properties (Pvt)Ltd	Punjab-EPA	Septic tank

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		be placed at appropriate location along the roads and in streets to avoid entrance of solid waste into sewers. - Residents should be educated not to throw solid waste in wastewater sewers. - Regular cleaning of grit chambers and sewer lines should be ensured to remove grease, grit, and other debris that may lead to sewer backups - Inspection of the condition of sanitary sewer structures should be carried out frequently by the proponent.			
23	Soil	- Proper maintenance of sewerage and drainage pipes should be ensured. Special arrangements should be made in rainy season to avoid accumulation of rainwater/ for draining of rainwater resulting in contamination of soil. - An efficient system for collection of solid waste should be implemented by the proponent to avoid heaps of solid waste which may result in degradation and contamination of	Din Properties (Pvt)Ltd	Punjab-EPA	- Landscaping and Green Spaces - Stormwater Management

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		soil. An awareness campaign should be launched for citizen awareness to maintain cleanliness in the Project Area. Penalties should be made for illegal parking of vehicles on unpaved surfaces.			
24	Air Emissions due to operations	- Regular vehicle checks to control/ensure compliance with PEQS. Vehicles with excessive smoke emissions should be monitored and penalties should be imposed in case of non-compliance. - Roadside tree plantations as applicable and feasible under local climatic conditions. Plants should be selected in accordance to their ability to absorb emissions; - Use of gas generators should be preferred for low emissions. - Open burning of waste should be prohibited. - Awareness should be raised among the citizen/residents regarding protection of environment through placement of signboards at appropriate places preferably on the roadsides, distribution of leaflets,	Din Properties (Pvt)Ltd	Punjab-EPA	Monitoring and Proper Inspections of generators

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		brochures and advertisements on social media.			
25	Noise	- Signs for sensitive zones (health centers / educational institutions etc.) should be pasted to disallow the use of pressure horns - People should be educated to promote using of less horns e.g., by placing signboards at road side. - Setting up of functional halls should be allowed in the commercial areas. Noise in late night events should be prohibited.	Din Properties (Pvt)Ltd	Punjab-EPA	Maintenance of generators and vehicles
26	Solid Waste Management & Disposal	- An efficient and responsive general municipal solid waste collection, disposal, and management system should be strictly implemented. - Waste bins should be provided at various convenient locations in the parks and the marketplaces for solid wastes by the passers-by. They should be regularly emptied and replaced, if found damaged and unserviceable. - Throwing of garbage and solid wastes onto greenbelts or vacant plots should be prohibited and fine	Din Properties (Pvt)Ltd	Punjab-EPA	Implementation of Solid Waste Management Plan

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		should be imposed in the case of noncompliance. The solid waste generated by the residents of the Project shall be collected in the waste bins, and placed at all houses and containers will be placed at various locations keeping in view the design criteria. The solid waste in the containers will be collected through the waste management vehicles and finally will be disposed of at the proposed disposal site.			
27	Fire and Explosions Hazard	- Routine inspection should be carried out to check that the area around the generator is free of clutter and no flammable material is present; - Fire control and extinguishing personal should be allocated and trained on handling and controlling accidental spillage of flammable substances that may trigger fires; - Standard fire and smoke detection and protection devices such as fire alarms, fire hoses and hydrants should be provided in all critical areas / mega buildings of the proposed Project;	Din Properties (Pvt)Ltd	Punjab-EPA	- Fire Prevention Measures - Safety Training - Emergency Response Plan

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		- Equipment should be regularly examined and maintained by a reputable fire safety and security company; - Fire awareness materials should be placed in strategic locations and assembly points should be communicated regularly to residents. "No smoking signs and policy should be displayed, as appropriate and actions to be taken against those not adhering to this order; and - Fire safety management should be prepared and implemented.			
28	Security issues	A comprehensive Security Plan is developed and implemented for the proposed project which includes construction of a security check post on the main entrance gate consisting of security guards. The aim of the security is to check out the in and out movements of vehicles and to monitor all the security related issues. The security towers are also built at boundary walls of the site. The boundary wall	Din Properties (Pvt)Ltd	Punjab-EPA	- Implementation of Security Plan - Trainings of Security guards

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		will be secured through fence wire. The walk through gates will also be installed for checking of the workers and visitors. In addition to this the security guards regularly monitor in and around the whole society to ensure proper security. Moreover, the security cameras will be installed and will be control through common control room			
29	Ecological Aspect	- Maintenance of the green areas and the protection of saplings to ensure better environmental conditions; - Keep areas weed free. Weeds should be monitored weekly and removed no less than every two weeks. Use of chemicals for weed control and suppression needs to be approved by the concerned authorities. - Use of fertilizers should be strictly monitored in order to avoid any incident. Natural nutrients should rather be preferred.	Din Properties (Pvt)Ltd	Punjab-EPA	Plantation and maintenance of trees
30	Socio Economic	During operational phase, employment opportunities will be	Din Properties (Pvt)Ltd	Punjab-EPA	Employment Records

Sr. No.	Anticipated impacts	Mitigation measures	Responsibility		Actions/Monitoring parameters/Monitoring methods
			Execution	Monitoring	
		generated and economic activity will increase due to setting up of shops / market in the planned housing scheme.			

CC Construction Contractor
SC Supervision Consultant
EPA Environmental Protection Agency

7.4 Schedule For Implementation and Environmental Budget

The cost which is required to effectively implement the mitigation measures is important for the sustainability of the Project in operation stage of the Project. Estimated environmental budget is given below:

Table 7-2 Environmental Budget During Construction Phase

Sr. No.	Description	Cost Estimated (PKR)
1	Health and Safety of Workers	600,000
2	Cost of Hiring Staff	3,000,000
3	PPEs	1,000,000
4	Tree Plantation	500,000
5	First Aid Box Maintenance	80,000
6	Third Party Environmental Monitoring	1,500,000
7	Environmental Training	500,000
Total Cost		7,180,000

Hence, environmental monitoring, mitigation and training cost would be Rs. 7,180,000

(The above-mentioned cost could vary with respect to construction time or retail prices)

Table 7-3 Environmental Budget During Operational Phase

Sr. No.	Description	Cost Estimated (PKR)
4	Tree Plantation and Landscaping	800,000
6	Third Party Environmental Monitoring	2,500,000
Total Cost		3,300,000

Hence, environmental monitoring, mitigation and training cost would be Rs 3,300,000

(The above-mentioned cost could vary with respect to Operational time or retail prices)

7.4.1 Institutional Arrangements for Implementation of EMP

The main institutions involved in the implementation and management of EMP will be as follows:

- Din Properties (Pvt)Ltd
- Supervisory Consultants (SC)
- Construction Contractor (CC)
- Punjab Environmental Protection Agency (Punjab-EPA)

7.5 Roles and Responsibilities

The key organizations will have the following roles and responsibility during the construction and operation stages

7.5.1 Construction Stage

During the construction stage, Construction Contractor (CC) will be mainly responsible for the execution of the mitigation measures. Supervisory Consultants (SC) will be responsible for the monitoring of the compliance with top management as defined in mitigation management matrix.

7.5.2 Operation Stage

During the operational stage of the project, role of CC and SC will gradually decrease. During this phase of the project, implementation of recommendations of EMP and its supervision will be the responsibility of Din Properties (Pvt)Ltd and Punjab-EPA as defined in mitigation management matrix.

7.6 Environmental Monitoring Plan

7.6.1 Objectives

The objectives of the environmental monitoring during the construction and operation stages are as follows:

- To check compliance with the requirements of the EMP by monitoring activities of the project contractors. This will be called Activity Monitoring.
- To monitor actual impacts of the project activities on physical, ecological and socioeconomic receptors of the Project Area so that any impacts not anticipated in the EMP or impacts which exceed the levels anticipated in the EMP can be identified and appropriate mitigation measures can be adopted in time. This objective will be achieved through effects monitoring.

To achieve these objectives, the following monitoring program will be implemented.

7.6.2 Monitoring Strategy

A) Activity Monitoring

Activity monitoring will be carried out to ensure compliance with the requirements of the EMP. The mitigation management matrix will be used as a management and monitoring tool. Activity monitoring will be the responsibility of all organizations involved in the operation, i.e., top management of multi-purpose building, Project Consultants and the Contractors and hence it will be done at three levels

- Activity Monitoring by Din Properties (Pvt)Ltd
- Activity Monitoring by Consultant's field monitors
- Activity Monitoring by the Contractor's officers

B) Effect Monitoring

Effect's monitoring will be the responsibility of Din Properties (Pvt)Ltd. Monitoring requirements have been outlining in the EMP. However, a detailed

monitoring program is given in below table. The monitoring program describes in detail the resources and methodology that will be adopted for the purpose of Effects Monitoring.

C) Physical Environment

Physical Environment will target at identifying project impacts on:

- Water
- Air
- Noise

A monitoring protocol is provided in the matrix given in below table.

D) Ecological Environment

Floral surveys will be conducted to determine the effects of different project activities on Flora. The recommended effects monitoring protocol for Flora is provided in below table.

7.6.3 Socio-economic Environment

Effects on the socio-economic environment will be monitored by the consultants who will conduct survey both during construction and operation stage. The surveys will be structured to ascertain the level of impacts during the course of the project and the implementation of mitigation measures prescribed in the EMP such as health and safety of communities.

