

PEPSICO

"2nd PC-50 & KK Line Expansion at PEPSICO Multan Snacks Plant, Multan Industrial Estate"

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

March-2022

ASIAN CONSULTING ENGINEERS (PVT. LTD.)
www.asiancon.com

Head Office:
C-3, Jhelum Block, Green Forts-II, Lahore.
Phone: +92 42 35450914-15,
Fax: +92 42 35450916,
Email: Arslan@asiancon.com

Islamabad Office:
204 Al-Safa Heights-1, F-11
Markaz, Islamabad.
Phone: +92 321 5943808

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QUALITY CONTROL SHEET



QUALITY CONTROL SHEET				
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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

S.1.1 Title and Location of Project

PEPSICO intends to 2nd PC-50 & KK line Expansion at PepsiCo Multan Snacks Plant in Multan. The current manufacturing capacity of PEPSICO snack at Sundar Plant will saturate in 2016 and will not be able to support the market demand from 2017 onwards. By increasing in market demand, it requires new manufacturing facility to increase its production capacity & rationalize the distribution network to successfully deliver on the growing market demand of snacks products.

The Project site for establishing snack manufacturing unit is geographically located at 30o 07' 29.49''N and 71o 22' 19.87'' E. The project site is accessible through Sher Shah Road, Askari bypass and Multan bypass. Proposed Extension is in PepsiCo Snacks Plant. Multan Industrial Estate.

S.1.2 Name of proponent

Mr. Syed Zawar Haider Kazmi
Plant Manager
PepsiCo Snacks Plant, Multan

PEPSICO Pakistan has engaged Asian Consulting Engineers Pvt Ltd for preparation of Environmental Impact Assessment (EIA) to meet the requirements of Pakistan Environmental Protection Act, 1997.

The current Project falls under Schedule- II of subsection B category 4, Food processing industries, with total cost of Rs.100 million and above of IEE/EIA Regulations 2000 as per section 12 of Environmental Protection Act and thus requires Environmental Impact Assessment- EIA which will be submitted for having Environmental Approval / NOC from the Environmental Protection Agency, Punjab.

The approach adopted for carrying out the EIA study includes review of the available data, analysis of collected data, establishing environmental baseline survey of the project related to physical, ecological & social environment, impact identification and suggesting mitigation measures and preparation of environmental and disaster management plan.

S.1.3 Name of organization preparing report

ASIAN Consulting Engineers Private Limited (AsCE) is providing their services to conduct environmental assessment for the project. Asian Consulting Engineers Private Limited is a leading consulting company executing complex planning, architectural and engineering projects that require overall design and construction management services. ASIAN Consulting Engineers Private Limited is an independent consulting company working in the field of environment. Asian provides consulting services and sustainable solutions for infrastructure projects, industrial projects and social development projects.

The team of experts are given as under-:

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
3	Dilbar Hussain	Chief chemist	M.sc Chemistry university of the Punjab
4	Jahanzaib Malik	Deputy manager	M. Phil. Environmental Sciences University of Agriculture, Faisalabad
5	Abida Hussain	Environmental Engineer	BS Environmental Engineering University of Engineering and Technology (UET) Lahore
6	Huda Rizwan	Environmentalist	BS Environmental Sciences The University of Lahore
7	Nimra Nawaz	Environmentalist	Mphil Environmental Sciences University of Engineering and Technology (UET) Lahore
8	Maryam Siddique	Environmental Engineer	BS Environmental Engineering University of Engineering and Technology (UET) Lahore
9	Asma Butt	Sociologist	M.sc Sociology, University of the Punjab

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.

S.1.4 Project Description

The Project are is located in Multan industrial estate phase II. The map of project location is shown in figure 1.1 and 1.2. The total area of the industry is on 23.4 acres, expansion unit is within the boundaries of industry and containing area of 10,664 Sq. m. The product manufacture will be Lays, and Kurkure. The major raw materials are Potato, vegetable oil, corn and pack material. The exiting storage capacity of finished good is about 110 ton which will be increased about 290 ton by expansion of unit. Approximately 215 workers will be involved in construction phase while in operation phase 1350 workers will be involved. Average water consumption of last year (2021) is about 6,227 m3/month which will be increase by 3,568 m3/day by the

expansion of Snacks Plants. While the averages wastewater from industry is about 2,271 m3/month which will be increased by 2300 m3/month. The water will be pumped from deep underground by aid of turbines. For the treatment of the waste water, the state-of-the-art waste water treatment plant (DAF + UASB+ Aeration cell) is installed at the facility for primary and secondary treatment. About 36 % of the waste water is reused, company is planning for zero discharge for which tertiary treatment unit will be installed. The Project will deploy various types of machineries for construction purposes. These will include bulldozers, excavators, shovels, tunneling machine, dumpers, batching plant, tankers, trucks, vibrator, compactor, cranes, loaders, grader, compressors, generators, roller, bowser etc. s. The total capital cost of the project is estimated as USD 68.4 Million. The total project completion time is estimated as 1 years.