Table 7-4, Recommended Activity Monitoring Protocol for Physical, Ecological and Social Environment

Parameter/Receptor	Location	Monitoring Mechanism	Monitoring and Reporting Frequency
Water Quality	- Near the project area - Concrete preparation plants - Fuel (Petrol. Oil and Grease) products storages	Discrete grab sampling and laboratory testing of water samples.	Sampling and laboratory testing should be done on quarterly basis during the construction stage and operation stage.
Dust Emissions	Construction site	Visual checks	Daily visual monitoring during routine monitoring by activity monitors and reported on a monthly basis during the construction period.
Noise Levels	- Construction site - Nearby area due to track movement	Noise meter	- On fortnight basis throughout the construction period. - Monthly during the operational stage.
Ambient Air	Construction site Ambient Air	Monitoring of ambient air quality in ppb.	Quarterly monitoring of air pollution parameters including PM, NO_x, SO_x, CO, during the construction and operation stage.
Ecological Environment			
Plant's disruption	As few plants /Grass species are present at site so it will be monitored around the Project Area during the construction phase	Plants	Weekly during routine monitoring and reported on monthly basis during the construction period, and once in a year monitoring and reporting during the operation period.
Socio-cultural Environment			
Inconvenience to community	All around the Project Area	Consultations with community to get feedback about inconvenience due to the	Monthly monitoring and reporting during the construction period.

Parameter/Receptor	Location	Monitoring Mechanism	Monitoring and Reporting Frequency
		construction activities to perform their daily routine chores.	

Table 7-5, Recommended Effects Monitoring Protocol

Parameter/Receptor	Location	Monitoring Mechanism	Monitoring and Reporting Frequency
Water Quality	Sampling from the points located at a greater distance from the construction sites to ensure that they show the influence on a wider range of receiving body.	Sampling and laboratory testing of wastewater from WASA drainage system relative away from project site	Sampling and laboratory testing should be done on quarterly basis during the construction stage and operation stage.
Air Quality	Existing residential near the project site.	Ambient air quality monitoring in ppb.	Quarterly air quality monitoring for NOX, SOX, CO, PM10 during the construction stage and operation stage.

7.7 Proposed EMP Reporting and Reviewing Procedures

The EMP has been divided into the following sections:

- Review of regulatory requirements and applicable standards
- Mitigation Management Matrix (MMM)
- Institutional Arrangements for Implementing the EMP
- Roles and Responsibilities of the different agencies.
- Environmental Monitoring Plan
- Traffic Management Plan (TMP)
- Training program

7.8 Training Programs

Environmental training for construction period will form part of the environmental management system. The training will be directed towards all personnel for general environmental awareness.

7.8.1 Objectives

The key objective of the training program is to ensure that the requirements of the EMP are clearly understood and followed throughout the Project.

7.8.2 Roles and Responsibilities

Proponent will be responsible for conducting environmental training to all the Project personnel on potential environmental issues of the Project through Contractor, who will be responsible to arrange training and ensure the presence of targeted staff. Proponent will prepare a Project specific training manual for this purpose. Contractors on their part will be required to provide induction training/briefing to all their staff at the time of their recruitment and before the start of any activity in the Project Area. This will be followed by training arranged by the Proponent to all the targeted staff.

7.8.3 Training Log

A training log will be maintained by the SC. The training log will include;

Topic	Date, Time And Location	Trainer	Participants
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SECTION - 8: STAKEHOLDER CONSULTATION

The consultation process with various stakeholders of Asian Consulting Engineers Private Limited (AsCE) has been carried out to involve community and other stakeholders at earlier stages. Information dissemination during public consultation is fundamental to successful conclusion of the project. This chapter describes the objectives and details of the consultative process adopted; its outcome and the conclusions drawn thereafter.

Public consultation has been done during the planning and design phases of the project with Government departments, line agencies, NGOs and affected persons of the project area; concerns and suggestions thereafter have been taken into account and included where appropriate. The consultative process to date has been effective in addressing the concerns over the project operational impacts.

8.1 Objectives of Consultation

Public consultation plays a vital role in studying the effects of any development project on stakeholders and in its successful implementation and execution. It affords an opportunity to exchange knowledge with those who as members of the society are concerned with the project, immediately or remotely. Referring particularly to a project related to environmental assessment, involvement of public is all the more essential, as it leads to better and more acceptable decision-making.

The objectives of the stakeholder and public consultation conducted in project area were;

- To apprise the project community and stakeholders about project interventions and potential impacts;
- To record the community concerns and recommendations regarding the project;
- To address/incorporate those recommendations in the project design to the extent possible and;
- To share the mitigation measures with the local communities.

8.2 Proponent's Environment Management Team

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

8.3 Responsible Authority

The Environmental Protection agency shall be the responsible authority for the site inspection and provision of environmental approval for the project.

8.4 Environmental Practitioner and Expert

The Asian team have endeavoured to hold consultative sessions with a number of prominent stakeholders (Project Proponent, Government departments, line agencies, NGOs and affected persons of the Project Area) to evince their views on the project and their opinions, suggestions, understanding on various issues and concerns. The consultations aimed specifically at:

- Dissemination of Project information through discussions, education and liaison.
- Eliciting the comments and feedback on the project.
- Documentation of information narrated by the stakeholders.
- Documentation of mitigation measures proposed by the stakeholders.
- Incorporation of public concerns and their addresses in the EIA/ EMMP.

8.5 Identification of Main Stakeholders (Including other department and Agencies)

Among all stakeholders some major stakeholders were identified in the proposed Project Area. Below table contains the list of major stakeholders and their apprehensions.

Table 8-1, Major Stakeholders and their Apprehensions in the Project Area

Sr. No.	Stakeholders	Apprehensions
1	District Council Chiniot	All legal requirement should be fulfilled before the development of housing society
2	Local Residents	Movement problem for local residents, dust and noise problem, privacy / safety issues, disturbance of public utilities, traffic jam. Wastage of time & fuel
3	Shopkeepers	Temporarily Loss of business & reduction in number of customers during construction phase, Traffic congestion, air pollution, dust and noise, movement problem.
4	Shop owners	Private land acquisition, Loss of business & reduction in number of customers during construction phase, Traffic congestion, noise, air pollution, dust and noise, movement problem.
5	Customers	Movement problem for customer, dust, noise and vibration problems, safety issues, traffic jam.

Sr. No.	Stakeholders	Apprehensions
6	Students	Movement problem for students, dust, noise and vibration problems, and safety issues, traffic congestion, Wastage of time & fuel.
7	Road users	Traffic congestion, dust, noise and vibration, disruption to travelers, increase travelling time during construction.
8	Pedestrians	During construction period pedestrians will face difficulties while walking to nearby places existing in the vicinity of proposed Project Area and will face safety issues.

8.6 Consultation Meetings and Formal & Informal Group Discussions (Including Affected and Wider Community)

Consultation meetings regarding project impacts, their magnitude and mitigation measures were held with the, local residents, shop owners, shop keepers(renters), customers, pedestrians, road users, students and general public to know their concerns regarding proposed project.

Scoping sessions were conducted with the local residents, shop keepers, customers, road users, students and pedestrians. These sessions were carried out at various location of the proposed project. Socio-economic survey is attached as Annexure X

Generally, it was found that people were already aware of the proposed project. After the meetings, majority of the respondents including local residents and other stakeholders were in favor of the project site. Although this project will be beneficial in terms of good infrastructure development, not only for the local residents but also good for the socio-economic development of the area as the land is already residential and owned by Din Properties (Pvt.) Ltd, but some concerns/suggestions raised by stakeholders are given which are shown below.

8.6.1 Concerns/Suggestions of the Stakeholders

The most commonly raised concerns during the meetings are listed below:

1. Construction of project should be completed in time without any delay as per project timeline;
2. Exposure of noise and dust pollution will cause disturbance and health & safety issues to the local residents and other stakeholders throughout the construction stage due to the movement of construction machinery and transportation of construction materials. The effects of noise and dust pollution on the local residents should be minimized by making necessary arrangements. Dust pollution should be controlled by water sprinkling on regular basis;

3. Due to the movement of loaded trucks during the construction period of proposed project, congestion on the access road will increase. Proper diversion route rather than access road should be clearly defined to avoid traffic blockage during the entire construction period;
4. During construction period local residents, road users and pedestrians will face difficulties while moving to places in the vicinity of proposed project Area. Appropriate diversion plan should be developed to avoid the disruption of all the people due to use of heavy machinery in day timings and should avoid disturbance for the local residents living in the project vicinity;
5. Local residents should be given priority for jobs during the construction phase;
6. Due to the construction of the proposed project, public utilities will be disturbed. Arrangements should be made to minimize the disruption of public utilities or they may be rehabilitated on priority basis to reduce the impacts;
7. Increase in traffic and safety hazards will create problems to local population and surrounding communities. Accordingly, a detailed Health and Safety Plan (HSE Plan) must be developed to mitigate the construction and operation risks of the proposed project on the local residents and surrounding communities;
8. Solid waste produced during construction should be disposed off timely and properly;
9. Construction material should be stored far from nearby residential areas;
10. The labor camps should be away from the populated area to avoid privacy issues;
11. Local residents should be given priority for unskilled jobs during construction and operational phase
12. The batching plant should be installed at distance from nearby residential area; and
13. Good quality construction machinery may be used to reduce noise and pollution issue.

8.7 Mitigation Measures Proposed by EIA Consultants for Addressing the Stakeholder's Concerns

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

1. Significant efforts including change in design should be adopted to minimize the physical and economical displacement / disturbance of the local residents;
2. If physical displacement is unavoidable, occupants should be given compensation as per law;
3. Local residents should be given priority while hiring during construction phase of the proposed project;
4. Construction machinery should be placed at adequate locations away from the sensitive areas to minimize the impacts related to the noise;
5. Project facilities should be located outside the existing residential areas.; In order to avoid restricting the daily movement of the local stakeholders, construction vehicles should remain confined within their designated areas of movement;
6. The utilities to be shifted due to the implementation of the proposed project should be rehabilitated on priority basis to minimize the impacts on the stakeholders;
7. Solid waste generated during construction at site should be disposed of safely at the waste disposal sites approved by the contractor; and
8. All necessary measures should be taken to ensure the safety of traffic during construction, including barricades (including signs boards, pavement markings, flags, and lights). All such barricades will be set up to facilitate the local traffic.

SECTION - 9: CONCLUSION

9.1 Conclusion

The project aims in construction of "Din Homes Private Housing Scheme, Chiniot". According to the "Punjab Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2022" the project falls in Schedule II Section H-1 "Housing Societies more than 300 kanals". Accordingly, this EIA has been prepared for issuance of NOC/EA by the EPA, Government of the Punjab, before initiation of the project.

The implementation of the proposed project will have beneficial impacts on population. Major beneficial impacts of the proposed project are:

- Construction of proposed project will decrease housing deficit in the country and will provide a high-standard housing scheme to the residents of Chiniot;
- The project will produce job opportunity in construction as well as in operational phase;
- Development of Din Homes will provide safe and secure environment for living and commercial activity.
- Additionally, it aims to offer various essential services such as road networks, drainage systems, water supply, and sanitary sewerage systems to enhance the quality of life for residents

In addition to its positive effects, the proposed project may have negative environmental and social impacts during both the construction and operational phases. The majority of these adverse impacts are temporary in nature, but can be minimized or eliminated through the implementation of appropriate mitigation measures, as discussed in this EIA Report. Based on the comprehensive findings of the EIA study, several conclusions have been drawn.

Furthermore, urbanization brings about changes to hydrologic systems, leading to increased instability. The expansion of urban construction contributes to a greater number of impervious surfaces, which in turn results in more frequent flooding and higher volumes of peak flow. This also leads to an increase in sediment loadings and the loss of aquatic and riparian habitats. Additionally, urbanization alters the physical characteristics of streams, resulting in decreased base flow and higher stream temperatures. Moreover, the pollution from urban sources has resulted in the contamination of soil, groundwater, and air. However, it is important to note that recent research suggests that urbanization does not always lead to adverse impacts.

9.2 Recommendations

Following recommendations must be taken care prior to any of the decision about the proposed project:

- Proper implementation of EMMP, containing mitigation measures for anticipated potential impacts along with monitoring program, should be ensured during all three phases of the proposed project.
- All personnel staff, employees and contractors/s should undertake appropriate training prior to construction to ensure they are aware of the on-site responsibilities in respect of all environmental and social issues. In addition, EMMP should be a part of contract document of Contractor/s. Moreover, the cost for environmental management, monitoring and training has been estimated which should be included in overall project cost.

ANNEXURES

ANNEXURE – I: COMPANY REGISTRATION

A007863

 **SECURITIES AND EXCHANGE COMMISSION OF PAKISTAN**
COMPANY REGISTRATION OFFICE, KARACHI

CERTIFICATE OF INCORPORATION

[Under section 32 of the Companies Ordinance, 1984 (XLVII of 1984)]

Corporate Universal Identification No. 0097272

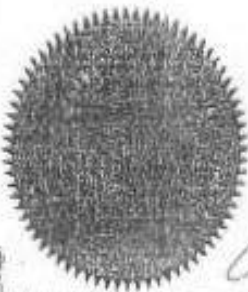
I hereby certify that DIN PROPERTIES (PTY) LIMITED is this day incorporated under the Companies Ordinance, 1984 (XLVII of 1984) and that the company is limited by shares.

Given under my hand at Karachi this Fifteenth day of January, Two Thousand and Sixteen.

Incorporation fee Rs. 2,500/- only

(Sidney Custodio Pereira)
Additional Registrar of Companies
Karachi





CERTIFIED TO BE TRUE COPY
7.3.17
DEPUTY REGISTRAR OF COMPANIES
COMPANY REGISTRATION OFFICE
LAHORE

ANNEXURE – II: LAND OWNERSHIP DOCUMENTS



**OFFICE OF THE
DISTRICT COUNCIL CHINIOT**

Fax: 047-9210071

No. D.C/CHT/ 371 Dated 27.06.2023

To

Din Properties (Pvt.) Ltd.
1-KM, Ahead Bhubtlan Chowk, Defence,
Road Towards Multan Road Lahore.

Subject

**VERIFICATION OF THE STATUS OF THE LAND USE IN THE MASTER PLAN
FOR THE PROPOSED AREA OF DIN HOMES SITUATED IN MOUZA KO
KHUDA YAR AND CHAKBANDI, CHAK JHUMARH ROAD, TEHSIL
CHINIOT**

With reference to your application dated 19.05.2023

Your application regarding status of land at, Through Mr. Hasham Ali S/o Akhtar Ali (POA) regarding verification of status of land use in Master Plan /Site Development Zon Structure plan of District Council Chiniot at Mouza Kot Khuda Yar Muraba No. 58 Killa No.10/2,11,20,21 Muraba No.59 Killa No.4/2,6,7,13,18,23,24 & 25 Muraba No. 61 Killa No.7,8,13-16 Muraba No.62, Killa No.1,7-20,24 & 25 Muraba No.63, Killa No.7/2,14,17,23,24/1,24/2,25/1,25/2, Muraba No.64 Killa No.11/2,20,21/1,21/2,21/3 & 21/ Muraba No.67 Killa No.1, Muraba No. 68, Killa No.3,4&5 and Muraba No.69,

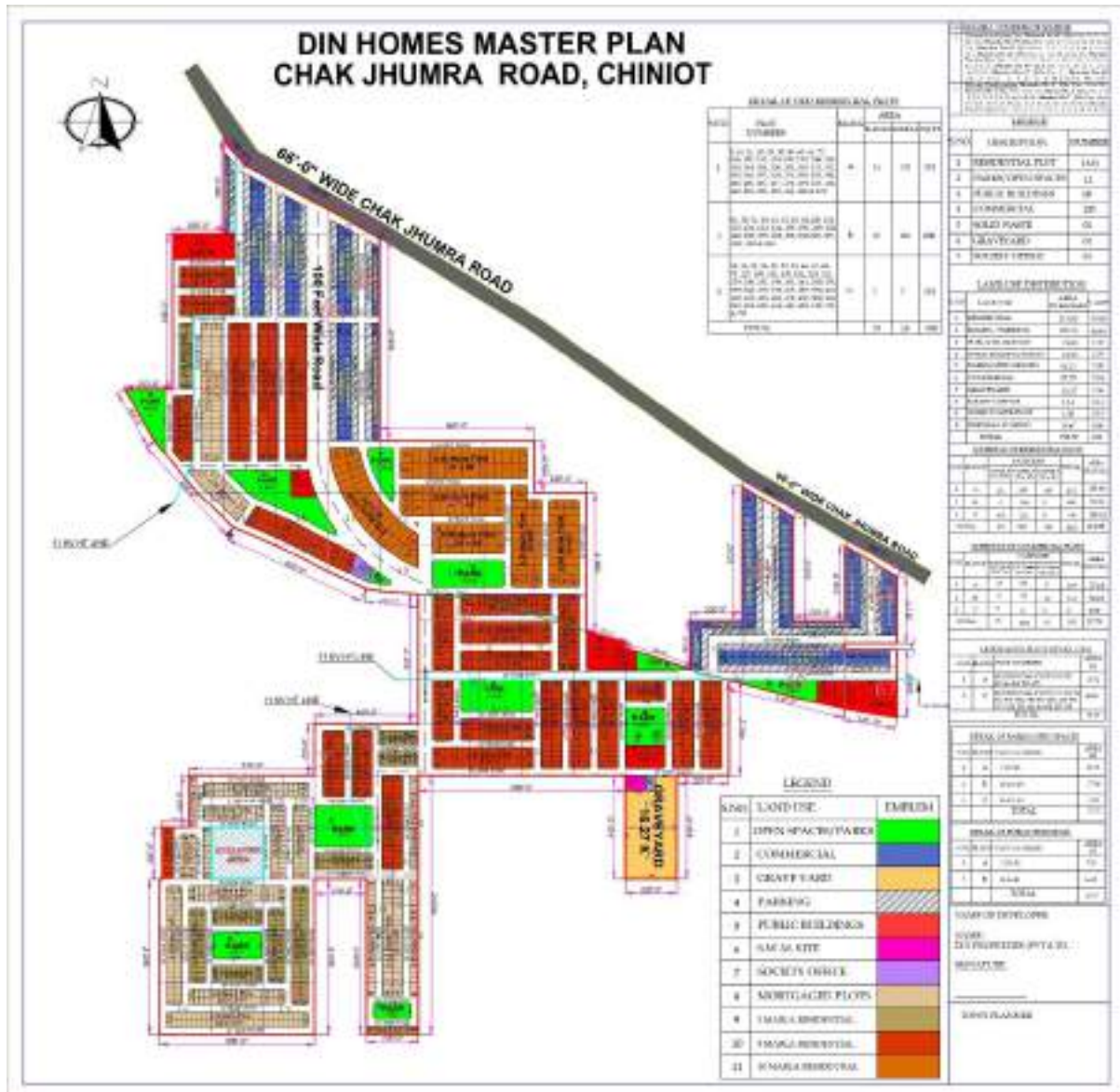
Mouza Chakbandi Muraba No. 2 Killa No. 21&22 Muraba No. 5 Killa No. 10 & 1 Muraba No. 6 Killa No. 1-16 & 25 Muraba No. 7 Killa No. 14-17,18/1,18/2, & 19-25 and Muraba No. 13 Killa No. 1-15 for a total area measuring 835 kanals situated in both Mouzas kot Khuda Yar and Chakbandi Tehsil & District Chiniot, Chiniot has been examined in the light of rule 5 of Punjab Private Housing Scheme Rules, 2022.

As your proposed site qualifies the criteria/ status of land under rule 5 of Punjab Private Housing Scheme Rules, 2022, hence you are intimated to submit application for approval of Housing Scheme along with all documents required under rule 6 of rules ibid. This intimation will expire after Six months of its Issuance if you will not apply within this period.