S.1.5 Major Impacts and Their Mitigation

The EIA process has identified the main positive and adverse impacts that will be created during project pre-construction, construction and then operation.

i) Project Pre-construction

The PepsiCo industry extension area is about 10,664 Sq.m. PepsiCo industry is already existing in the industrial area of Multan. Extension will be done within the vicinity of PepsiCo industry. So, there will be no negative impacts directly on the population of the nearby community.

ii) Project Construction

Impacts

There will be impact on soil condition due to construction activities such as excavation, filling, development of access roads, construction camps, developing of high rise low rise buildings and disposal of materials (both solid and liquid). Construction Camps will generate about 0.5 kg/person/day domestic solid waste of which inappropriate disposal methods will have a negative impact on the physical environment of the project area. The use of chemicals fuel and lubricants and their storage at site may have negative impact on soil. The construction activities like drilling, concreting, excavation and dumping of soil, chemicals, oil, lubricants, and detergents can deteriorate surface water quality. Sewage generated from construction camps may deteriorate ground and surface water. Due to operation of construction machinery including Batching plants, excavators, dump trucks, road rollers, graders, haul trucks and transport vehicles dust and emission problems are being generated as most of these are using diesel engines, which generate noise and exhaust emissions. A major part of dust generated will be fugitive dust which can be a problem for the nearby community.

Due to the construction in the project site, direct, indirect or temporary

damages will occur from site excavation and clearance and dumping spoils in other habitats. Due to construction activities, there might be disturbance to ecosystems especially to wild animals and birds. The severity of this disturbance totally depends upon duration of activity at the site, its intensity and frequency.

The population residing in and the surroundings of the Project Area will be affected during the construction phase such as Insecurity problems may arise for the local population due to the Contractor's workers during the construction phase, Community may face the noise and dust problems during the construction activities and theft problems to the community by the Contractor's workers and vice versa.

Construction activities, particularly excavation and movement of haul trucks and machinery may prove dangerous for the safety of the workers as well as for local residents. Contractor's staff while working on the high-rise columns, transoms, etc. may slip and get injured. Similarly, working at excavated areas may also cause injuries due to the failure of side slopes of excavation. The storage of all solid waste shall be practiced so as to prevent the attraction, harborage or breeding of insects or rodents, and to eliminate conditions harmful to public health or which create safety hazards, odors, unsightliness or public nuisance.

Mitigations

The Soil contamination can be curtailed by reducing the oil spill and by well maintaining the construction vehicles. Soil contamination by asphalt and other obnoxious material should be minimized by placing all containers in caissons or dumped into temporary pits lined with impervious liners to avoid contamination of soils/groundwater from leachates. Proper drainage facility will be provided at the camp areas 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. Adequate number of solid waste containers should be placed within the camp area and surroundings to ease in storage and collection/disposal of solid waste Sewage from construction camp will be disposed of by using septic tanks. Trainings should be given to workers for managing liquid and solid waste. Emergency Response Plan should be implemented in case of oil or chemical spillage. Tuning of vehicles should be made mandatory to reduce the noise and emissions of NOx, SOx, CO and PM10. Emissions and noise from the batching plants and other construction machinery should be controlled with appropriate control equipment. Fugitive dust can be mitigated by sprinkling water.

The dredged spoil created during the construction of the project should properly be disposed in order to avoid habitat damage. Loud noises during construction activities must be avoided. Buffer belt of native species should

be planted along the boundary wall of the project site. Landscaping should properly be done after finish construction. The plantation and landscaping will increase the aesthetic of the area. Contractor should select specific timings for heavy machinery operation so as to cause least disturbance to the population considering their peak movement hours. Effective construction controls may be made by the Contractor to avoid inconvenience to the population due to noise, smoke and fugitive dust. Haul-trucks carrying concrete, aggregate and sand fill materials will be kept covered with tarpaulin to help contain the construction materials being transported to the specific site. The Contractor should warn the workers not to involve in any theft activities and if anyone would involve in such type of activities, he will have to pay heavy penalty and would be handed over to police. Similarly, at the time of hiring labour/workers, Contractor has to ensure that the workers should be of good repute/character. Contractor will ensure the provision of medicines, first aid kits, emergency vehicles, etc. at the work place. Compliance with the safety precautions for construction workers as per International Labour Organization (ILO) Convention No. 62 will be ensured by the Contractor. Training of workers should be done in the construction safety procedures, environmental awareness, and equipping. All construction workers should wear with safety boots, helmets, gloves, ear plugs, and protective masks.