Chief Officer
District Council Chiniot

13/11

ANNEXURE – III: MASTER PLAN OF CHINIOT



ANNEXURE – IV: LOCATION MAP OF PROPOSED PROJECT



ANNEXURE – V: IMPACT MATRIX

Environmental Component Project Component	Physical, Ecological and Social Environment																														
	Land Acquisition	Downstream Water Users	Air Quality	Noise	Soil Contamination	Aesthetic	Liquid and Solid Waste	Material Quarries and Borrow Pits	Surface Water	Irrigation Water	Wastewater	Soil	Flora	Fauna	Livestock Grazing	Fishery	Mobility of Locals	Cultural Issues	Water Ponds	Gender Issues	Health & Safety of Workers	Archeological/Historical and Religious Sites	Security Situation	Human Health	Ground Water	Agriculture	Drinking Water	Livelihood	Employment Opportunities	Economic Uplift	
A. Pre-Construction																															
Land Acquisition and Resettlement	0	0	-1	-1	-1	0	-1	0	0	0	0	-1	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B. Construction Phase																															
Soil Erosion and Contamination due to construction activities	0	-1	-1	-1	-1	0	-1	-1	-1	0	0	-1	0	0	0	0	-1	0	0	0	-1	0	0	-1	-1	0	-1	-1	0	0	0
Surface and Ground Water Contamination during construction activities	0	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	0
Visual Aesthetics & Landscape Changes	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	0
Ambient Air Quality	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	0
Ambient Noise Levels & Vibration	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	-1	0
Disposal of Construction Debris and Garbage	0	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	0
Traffic Annoyance	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	0
Solid Waste (Construction, Municipal and Hazardous Waste)	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	0
Occupational Health and Safety	0	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	0	0	0
Community Health and Safety	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	0
Emergency Response to Natural and Man-made Disasters	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	0
Flora and Fauna	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	0
Social/ Cultural Conflicts	0	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	3	0	0
C. Operational Phase																															
Water Resources	0	0	0	0	0	0	0	0	-1	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Environmental Component Project Component	Physical, Ecological and Social Environment																														
	Land Acquisition	Downstream Water Users	Air Quality	Noise	Soil Contamination	Aesthetic	Liquid and Solid Waste	Material Quarries and Borrow Pits	Surface Water	Irrigation Water	Wastewater	Soil	Flora	Fauna	Livestock Grazing	Fishery	Mobility of Locals	Cultural Issues	Water Ponds	Gender Issues	Health & Safety of Workers	Archeological/Historical and Religious Sites	Security Situation	Human Health	Ground Water	Agriculture	Drinking Water	Livelihood	Employment Opportunities	Economic Uplift	
Waste water Generation due to operation of Housing Scheme	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	
Soil	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	
Air Emissions due to operations	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	
Noise	0	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	0	0	
Solid Waste Management & Disposal	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	-1	0	-1	0	0	-1	0	
Fire and Explosions Hazard	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	-1	0	-1	0	-1	0	0	-1	0	0	-1	0	
Security issues	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	3	0
Ecological Aspect	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Socio Economic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
												Beneficial				Impact Significance				Adverse		0 Insignificant or no impact									
												1				Low															
												2				Medium															
												3				High															

ANNEXURE – VI: SCREENING CHECKLIST

Adverse Impact Significant Adverse Beneficial Impact +, Highly Beneficial ++, No Impact 0

Sr. No.	Main Environmental Parameters	Baseline Conditions	With Project			
			During Construction without Mitigation	During Operation without Mitigation	During Construction with Mitigation	During Operation with Mitigation
1	Atmosphere					
a	Ambient Air	0	--	--	-	-
b	Primary Pollutants	0	--	--	-	-
c	Secondary Pollutants	0	-	--	0	-
d	Noise	0	--	--	-	-
e	Vibration	0	-	0	-	0
2	Climate					
a	Temperature	0	0	-	0	-
b	Precipitation	0	0	0	0	0
c	Relative Humidity	0	0	0	0	0
e	Evaporation	0	0	0	0	0
3	Water Resources					
a	Surface Water	0	-	--	0	-
	Rivers	0	-	--	0	-
	Streams	0	-	--	0	-
	Springs	0	0	0	0	0
	Wetland	0	0	0	0	0
	Flow	0	-	-	-	-
	Quality	0	--	-	0	0
	Usage	0	-	-	0	0
	Sediments	0	0	0	0	0
	Chemicals	0	-	0	0	0
	Pollution	0	-	0	0	0
	Erosion	0	-	0	0	0
b	Ground Water					
	Sources	0	-	-	0	-
	Depth	0	-	-	-	-
	Quantity	0	-	-	-	-
	Potential Extraction	0	-	-	-	-
	Usage	0	-	-	-	-
	Domestic Supply	0	0	0	0	0
	Industrial Water Supply	0	0	--	0	-

Sr. No.	Main Environmental Parameters	Baseline Conditions	With Project			
			During Construction without Mitigation	During Operation without Mitigation	During Construction with Mitigation	During Operation with Mitigation
	Irrigation	0	0	0	0	0
	Hydropower Generation	0	0	0	0	0
	Quality	0	-	-	0	-
4	Land Resources					
a	Topography	0	-	0	0	0
b	Soil	0	-	0	0	0
c	Major Land use	0	0	0	0	0
5	Ecological Environment					
a	Terrestrial Ecology					
	Flora	0	--	0	-	+
	Fauna	0	--	0	-	+
b	Aquatic Ecology					
	Aquatic Flora	0	--	0	-	0
	Aquatic Fauna	0	--	0	-	0
	Fisheries	0	-	0	0	0
c	Wildlife	0	-	0	0	+
d	Forestry	0	0	0	0	0
e	Beneficial Plants and Animals	0	0	0	0	+
f	Endangered Species	0	0	0	0	0
6	Socio-economic Environment					
a	Institutional and Administrative Setup	0	0	0	0	+
b	Demography	0	0	0	0	0
c	Gender issues	0	-	-	0	0
d	Social Equity	0	0	0	0	0
e	Settlement Patterns	0	-	0	0	0
f	Land Holdings & Titling	0	-	0	0	++
g	Common Resource Rights	0	0	0	0	0
h	Fish	0	0	0	0	0
i	Wood	0	0	0	0	0
j	Grazing	0	0	0	0	0
k	Fodder	0	-	0	-	0
l	Domestic Energy and Fuel	0	0	0	0	0
m	Domestic Water Supply	0	0	0	0	0
n	Sanitation	0	-	0	0	0

Sr. No.	Main Environmental Parameters	Baseline Conditions	With Project			
			During Construction without Mitigation	During Operation without Mitigation	During Construction with Mitigation	During Operation with Mitigation
o	Health	0	-	--	0	-
p	Waterborne Disease	0	-	-	0	+
q	Common Diseases	0	0	0	0	0
r	Mental Health	0	0	0	0	++
s	Human Nutrition	0	0	0	0	0
t	Education & Literacy	0	0	0	0	+
u	Cultural & Historical Sites	0	0	0	0	0
v	Religious Sites	0	0	0	0	0
w	Aesthetics	0	-	-	0	+
x	Landscape	0	-	-	0	++
y	Livelihood	0	--	0	0	++
z	Agriculture	0	-	0	-	0
	Livestock	0	0	0	0	0
	Forestry	0	0	0	0	0
	Fisheries	0	0	0	0	0
	Industry	0	0	0	++	++
	Other Cash Income	0	+	+	+	++
7	Transport, Infrastructure & Communication					
a	Roads	0	-	+	0	++
b	Tracks	0	-	+	0	++
c	Bridges	0	0	0	0	++
d	Pedestrian Tracks	0	-	+	0	++
e	Navigation	0	0	0	0	0
f	Energy and Power	0	-	0	0	++
g	Telecommunication	0	0	0	0	++
8	Natural Risks and Hazards					
a	Earthquake	0	0	0	0	0
b	Landslides	0	0	0	0	0
c	Storms	0	0	0	0	0
d	Floods	0	0	0	0	0
e	Erosion	0	0	0	0	0
f	Drought	0	0	0	0	0
g	Human Disease	0	0	0	0	0