iii) Project Operation

Impacts

The Level of ground water resource may be reduced with passage of time for required quantity of fresh water for daily operations. Air Emission is emitted from the stacks of generators and boilers. Stack emissions of generators & boilers will produce gasses like NOx, SOx, CO2, PM and CO. These gasses will cause air pollution if not properly managed or mitigated. There will be high noise level due to the operations of process machinery, packaging machinery and from power sources like generators and boilers. 4 types of solid waste will be produced as Organic waste, Packaging waste from packaging process, Municipal Solid waste generated during daily operations of kitchen and office and sludge from the waste water treatment plant.

Mitigation

An effective Water Conservation Plan will be developed and employees of the industry should have trained in water conservation. Reuse of water should be done. Rainwater harvesting should be done on the roof top of the building. It is a simple technique of catching rainwater and storing it in underground aquifers. Generators and boilers should be maintained properly and tuned up in respect of air to fuel ratio in order to have these pollutants within the PEQS limit. For biomass boiler, dust air bag or filter should be installed in order to bring PM in compliance with PEQS. Regular monitoring on all

emission sources should be done and measures will be taken if found non-compliance with PEQS. Proper, adequate and timely maintenance of equipment through lubrication, repair and replacement of parts will go a long way to keep the noise levels within the prescribed limits PEQS. Providing the workers with suitable hearing protection like ear cap, or earmuffs and training them in their use; Machines should be placed on concrete structure raised from floor or resistant pads should be placed beneath the machinery. Sound barriers can be placed for the enclosure of noisy machinery, enclosure of worker and outside environment. Good training programs should be conducted in order to convince workers of the need for protection from high noise levels because most of the workers do not use ear muffs or ear plugs by their own consent. The organic waste can be converted in to biogas. A contract will be made from local Solid Waste Management Authority for safe disposal of municipal solid waste. Sludge from waste water treatment plant will be disposed through EPA approved waste disposal contractor. Waste water treatment plant will be installed with capacity 145 m3/hr. The waste water treatment plant will reduce pollution level to the degree that meets the limiting values of the PEQS as applicable to the activity of this project

v) Positive Impacts

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

- Job opportunity for the locals
- Revenue generation for the country.
- Improved aesthetic beauty of the area.
- Community development through enhanced income.

S.1.6 Proposed Environmental Monitoring

To oversee the environmental performance of the project through its lifecycle enforcing the PEQS, an Environmental Monitoring Program should be formulated which ensures effective surveillance of the environmental parameters at various stages of the project development. Monitoring for following Environmental Parameters is recommended:

A) Ambient Air

Quarterly monitoring for ambient air should be conducted during construction & operational activities of the project and report should be submitted to EPA Punjab.

B) Noise

Quarterly monitoring for noise level should be maintained periodically during construction l phases of the project and report should be submitted to EPA Punjab.

C) Water Quality

Quarterly monitoring of water quality should be conducted during construction phases of the project and report should be submitted to EPA Punjab.

Schedules of Proposed Monitoring:

Sr. No.	Parameters	Monitoring Schedules
1	Ambient Air Monitoring (NOx, COx, SOx, VOCs, PM10)	Quarterly
2	Noise Level	Quarterly
3	Water quality	Quarterly

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

S.1.7 Conclusion

It can be concluded that by the implementation of the proposed Project has overall positive impacts during operational stage both to community and country as well. The major positive impacts of project are the creation of jobs for the locals; generate revenue for the country, aesthetic beauty in the area and positive impact on community through social and business development. The present site is best for this industry as it already exists in the industrial area and no population exists nearby the project and no flora or fauna will be disrupted or disturbed by the project. The land is also barren does not use for any kind of commercial or economic activity.

After the detail environmental assessment, it is concluded that the project is environmentally feasible at proposed site but implementation of environmental mitigation measures, proper monitoring and compliance of environmental standards/ legislations will make the project more suitable. The mitigations suggested in the report are sufficient to successfully complete and run the project in an environmentally friendly manner.

CHAPTER – 1: INTRODUCTION

SECTION - 1: INTRODUCTION

PEPSICO intends to 2nd PC-50 & KK line Expansion at PepsiCo Multan Snacks Plant in Multan. The current manufacturing capacity of PEPSICO snack at Sundar Plant will saturate in 2016 and will not be able to support the market demand from 2017 onwards. By increasing in market demand, it requires new manufacturing facility to increase its production capacity & rationalize the distribution network to successfully deliver on the growing market demand of snacks products.

The Project site for establishing snack manufacturing unit is geographically located at 30o 07' 29.49''N and 71o 22' 19.87'' E. The project site is accessible through Sher Shah Road, Askari bypass and Multan bypass. Proposed Extension is in PepsiCo Snacks Plant. Multan Industrial Estate.

PEPSICO Pakistan has engaged Asian Consulting Engineers Pvt Ltd for preparation of Environmental Impact Assessment (EIA) to meet the requirements of Pakistan Environmental Protection Act, 1997.

1.1 PURPOSE OF REPORT

The purpose of the 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).

This EIA report has been prepared keeping in view the following regulations and guidelines:

a) Pakistan Environmental Protection Act (PEPA), 1997.

b) Pakistan Environmental Protection Agency Regulations, 2000 for review of IEE and EIA.

c) Pakistan Environmental Impact Assessment procedures, 2000.

d) National Environmental Quality Standards, PEQS

1.2 PROJECT DETAILS

The Project are is located in Multan industrial estate phase II. The map of project location is shown in figure 1.1 and 1.2. The total area of the industry is on 23.4 acres, expansion unit is within the boundaries of industry and containing area of 10,664 Sq. m. The product manufacture will be Lays, and Kurkure. The major raw materials are Potato, vegetable oil, corn and pack material. The exiting storage capacity of finished good is about 110 ton which will be increased about 290 ton by expansion of unit. Approximately 215 workers will be involved in construction phase while in operation phase 1350 workers will be involved. Average water consumption of last year (2021) is

about 6,227 m3/month which will be increase by 3,568 m3/day by the expansion of Snacks Plants. While the averages wastewater from industry is about 2,271 m3/month which will be increased by 2300 m3/month. The water will be pumped from deep underground by aid of turbines. For the treatment of the waste water, the state-of-the-art waste water treatment plant (DAF + UASB+ Aeration cell) is installed at the facility for primary and secondary treatment. About 36 % of the waste water is reused, company is planning for zero discharge for which tertiary treatment unit will be installed. The Project will deploy various types of machineries for construction purposes. These will include bulldozers, excavators, shovels, tunneling machine, dumpers, batching plant, tankers, trucks, vibrator, compactor, cranes, loaders, grader, compressors, generators, roller, bowser etc. s. The total capital cost of the project is estimated as USD 68.4 Million. The total project completion time is estimated as 1 years.

1.3 IDENTIFICATION OF PROPONENT

Mr. Syed Zawar Haider Kazmi
Plant Manager
PepsiCo Snacks Plant, Multan

The approach adopted for carrying out the EIA study includes review of the available data, analysis of collected data, establishing environmental baseline survey of the project related to physical, ecological & social environment, impact identification and suggesting mitigation measures and preparation of environmental and disaster management plan.

1.4 DETAILS OF CONSULTANT

ASIAN Consulting Engineers Private Limited (AsCE) is providing their services to conduct environmental assessment for the project. Asian Consulting Engineers Private Limited is a leading consulting company executing complex planning, architectural and engineering projects that require overall design and construction management services. ASIAN Consulting Engineers Private Limited is an independent consulting company working in the field of environment. Asian provides consulting services and sustainable solutions for infrastructure projects, industrial projects and social development projects.

The team of experts are given as under-:

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

Sr. No.	Team Member	Position Held	Qualifications
2	Noman Ashraf	Environmental Specialist	M.Phil. Environmental Sciences, Government College University (GCU)Lahore
3	Dilbar Hussain	Chief chemist	M.sc Chemistry university of the Punjab
4	Jahanzaib Malik	Deputy manager	M. Phil. Environmental Sciences University of Agriculture, Faisalabad
5	Abida Hussain	Environmental Engineer	BS Environmental Engineering University of Engineering and Technology (UET) Lahore
6	Huda Rizwan	Environmentalist	BS Environmental Sciences The University of Lahore
7	Nimra Nawaz	Environmentalist	Mphil Environmental Sciences University of Engineering and Technology (UET) Lahore
8	Maryam Siddique	Environmental Engineer	BS Environmental Engineering University of Engineering and Technology (UET) Lahore
9	Asma Butt	Sociologist	M.sc Sociology, University of the Punjab

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 PROJECT

The Project site for establishing snack manufacturing unit is geographically located at 30o 07' 29.49''N and 71o 22' 19.87'' E. The project site is accessible through Sher Shah Road, Askari bypass and Multan bypass. Proposed Extension is in PepsiCo Snacks Plant. Multan Industrial Estate. Extension will be done inside the boundaries of PepsiCo Multan plant. So, there will be no land issue.