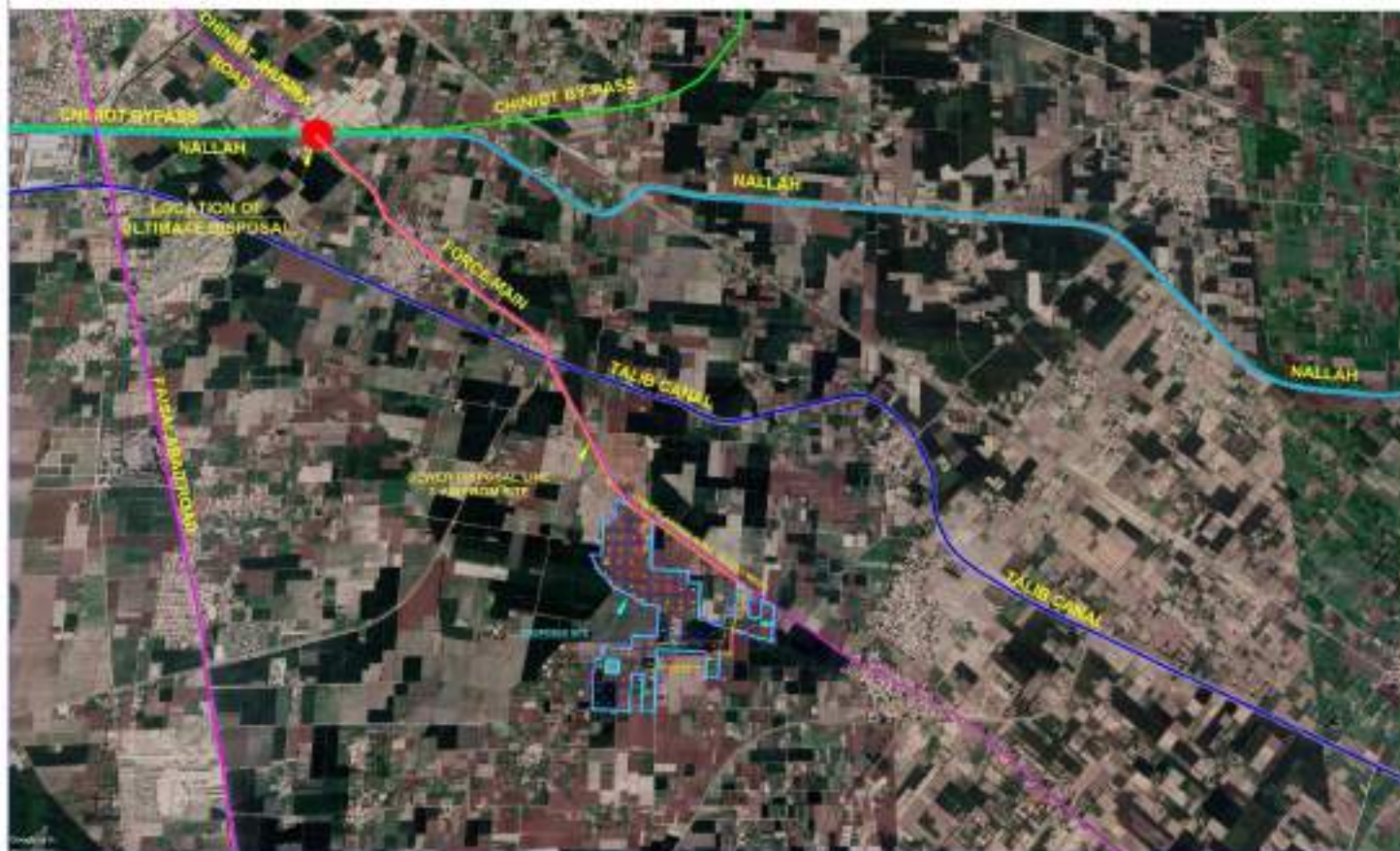
Sr. No.	Main Environmental Parameters	Baseline Conditions	With Project			
			During Construction without Mitigation	During Operation without Mitigation	During Construction with Mitigation	During Operation with Mitigation
h	Pollution	0	--	0	-	--
i	Social Instability	0	0	0	0	+
j	Economic Instability	0	+	+	0	++
k	Political Instability	0	0	0	0	0
9	External Constraints					
a	Upstream Constraints	0	0	0	0	0
b	Upstream Impacts	0	0	0	0	0
c	Downstream Constraints	0	0	-	0	0
d	Downstream Impacts	0	0	-	0	0

ANNEXURE – VII: EIA TEAM

Sr. No.	Team Member	Position Held	Qualifications
1	Aleem Butt	Chief Environmentalist Team Leader- EIA	M.Phil. Environmental Sciences, Government College University (GCU)Lahore M.Sc. Environmental Sciences, Punjab University (PU), Lahore NEBOSH, Lead Auditor
2	Noman Ashraf	Environmental Specialist	M.Phil. Environmental Sciences, Government College University (GCU) Lahore PGD, Environmental Law University of the Punjab, Lahore
3	Ayesha Rasheed	Environmentalist	BS Hons Environmental Sciences, Government College University (GCU) Lahore
4	Engr. Maryam	Environmental Engineer	B.Sc. Environmental Engineering, University of Engineering & Technology (UET) Lahore
5	Asma Butt	Sociologist	M.Sc. Sociology, university of the Punjab
6	Engr. Umair Tallat	Sr. Field Engineer	M.S. Environmental Engineering, NUST Islamabad
7	Muhammad Abbas	Environmentalist	M.S. Environmental Sciences, PU Lahore

ANNEXURE – VIII: SITE LAYOUT MAP FOR ULTIMATE DISPOSAL OF WASTEWATER

LOCATION PLAN OF ULTIMATE DISPOSAL OF DIN HOMES HOUSING SCHEME, CHAK JHUMRA ROAD, CHINIOT



AREA OF THE PROJECT	788-K & 14-M	SD-10
TITLE	LOCATION PLAN OF ULTIMATE DISPOSAL	
PROJECT	DIN HOMES PRIVATE HOUSING SCHEME CHAK JHUMRA ROAD, CHINIOT MOUZA KOT KHDA YAR & CHAKBANDI	
STATUS	TECHNICAL APPROVAL DRAWING	
SCALE	N.T.S.	DRAWING NO.
OWNER'S NAME		

DIN PROPERTIES (Pvt) Ltd.

ANNEXURE – IX: ENVIRONMENTAL MONITORING REPORTS



LAB 208
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BASELINE ENVIRONMENTAL MONITORING & ANALYSIS REPORT

DIN HOMES PRIVATE HOUSING SCHEME, CHINIOT

- Ambient Air Monitoring
- Ground Water Analysis
- Surface Water Analysis

Reference No.: AES-ENV-DG-060/2024

Dated: 22 April, 2024

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Location for Ambient Air Monitoring-01

OUTSIDE OF SITE 2

Chiniot



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Ambient Air Monitoring Report

Monitoring Details

Reference Number: AES-BHV-DG-060/2024-AA-01 Monitoring Point: Outside of Site 2
Date of Monitoring: 05-04-2024 to 06-04-2024 Monitoring Coordinates: 31°40'23.34" N
73°2'17.22" E

Sr. No.	Time	CO (mg/m ³)	NO (µg/m ³)	NO ₂ (µg/m ³)	NO _x (µg/m ³)	SO ₂ (µg/m ³)
1	15:00	0.98	17.16	16.20	33.31	37.76
2	16:00	1.30	17.46	19.37	36.79	40.31
3	17:00	1.44	19.58	21.50	41.03	43.27
4	18:00	0.42	21.71	24.04	45.69	40.90
5	19:00	0.56	21.92	28.08	49.93	38.53
6	20:00	0.70	20.22	26.60	46.76	39.73
7	21:00	0.84	18.51	22.99	41.45	34.70
8	22:00	0.98	18.72	21.69	40.36	32.33
9	23:00	1.12	16.98	21.69	38.62	29.96
10	00:00	0.15	18.95	20.20	39.10	28.47
11	01:00	0.30	13.62	18.55	32.13	26.10
12	02:00	0.45	13.83	18.76	32.55	26.40
13	03:00	0.15	13.62	18.95	32.53	21.61
14	04:00	0.28	14.04	17.67	31.67	21.93
15	05:00	0.41	14.46	17.84	32.26	22.25
16	06:00	0.54	14.68	18.02	32.85	22.88
17	07:00	0.63	15.11	18.19	33.25	23.20
18	08:00	0.73	15.53	20.44	35.93	26.18
19	09:00	2.00	17.86	20.62	38.43	29.16
20	10:00	2.11	20.22	22.70	42.86	29.62
21	11:00	2.21	21.38	24.79	46.11	32.62
22	12:00	1.27	20.87	25.15	45.95	38.29
23	13:00	1.37	21.08	27.04	48.06	38.29
24	14:00	1.46	19.78	27.21	46.93	41.30
Average Concentration		0.93	17.81	21.60	39.35	31.91

Monitored By



Reviewed By
(TM)

Approved By
(QM/Chief Chemist)



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LAB 208
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Ambient Air Monitoring Report

Monitoring Details

Reference Number	AES-ENV-DG-060/2024-AA-01	Monitoring Point	Outside of Site 2
Date of Monitoring	05-04-2024 to 06-04-2024	Monitoring Coordinates	31°40'23.34" N 73°2'17.22" E

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS	Remarks
Nitrogen Dioxide (NO ₂) *	µg/m ³	24Hours	1.00	21.60	80.0	Optimal
Nitrogen Oxide (NO)*	µg/m ³	24Hours	1.00	17.81	40.0	Optimal
NO _x *	µg/m ³	24Hours	1.00	39.35	120.0	Optimal
Sulphur Dioxide (SO ₂) *	µg/m ³	24Hours	1.00	31.91	120.0	Optimal
Carbon Monoxide (CO)*	mg/m ³	24Hours	0.01	0.93	05.0	Optimal
Particulate Matter (PM ₁₀) *	µg/m ³	24Hours	1.00	76.77	150	Optimal
Particulate Matter (PM _{2.5}) *	µg/m ³	24Hours	1.00	19.07	35	Optimal
Total Particulate Matter (TSP)	µg/m ³	24Hours	1.00	102.54	500	Optimal

*Parameters are approved from Punjab Environmental Protection Agency.

Abbreviations:

LDL= Lower Detection Limit

PEQS= Punjab Environmental Quality Standards

µg/m³ = Micro Gram per Meter Cube

mg/m³ = Mill Gram per Meter Cube

Remarks:

Optimal = Compliance with Permissible Range

Marginal = Close to Extreme Edge

High = Exceeds from Permissible Range

Low = Less than Permissible Range

[Signature]

Monitored By



[Signature]

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LAB 205
17025



Ambient Air Monitoring Report

Monitoring Details

Reference Number: AES-ENV-DQ-060/2024-AA-01 Monitoring Point: Outside of Site 2
Date of Monitoring: 05-04-2024 to 06-04-2024 Monitoring Coordinates: 31°40'23.34" N
73°2'17.22" E

Sr. No.	Time	Ambient Temperature °C	Wind Direction	Wind Velocity m/s	Humidity %	Pressure (mm of Hg)
1	15:00	33	NW	3.40	13	758.10
2	16:00	34	NW	3.20	13	758.20
3	17:00	34	NW	3.10	15	758.30
4	18:00	32	NW	3.00	17	758.40
5	19:00	30	NW	3.00	19	758.50
6	20:00	30	NE	2.90	22	758.60
7	21:00	29	NE	2.40	25	758.70
8	22:00	26	NE	2.60	28	758.80
9	23:00	24	NE	2.20	30	758.90
10	00:00	23	NE	2.40	31	758.10
11	01:00	22	NE	2.50	31	758.30
12	02:00	20	NE	2.10	30	758.90
13	03:00	21	NE	2.40	28	758.40
14	04:00	20	NE	2.50	29	758.40
15	05:00	20	NE	2.60	30	758.30
16	06:00	21	NE	2.40	30	758.20
17	07:00	23	N	2.10	28	758.10
18	08:00	27	NW	2.90	26	758.40
19	09:00	29	NW	3.10	24	758.50
20	10:00	30	NW	3.40	20	758.60
21	11:00	31	NW	3.70	22	758.40
22	12:00	32	NW	3.80	17	758.30
23	13:00	33	NW	3.40	18	758.20
24	14:00	33	NW	3.00	16	758.10