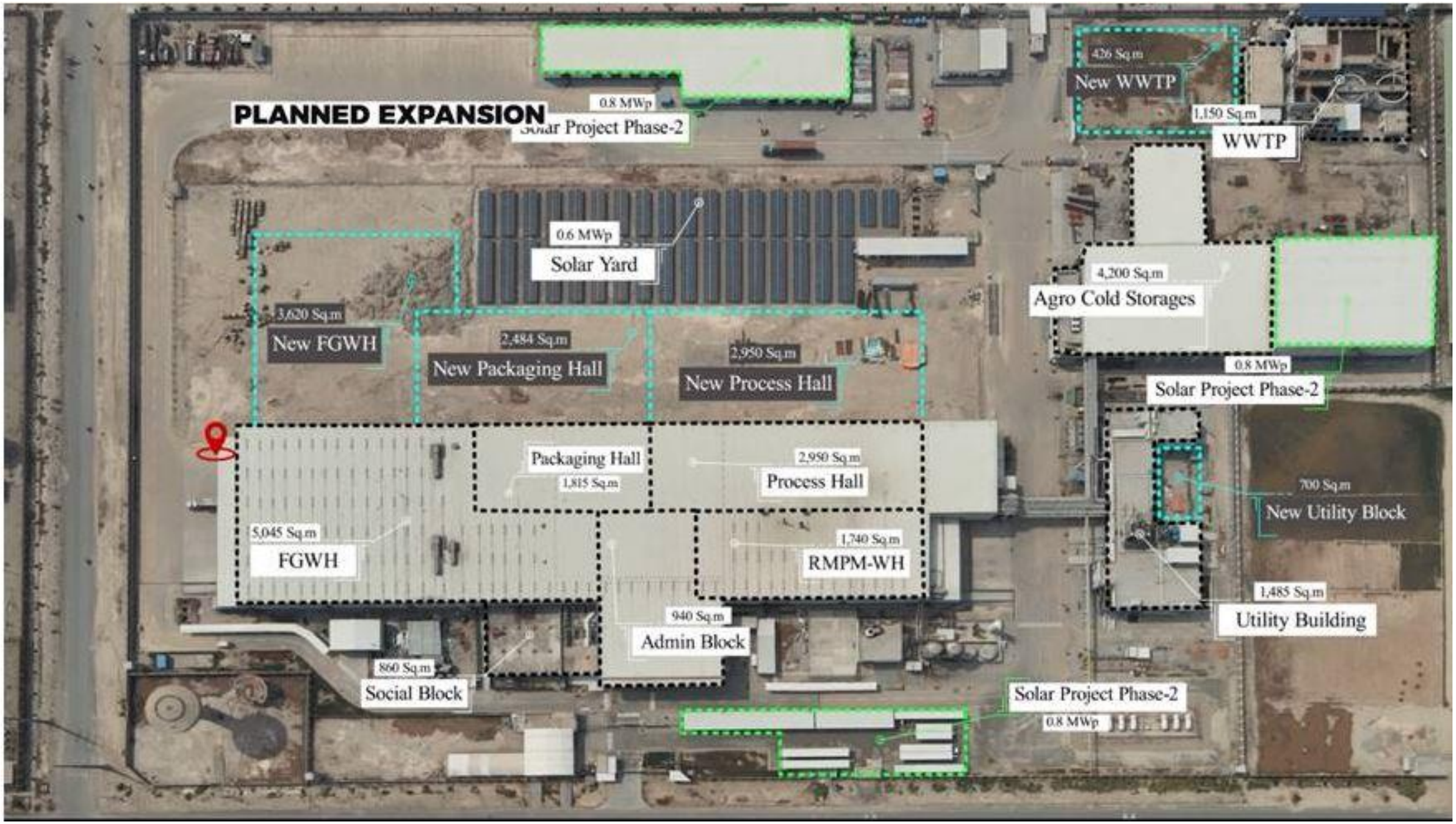


Figure 1-1, Planned Expension in PEPSICO Multan Snacks CK Plants

CHAPTER – 2: SCREENING AND SCOPING

SECTION - 2: SCREENING AND SCOPING

2.1 SCREENING

The current Project falls under Schedule- II of subsection B category 4, Food processing industries, with total cost of Rs.100 million and above of IEE/EIA Regulations 2000 as per section 12 of Environmental Protection Act and thus requires Environmental Impact Assessment- EIA which will be submitted for having Environmental Approval / NOC from the Environmental Protection Agency, Punjab.