Monitored By

Reviewed By
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Approved By
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Noise Monitoring Report

Monitoring Details

Reference Number	AS-ENV-DG-060/2024-AA-01	Monitoring Point	Outside of Site 2
Date of Monitoring	05-04-2024 to 06-04-2024	Monitoring Coordinates	31°40'23.34" N 73°2'17.22" E

Sr. No.	Time	Noise dB(A)	PEQS
1	15:00	51	Day Time
2	16:00	50	
3	17:00	53	
4	18:00	54	
5	19:00	50	
6	20:00	51	
7	21:00	50	
8	22:00	44	Night Time
9	23:00	41	
10	00:00	40	
11	01:00	39	
12	02:00	38	
13	03:00	32	
14	04:00	34	
15	05:00	31	
16	06:00	38	
17	07:00	40	Day Time
18	08:00	43	
19	09:00	45	
20	10:00	46	
21	11:00	49	
22	12:00	52	
23	13:00	54	
24	14:00	53	

Monitored By

Reviewed By

(TM)

Approved By

(QM/Chief Chemist)

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LAB 208
17025



Location for Ambient Air Monitoring-02

NEAR NEW DERA HOUSE

Chiniot



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Ambient Air Monitoring Report

Monitoring Details			
Reference Number	AE5-BNV-DG-Q60/2024-AA-02	Monitoring Point	Next New Circle House
Date of Monitoring	05-04-2024 to 06-04-2024	Monitoring Coordinates	31°46'40.44" N 73°2'48.79" E

Sr. No.	Time	CO (mg/m ³)	NO (µg/m ³)	NO ₂ (µg/m ³)	NO _x (µg/m ³)	SO ₂ (µg/m ³)
1	16:00	0.48	19.49	25.09	44.52	40.37
2	17:00	0.61	19.51	25.32	44.77	38.00
3	18:00	0.73	17.81	23.64	41.39	38.29
4	19:00	0.86	18.02	21.96	39.92	35.68
5	20:00	0.99	16.31	20.39	36.65	33.34
6	21:00	1.12	16.52	20.50	36.98	30.95
7	22:00	0.20	15.20	18.82	33.98	28.58
8	23:00	0.56	15.03	18.91	33.90	26.21
9	00:00	0.69	14.90	18.91	33.77	23.84
10	01:00	0.81	14.92	17.14	32.01	22.48
11	02:00	1.06	13.62	18.07	31.65	22.78
12	03:00	0.72	14.04	17.84	31.84	23.15
13	04:00	0.08	13.66	17.67	31.29	21.85
14	05:00	0.16	13.90	18.61	32.47	22.43
15	06:00	0.24	14.32	18.07	32.36	23.02
16	07:00	0.33	14.36	17.54	31.86	21.53
17	08:00	0.41	14.78	17.96	32.70	24.27
18	09:00	1.65	18.97	20.12	39.04	27.25
19	10:00	1.73	20.73	21.50	42.17	30.49
20	11:00	1.82	22.28	23.83	46.05	34.01
21	12:00	1.90	20.50	26.16	46.60	36.99
22	13:00	1.98	21.73	28.42	50.08	38.08
23	14:00	0.90	21.86	26.97	48.76	38.08
24	15:00	0.98	19.45	25.32	44.71	40.55
Average Concentration		0.88	17.16	21.20	38.31	30.09



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17928



Ambient Air Monitoring Report

Monitoring Details			
Reference Number	AE3-ENV-DG-067/2024-AA-02	Monitoring Point	Near new Dera House
Date of Monitoring	05-04-2024 to 06-04-2024	Monitoring Coordinates	31°45'40.44" N 72°2'48.79" E

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS	Remarks
Nitrogen Dioxide (NO ₂) *	µg/m ³	24Hours	1.00	21.20	80.0	Optimal
Nitrogen Oxide (NO)*	µg/m ³	24Hours	1.00	17.16	40.0	Optimal
NO _x *	µg/m ³	24Hours	1.00	38.31	120.0	Optimal
Sulphur Dioxide (SO ₂) *	µg/m ³	24Hours	1.00	30.09	120.0	Optimal
Carbon Monoxide (CO)*	mg/m ³	24Hours	0.01	0.88	05.0	Optimal
Particulate Matter (PM ₁₀) *	µg/m ³	24Hours	1.00	98.54	150	Optimal
Particulate Matter (PM _{2.5}) *	µg/m ³	24Hours	1.00	21.08	35	Optimal
Total Particulate Matter (TSP)	µg/m ³	24Hours	1.00	125.45	500	Optimal

*Parameters are approved from Punjab Environmental Protection Agency.

Abbreviations:

LDL= Lower Detection Limit

PEQS= Punjab Environmental Quality Standards

µg/m³= Micro Gram per Meter Cube

mg/m³= Milligram per Meter Cube

Remarks:

Optimal = Compliance with Permissible Range

Marginal = Close to Exceeds Edge

High = Exceeds from Permissible Range

Low = Less Than Permissible Range

Monitored By

Reviewed By

(TM)

Approved By

(QM/Chief Chemist)

Document No. AE3/LMS/PRM-170 Date of Issue 01 April, 2022; Revision No. 00



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Ensuring Quality and Sustainability



Ambient Air Monitoring Report

Monitoring Details			
Reference Number	AES-ENV-DG-060/2024-AA-02	Monitoring Point	Near New Dera House
Date of Monitoring	05-04-2024 to 06-04-2024	Monitoring Coordinates	31°46'40.44" N 73°2'48.79" E

Sr. No.	Time	Ambient Temperature °C	Wind Direction	Wind Velocity m/s	Humidity %	Pressure (mm of Hg)
1	16:00	35	NW	3.20	13	758.10
2	17:00	34	NW	3.10	13	758.20
3	18:00	32	NW	3.00	15	758.30
4	19:00	31	N	2.80	17	758.10
5	20:00	28	NE	1.70	19	758.20
6	21:00	27	NE	2.40	22	758.10
7	22:00	25	NE	2.30	25	759.30
8	23:00	24	NE	2.00	27	759.40
9	00:00	23	NE	1.90	30	759.60
10	01:00	22	NE	1.80	31	759.70
11	02:00	21	NE	1.90	31	759.90
12	03:00	21	NE	1.50	30	759.80
13	04:00	21	NE	1.60	28	759.40
14	05:00	20	NE	1.90	29	759.30
15	06:00	20	NE	2.40	30	759.20
16	07:00	21	NE	2.60	28	759.10
17	08:00	23	NE	2.70	25	758.30
18	09:00	27	NW	2.90	21	758.40
19	10:00	29	NW	3.40	19	757.50
20	11:00	30	N	3.50	23	757.40
21	12:00	31	N	3.90	19	757.30
22	13:00	32	N	3.50	17	757.20
23	14:00	33	NW	3.30	16	757.10
24	15:00	34	NW	3.00	14	758.30

Monitored By

Reviewed By
(TM)

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Ensuring Quality and Sustainability



Noise Monitoring Report

Monitoring Details

Reference Number	AES-ENV-DG-060/2024-AA-02	Monitoring Point	Near New Deng House
Date of Monitoring	05-04-2024 to 06-04-2024	Monitoring Coordinates	31°46'40.44" N 73°2'48.79" E

Sr. No.	Time	Noise dB(A)	PEQ5
1	16:00	54	
2	17:00	52	
3	18:00	52	
4	19:00	51	Day Time
5	20:00	49	
6	21:00	53	
7	22:00	45	
8	23:00	42	
9	00:00	44	
10	01:00	41	
11	02:00	38	Night Time
12	03:00	34	
13	04:00	30	
14	05:00	34	
15	06:00	38	
16	07:00	40	
17	08:00	46	
18	09:00	48	
19	10:00	49	
20	11:00	54	Day Time
21	12:00	52	
22	13:00	51	
23	14:00	49	
24	15:00	50	

Monitored By

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Approved By

(QM/Chief Chemist)

Document No. AES/IAS/PRM-110; Date of Issue (01 April, 2023); Revision No. 00



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Ensuring Quality and Sustainability



LAB 205
17025



SURFACE WATER ANALYSIS REPORT

Sample Detail

Reference No.	ACS-ENV-OG-080/2024-SW-18	Reporting Date	22-04-2024
Nature of Sample	Surface Water	Sampling Method Reference	AEJ/LM/QSP-D14
Grab/Composite	Grab	Sample Collected by	AEJ
Sampling Date	05-04-2024	Sample Receiving Date	08-06-2024
Analysis		Lab Temp & Humidity	24.3°C & 53%
Completion Date	17-04-2024		
Ambient Temperature & Humidity at the Time of Sampling			30°C & 47%
Sample ID	ACS-ENV-SW-18/2024	Sampling Location	Main Canal, Softwala
Project Detail	Din Homes Private Housing Scheme, Chiniot		



Surface Water Analysis Results			
Parameter	Analysis Method	Result	MU (CL95%)
Lab Analysis			
pH**	SMWW 4500 H+ B	7.76	± 0.04
Biochemical Oxygen Demand (BOD ₅) *	SMWW 5210-B	<5	N.A.
Chemical Oxygen Demand (COD)**	SMWW 5220 D	<5	± 4.068
Total Suspended Solids (TSS)**	SMWW 2540 D	366	± 2.2633
Total Dissolved Solids (TDS)**	SMWW 2540 C	138	± 8.0226
Phenolic Compounds (as Phenols) *	SMWW 5530 D	0	N.A.
Grease and Oil**	SMWW 5520 B	0.5	± 0.73
Chloride (Cl)**	SMWW 4500 Cl- B	09	± 1.73
Fluoride (F)**	SMWW 4500 F- D	0.13	± 0.0505
Cyanide (CN)*	SMWW 4500 CN- F	0	N.A.
Anionic Detergents (as MBAs) *	SMWW 5540-C	0	N.A.
Sulfate (SO ₄) **	SMWW 4500 SO ₄ D	46	± 5.972
Sulfide (S ²⁻) *	SMWW 4500 S ²⁻ F	0	N.A.
Ammonia (NH ₃) *	SMWW 4500-NH ₃ C	0	N.A.
Cadmium (Cd)	SMWW 3113 B	<0.005	N.A.
Chromium (Cr)	SMWW 3113 B	<0.004	N.A.
Copper (Cu)	SMWW 3113 B	0.165	N.A.
Lead (Pb)	SMWW 3113 B	<0.005	N.A.
Mercury (Hg)	SMWW 3112 B	<0.001	N.A.
Selenium (Se)	SMWW 3114 B	<0.01	N.A.
Nickel (Ni)	SMWW 3113 B	<0.02	N.A.
Silver (Ag)	SMWW 3113 B	<0.002	N.A.
Total Toxic Metals	Calculated Value	0.2971	N.A.
Zinc (Zn)	SMWW 3111 B	0.045	N.A.
Arsenic (As)	SMWW 3114 B	<0.005	N.A.
Barium (Ba)	SMWW 3113 B	<0.0035	N.A.

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22-04-2024



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Ensuring Quality and Sustainability



LAB 208
17025



SURFACE WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-ENV-QG-060/2024-SW-18	Reporting Date	22-04-2024
Nature of Sample	Surface Water	Sampling Method Reference	AES/LMS/GSP-014
Grab/Composite	Grab	Sample Collected by	AES
Sampling Date	05-04-2024	Sample Receiving Date	08-04-2024
Analysis		Lab Temp & Humidity	24.3°C & 53%
Completion Date	17-04-2024		
Ambient Temperature & Humidity at the Time of Sampling			30°C & 47%
Sample ID	AES-ENV-SW-18/2024	Sampling location	Main Canal, Sohrawa
Project Detail	Din Homes Private Housing Scheme, Chiniot		



Surface Water Analysis Results			
Parameter	Analysis Method	Result	MU (CL95%)
Iron (Fe)	SMWW 3113 B	0.0721	N.A.
Manganese (Mn)	SMWW 3111 B	0.015	N.A.
Boron (B)	SMWW 3113 B	<0.02	N.A.
Residual Chlorine (Cl) *	SMWW 4500 Cl- B	0	N.A.

*Parameters are approved from Punjab Environmental Protection Agency.

**Parameters are accredited from Pakistan National Accreditation Council.

The reported expanded uncertainty is based on combined standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%.

Abbreviations:

N.A. = Not Available

MU = Measurement Uncertainty

SMWW = Standard Methods for the examination of Water and Wastewater

Report Disclaimer

- The remaining portion of the sample (s) will be disposed off after 15 days after the issuance date of report from the laboratory unless otherwise instructed. (Condition Apply)
- This report shall not be reproduced in part or full.
- The provided results relate only to the sample provided/collected.
- Please reflect the testing results, disposal for usage of report solely dependent on client.

Analyzed By
22/04/24

Reviewed By
(TM) 22/04/24

Approved By
(QM/Chief Chemist)
22/04/24

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Ensuring Quality and Sustainability



LAB-208
17025



GROUND WATER ANALYSIS REPORT

Sample Detail

Reference No.	AE5-ENV-GW-060/2024-GW-29	Reporting Date	22-04-2024
Nature of Sample	Ground Water	Sampling Method	Reference
Grab/Composite	Grab	Sample Collected by	AE5
Sampling Date	05-04-2024	Sample Receiving Date	05-04-2024
Analysis		Lab Temp & Humidity	24.8°C & 33%
Completion Date	17-04-2024		
Ambient Temperature & Humidity at the Time of Sampling			30°C & 42%
Sample ID	AE5-ENV-GW-29/2024	Sampling location	Tubewell Site 2
Project Detail	Din Homes Private Housing Scheme, Chiniot		



Ground Water Analysis Results					
Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color*	SMWW 2120 C	≤ 15 TCU	0	N.A.	Optimal
Taste*	SMWW 2160 C	Non-Objectionable	Non-Objectionable	N.A.	Optimal
Odor*	SMWW 2150 B	Non-Objectionable	Non-Objectionable	N.A.	Optimal
Turbidity*	SMWW 2130 B	≤ 5 NTU	0	N.A.	Optimal
Total Hardness (as CaCO ₃)**	SMWW 2340 C	≤ 500 mg/L	420	± 5.1425	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	≤ 1000 mg/L	758	± 8.0226	Optimal
pH**	SMWW 4500 H+ B	6.5-8.5	7.53	± 0.04	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.005	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	<0.005	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/L	<0.02	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	<0.004	N.A.	Optimal
Chloride (Cl) **	SMWW 4500 Cl- B	≤ 250 mg/L	55	± 1.73	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	<0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.164	N.A.	Optimal
Cyanide (CN)*	SMWW 4500 CN- F	≤ 0.05 mg/L	0	N.A.	Optimal
Fluoride (F)**	SMWW 4500 F- D	≤ 1.5 mg/L	0.39	± 0.0505	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/L	0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤ 0.02 mg/L	<0.02	N.A.	Optimal
Nitrate (NO ₃)**	SMWW 4500 NO ₃ - D	≤ 50 mg/L	8.80	± 0.132	Optimal
Nitrite (NO ₂)*	SMWW 4500 NO ₂ - B	≤ 3.0 mg/L	0.03	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl ₂)*	SMWW 4500 Cl- B	0.5 mg/L	0	N.A.	Optimal

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22-04-2024



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Ensuring Quality and Sustainability



LAB 208
17025



GROUND WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-ENV-DG-D60V2024-GW-29	Reporting Date	22-04-2024
Nature of Sample	Ground Water	Sampling Method	AES/LMS/QSP-014
Grab/Composite	Grab	Sample Collected by	AES
Sampling Date	03-04-2024	Sample Receiving Date	08-04-2024
Analysis	17-04-2024	Lab Temp & Humidity	24.8°C & 52%
Completion Date		Ambient Temperature & Humidity at the Time of Sampling	30°C & 42%
Sample ID	AES-ENV-GW-29/2024	Sampling Location	Tubewell Site 2
Project Detail	Din Homes Private Housing Scheme, Chiniot		



Ground Water Analysis Results					
Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Phenolic Compounds (as Phenols) *	SMWW 5530 D	NGVS mg/L	0	N.A.	-
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.033	N.A.	Optimal
Microbiological Analysis					
Total Coliforms *	SMWW 9222 B	0 CFU / 100 ml	0	N.A.	Optimal
Fecal Coliforms *	SMWW 9222 D	0 CFU / 100 ml	0	N.A.	Optimal

*Parameters are approved from Punjab Environmental Protection Agency.

**Parameters are accepted from Pakistan National Accreditation Council.

The reported expanded uncertainty is based on combined standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%.

Abbreviations

PEQS = Punjab Environmental Quality Standards

TCU = True Color Unit

NTU = Nephelometric Turbidity Unit

Remarks

Optimal = Compliance with Permissible Range

Low = Less Than Permissible Range

SMWW = Standard Methods for the determination of Water and Wastewater

N.A. = Not Available

MB = Measurement Uncertainty

High = Close to Extreme Edge

High = Outside from Permissible Range

Report Disclaimer

- The remaining portion of the sample (if) will be disposed off after 15 days after the issuance date of report from the laboratory unless otherwise notified (Condition Apply).
- This report shall not be responsible for any damages.
- The provided results relate only to the sample provided/collected.
- Values reflect the testing results; decision for usage of report totally depends on client.

Analyzed By
22/04/2024

Reviewed By
(TM) 22-04-2024

Approved By
(QM/Chief Chemist) 22/04/2024



-----End of Report-----

Page 2 of 2

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Ensuring Quality and Sustainability



LAB 206
17025



GROUND WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-EHV-DG-040/2024-GW-30	Reporting Date	22-04-2024
Nature of Sample	Ground Water	Sampling Method	AES/MS/QSP-014
Geob/Composite	Grab	Sample Collected by	AES
Sampling Date	03-04-2024	Sample Receiving Date	08-04-2024
Analysis	17-04-2024	Lab Temp & Humidity	24.5°C & 53%
Completion Date		Ambient Temperature & Humidity at the Time of Sampling	30°C & 42%
Sample ID	AES-EHV-GW-30/2024	Sampling Location	Hand Pump
Project Detail	Din Homes Private Housing Scheme, Chiniot		



Ground Water Analysis Results					
Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color*	SMWW 2120 C	< 15 TCU	0	N.A.	Optimal
Taste*	SMWW 2160 C	Non-Objectable	Non-Objectable	N.A.	Optimal
Odor*	SMWW 2150 B	Non-Objectable	Non-Objectable	N.A.	Optimal
Turbidity*	SMWW 2130 B	< 5 NTU	0	N.A.	Optimal
Total Hardness (as CaCO ₃)**	SMWW 2340 C	< 500 mg/L	440	± 5.1421	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	< 1000 mg/L	866	± 8.0226	Optimal
pH**	SMWW 4500 H* B	6.5 - 8.5	7.52	± 0.04	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	< 0.005	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	< 0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	< 0.005	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	< 0.0035	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/L	< 0.02	N.A.	Optimal
Calcium (Ca)	SMWW 3113 B	0.01 mg/L	< 0.006	N.A.	Optimal
Chloride (Cl) **	SMWW 4500 Cl B	< 250 mg/L	17	± 1.73	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	< 0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.164	N.A.	Optimal
Cyanide (CN)*	SMWW 4500 CN F	≤ 0.05 mg/L	0	N.A.	Optimal
Fluoride (F) **	SMWW 4500 F D	≤ 1.5 mg/L	1.36	± 0.0505	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	< 0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/L	0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	< 0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	< 0.02 mg/L	< 0.02	N.A.	Optimal
Nitrate (NO ₃) **	SMWW 4500 NO ₃ D	≤ 50 mg/L	5.24	± 0.132	Optimal
Nitrite (NO ₂) *	SMWW 4500 NO ₂ B	≤ 3.0 mg/L	0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	< 0.01	N.A.	Optimal
Residual Chlorine (Cl ₂)*	SMWW 4500 Cl B	0.5 mg/L	0	N.A.	Optimal