2.2 SPATIAL AND TEMPORAL BOUNDARIES OF ENVIRONMENTAL ASSESSMENT

Spatial Boundaries	Temporal Boundaries
REGIONAL: Impact could extend to the region surrounding the proposed project	YEAR ROUND: Significant throughout the year
LOCAL: Impact limited to the boundaries of industries. No impact will be on local people.	SEASONAL: No Significant impact will be occurred on a seasonal basis.

2.3 IMPORTANT ISSUES AND CONCERNS RAISED DURING CONSULTATION

During the survey, respondents were inquired about their views regarding the proposed project. Almost all respondents showed their concerns about the proposed project. Almost all of the respondents had positive thinking and they were in favour of the project.

During the survey, respondents were inquired about their views regarding the perceived impacts of the project during construction phase. Almost all respondents express their positive and negative views. The views are:

- There will be noise and dust pollution
- There will be health and safety issues
- There will be traffic annoyance during construction phase

2.4 SIGNIFICANT IMPACTS AND FACTORS TO BE DETERMINED

- Soil Contamination and Erosion
- Ground water contamination
- Air quality deterioration
- Noise
- Waste material
- Loss of Livelihood
- Issues to local population
- Labour HSE issue

CHAPTER – 3: ANALYSIS OF PROJECT ALTERNATIVE

SECTION - 3: ANALYSIS OF PROJECT ALTERNATIVES

3.1 GENERAL

This chapter deals with an analytical overview of the different alternatives that have been considered while planning of the proposed project. The analysis has been carried out critically so as to justify the need of the Project. Three (3) basic alternatives considered during the conduct of the study are given as below:

- No Project Option (NPO)
- Site Alternative
- Design /Technological Alternative
- Environmental Alternative, their selection and rejection criteria

3.2 NO PROJECT OPTION (NPO)

PepsiCo is a multi-national company with a known fame in the field of beverages and snacks production. The best-selling brand of snacks in the market i.e., Lays, Kurkure are the products of PepsiCo. Company's currently operating unit is in Multan Industrial Estate Pakistan. For the time, the unit is fulfilling the need of snacks in the country but the demand of snacks is increasing in the country day by day. So, there is need to expand existing unit.

Keeping all things in the view, it is mandatory for the company to establish extend production plant in order to fulfill the demand of products. This project will generate revenue for the country as well as employment opportunities for the residents of Multan and surrounding areas. Therefore, in the light of the above discussion the current development project with proposed site is very much needed and NPO is not acceptable for the project.

3.3 SITE ALTERNATIVE

The site conditions were weighed up methodically for selecting best suiting layout types. As project is about the extension of unit so it should be adjacent or within the boundary of Industry. One reason of selection of site is as it exists within the boundaries of industry.

3.4 TECHNOLOGY ALTERNATVIES

As for the technology alternative, State of the art batch plant will be installed with built in water showering system to reduce dust emissions instead of conventional batch system which does not include water sprinkler in it for dust suppression.

3.5 ENVIRONMENTAL ALTERNATIVES

Surface water is not available in the close vicinity of the Project Area. Therefore, for the domestic as well as construction purposes groundwater is one alternative. Finally, it has been decided that for the project construction stage, groundwater is the best available alternative; however, if water supply from the tube well decreases at any time, provision will be made for augmenting the demand from WASA supply through tankers.

Two alternatives' sources were considered for the lighting in the Project Area:

- Using existing power supply of MESCO
- Using Solar Energy

Although the option of lighting through solar panels seems suitable as sun being the most suitable alternate energy source but it was not selected due to the following reasons:

Solar lights can be adopted but, the security of solar lights can be a major issue as these are very expensive and prone to theft. To overcome this problem, the height of the lights can be increased. But increasing height to avoid theft will reduce the light intensity. Apart from security reasons, solar power is inconsistent and not reliable as it depends on the steady delivery of special atoms called photons to keep the electricity generating process going on. As soon as the sun disappears behind thick clouds or falls below the horizon at night, the photons stop striking the solar panels and the power drops. Some solar power can be stored in large battery arrays. Solar power would only be viable with current technology as long as the sun's photon atoms can strike a solar panel directly. The power generation during foggy weather and cloudy days will be reduced. So, the power supply from MESCO will be considered.