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mg
22-04-2024



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Ensuring Quality and Sustainability



GROUND WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-ENV-DG-060/2024-GW-30	Reporting Date	22-04-2024
Nature of Sample	Ground Water	Sampling Method	AES/LMS/23P-014
Grab/Composite	Grab	Sample Collected by	AES
Sampling Date	05-04-2024	Sample Receiving Date	08-04-2024
Analysis		Lab Temp & Humidity	24.8°C & 53%
Completion Date	17-04-2024	Ambient Temperature & Humidity at the Time of Sampling	30°C & 42%
Sample ID	AES-ENV-GW-30/2024	Sampling Location	Hand Pump
Project Detail	Din Homes Private Housing Scheme, Chiniot		



Ground Water Analysis Results					
Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Phenolic Compounds (as Phenol) *	SMWW 5530 D	NDVS mg/L	0	N.A.	-
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.037	N.A.	Optimal
Microbiological Analysis					
Total Coliforms*	SMWW 9222 B	0 CFU / 100 mL	0	N.A.	Optimal
Fecal Coliforms*	SMWW 9222 D	0 CFU / 100 mL	0	N.A.	Optimal

*Parameters are approved from Pakistan Environmental Protection Agency.

**Parameters are accredited from Pakistan National Accreditation Council.

The reported expanded uncertainty is based on combined standard uncertainty multiplied by a coverage factor $k=2$, providing it coverage probability of approximately 95%.

Abbreviations:

PEQS = Punjab Environmental Quality Standard

TCB = True Color Unit

NTU = Nephelometric Turbidity Unit

Remarks:

Optimal = Compliance with Permissible Range

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SMWW = Standard Methods for the Examination of Water and Wastewater

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High = Exceeds from Permissible Range

Report Disclaimer

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Analyzed By

Reviewed By

(TM) 22-04-2024

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-----End of Report-----

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Ensuring Quality and Sustainability

ANNEXURE – X: SOCIO-ECONOMIC PERFORMA

EIA OF DIN HOMES PRIVATE HOUSING SCHEME CHINIOT- SOCIO-ECONOMIC BASE LINE SURVEY

- Name of Interviewer: _____ 2. Date: _____
- Village Name: _____ 4. Union Council/Tehsil: _____

DEMOGRAPHIC PROFILE

- Name _____ of _____ Respondent: _____
- Respondent's _____ Father _____ Name: _____
- Gender of Respondent: _____ a. Male
b. Female
- Age of Respondent: _____ a. 15-25 _____ b. 26-35 _____ c. 36-45 _____ d. 46 & Above
- What is your Education Level? _____ a. Illiterate _____ b. Primary _____ c. Middle _____ d. Matric _____ e. Intermediate _____ f. Bachelors _____ g. Above Bachelors
- 10. What is your Occupation? _____
a. Business _____ b. Government job _____ c. Private job _____ d. Farmer _____ e. Unemployed
- 11. What is your Marital Status? _____ a. Married _____ b. Unmarried
- 12. What is your primary Language (i.e., the one you speak most of the time)? _____

- 13. What is your Caste? _____
- 14. What is your Religion? _____
- 15. What type of your family system? _____ a. Joint _____ b. Nuclear _____
- 16. Total number of Family Members (Adult) living with you? _____
a. Male _____ b. Female _____ c. Total _____
- 17. How many Children's you have (upto 10 years)? _____
a. Male _____ b. Female _____ c. Total _____

ECONOMIC PROFILE

- 18. What are the major sources of your household income? _____
a. Service _____ b. Agriculture _____ c. Business _____
d. Labor _____ e. Livestock _____ f. Any other _____
- 19. What is distance of your office/work place from your house? _____
a. 1-10 Km _____ b. 11-20 Km _____ c. 21-30 Km _____ d. 30 Km & Above _____
- 20. Approximately what is your Family Monthly Income? _____

a. Less than Rs. 20,000 b. Rs. 21,000-40,000 c. Rs. 41,000-60,000

d. Rs. 61,000-80,000 e. More than Rs. 80,000

21. Approximately how much is your Family Monthly Expenditure?

a. Less than Rs. 20,000 b. Rs. 21,000-40,000 c. Rs. 41,000-60,000

d. Rs. 61,000-80,000 e. More than Rs. 80,000

22. How many of your family members are in age (16-65)? _____

23. How many of your family members in age (16-65) are employed? _____

24. Status of ownership (In case of shop keeper/business owner)? a. Owner b. Renter

25. Respondent per day income _____

26. What are your normal working hours? _____

HOUSING PROFILE

27. Status of Ownership: a. Resident Owner b. Resident Tenant

28. Total Area of the House: a. Kanal _____ b. Marla _____

29. Total Living Rooms (No.): _____

30. Type of Construction: a. Katcha b. Semi Pacca c. Pacca

31. Present Value Rs. _____

32. SOCIAL AMENITIES PRESENT IN HOUSE (Tick)

Social Amenities	Available	Satisfactory	Non-Satisfactory	No Access
Electricity	☐	☐	☐	☐
Sui Gas	☐	☐	☐	☐
Water Supply	☐	☐	☐	☐
Telephone	☐	☐	☐	☐
Sewerage/Drainage	☐	☐	☐	☐

33. What are the sources of water for your domestic use?

a. Public Water Supply/Tube-well b. Hand Pumps / Electric Motor

c. Bore Hole d. Any other

34. What is your land holding _____ in acres?

35. What is the source of water used for irrigation purpose?

a. Tube well _____ b. Canal _____ c. Any Other _____

36. Are you satisfied with the water quality and quantity? a. Yes _____ b. No _____

37. What are the major crops in this area?

a. _____ b. _____ c. _____ d. _____

38. What are the major common diseases in the area?

- _____ b. _____ c. _____ d. _____

39. Facilities in or nearby the proposed project area

Facilities	Yes	No	No. of Institutions	Name	Distance from Proposed Project
Education Institutions					
Health Institutions					
Religious Place (Mosque / Shrine / Graveyard)					
Recreational Place					
Historical / Archeological Monument					

40. Is there any protected site in this area? a. Yes b. No

If yes, then Name _____ Place _____

Significance _____

41. Specify the existing Non -Government Organizations (NGOs) in your area and state of

their area of work? Name of Organization _____ Area of interest _____

42. WOMEN PARTICIPATION AND DECISION MAKING IN DIFFERENT ACTIVITIES (Tick)

<u>Activities</u>	Participation	Decision Making
Household activities	☐	☐
Child caring	☐	☐
Farm/crop/Livestock rearing	☐	☐
Working woman	☐	☐
Sale & Purchase of properties	☐	☐
Social obligations (marriage, birthday & other functions)	☐	☐
Local representation (councilor/ political gathering)	☐	☐

RESPONDENT'S VIEWS ABOUT PROJECT

43. PERCEPTIONS OF RESPONDENTS FOR ACTION ASSOCIATED WITH THE PROJECT

Possible impacts/effects of the Project (Tick)

Increase	Decrease
Employment opportunities	☐
Recreational Facilities	☐
Living standard	☐
Income generating activities	☐
Other Specify _____	☐

44. Do you know about the proposed project? a. Yes b. No

45. Is your land or any asset being acquired due to the implementation of this proposed project?

a. Yes b. No If yes, please give details _____

46. In your opinion, should this Project be implemented here? a. Yes b. No

47. In your opinion, how will you be affected by construction of this project?

48. In your opinion, how will you be affected by operation of this project?

49. Would you like to be associated with the project as a worker? a. Yes b. No

50. What protective measures do you suggest to safeguard your interests?

Protective Measures	Response
Project should complete well in time	
If any private land is acquired then proper compensation should be paid	
Harmful effects on local residents during construction should be minimize	
Implementation of HSE plan for a safe working environment	
Local residents should be given priority of jobs	
Provision of basic facilities in project area (please specify)	
Any Other (Please Specify)	
No Response	

51. Contact #

Interviewer Views:

Name & Signature of Interviewer: _____

ANNEXURE – XI: REFERENCES

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ANNEXURE – XII: LIST OF ABBREVIATION

PEPA	Punjab Environmental Protection Act
NEQS	National Environmental Quality Standards
PEQS	Punjab Environmental Quality Standards
FESCO	Faisalabad Electric Supply Company
EMP	Environmental Management plan
WWTP	Waste Water Treatment Plant
EPA	Environmental Protection Agency
EIA	Environmental Impact Assessment
IEE	Initial Environmental Examination
EIA	Environmental Impact Assessment
CC	Construction Contractor
SC	Supervision Consultant
W.H. O	World Health Organization
SWM	Solid Waste Management
CSR	Corporate Social Responsibility
MSWs	Municipal Solid Wastes
PPEs	Personal protective equipment's
PM	Particulate matter
AA	Ambient Air
WW	Wastewater
DW	Drinking Water
TMA	Tehsil Municipal Authority

ANNEXURE – XIII: GLOSSARY

Words	Dictionary
Mitigation	The action of lessening in severity or intensity
Compliance	Acting according to certain accepted standards
Flora	All the plant life in a particular region or period
Fauna	All the animal life in a particular region or period
Screening	Initial step before construction of project to assess whether a proposed project is likely to have significant environmental impacts.
Regulations	An authoritative rule
Stakeholders	A person or organization with an interest or concern in something