3.6 ECONOMIC ALTERNATIVES

Raw material for construction will be purchase from nearby area from local vendor, so that the transportation cost of material might be save.

CHAPTER – 4: PROJECT DESCRIPTION

SECTION - 4: PROJECT DESCRIPTION

4.1 OBJECTIVE OF PROJECT

The main objective of the PEPSICO extension Project is to enhance the production capacity of snack manufacturing unit at Multan where potato related products like Lays, and Kurkure will be manufactured. The manufacturing unit at Multan will also generate revenue for country as well as employment in the area.

4.2 LOCATION & SITE LAYOUT OF PROJECT

To fulfill the Industrial aspects of the project under reference of this EIA Report, it must also meet the legal requirements of the Punjab Environmental Protection Act, 1997 (Amended 2012). Availability of land at the best convenient place is equally important among other considerations for the site selection. Availability of access roads, communication facilities, electricity, basic infrastructure, sewerage etc. is yet the other necessary requirements.

The industry is located in Multan industrial estate phase II from plots 149-155 and 156-162. The map of extended project location is shown in figure 2

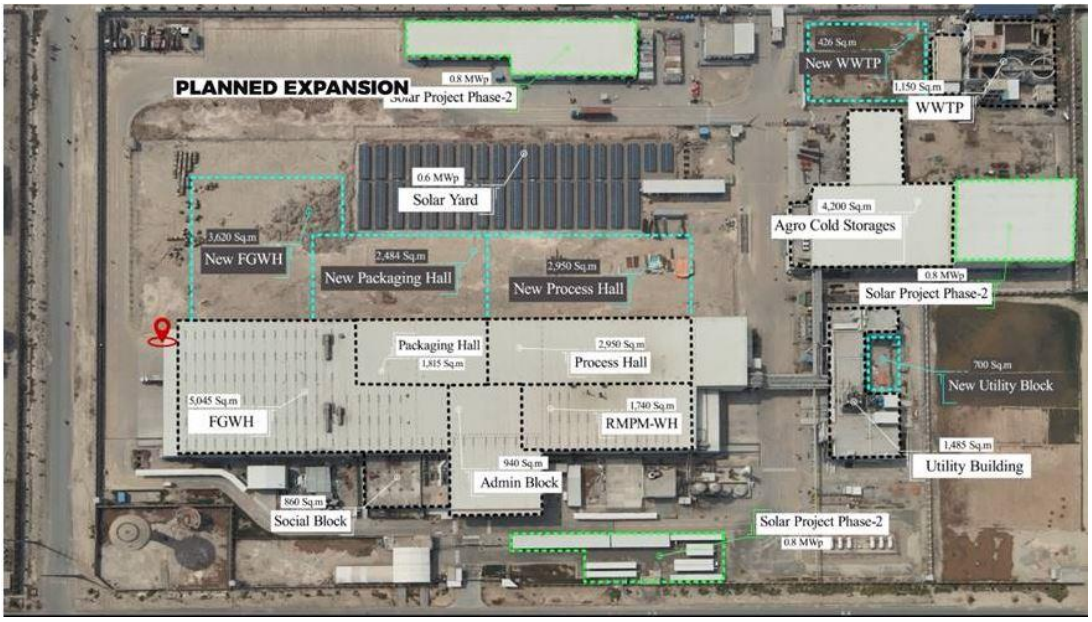


Figure 4-1: Google Map of Project Site

4.3 LAND USE & VEGETATION FEATURES ON SITE

The land falls in industrial area as per TMA. The company is for manufacturing of Snacks. Project Land is free from any type of vegetation. There is no need to clear any vegetation because they are out of vicinity of the project.

4.4 ROAD ACCESS

PepsiCo Multan Snacks Plant is already existed in Multan Industrial Estate. Industrial Estate is present at National Highway 70.

4.5 COST & MAGNITUDE OF THE PROJECT

Total cost of the project is 68.4 million US. Cost includes all the thing regarding this project. The production capacity will increase 22,251 ton/year and existing production capacity was about 23,286 Ton/year. Total production capacity is about 45,537 ton/year. Storage capacity will also be increased by 180 ton and existing capacity is 110 ton.

4.6 SCHEDULE OF IMPLEMENTATION

Detailed feasibility studies and designing of the project have been completed. Necessary legal, administrative and financial formalities have been also completed. The project is expected to be completed within 3 months from the date of environmental approval. Subsequently the construction, operational and maintenance aspects of the project will be undertaken by the proponent.

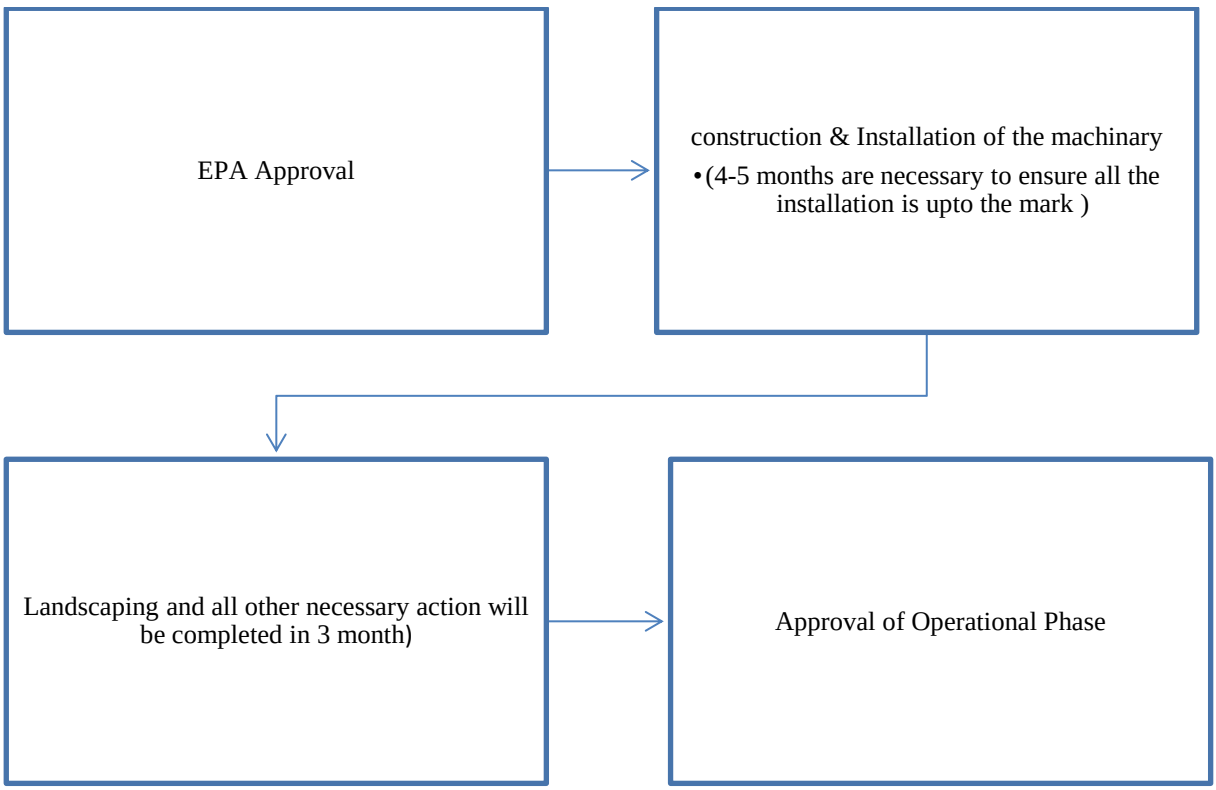


Figure 4-2, Schedule of implementation

4.7 DESCRIPTION OF PROJECT

- Product Manufacture
- The product manufacture will be Lays and Kurkure

- Raw Material Required
- The major raw material will be Potato, vegetable oil, corn and pack material
- Production and Storage Capacity
- The storage capacity of finished good raw material store is about 110 ton and will be increased about 290 ton more the extension of unit.
- Total Working Hours during Operation Phase

Total working hours is 24 hours per day in three shifts each of 8 hours.

4.8 PROVISION OF AMENITIES

4.8.1 Water Supply and Consumption

Average water consumption of last year (2021) is about 6,227 m3/month which will be increase by 3,568 m3/day by the expansion of Snacks Plants. While the averages wastewater from industry is about 2,271 m3/month which will be increased by 2300 m3/month.

4.8.2 Power Supply Arrangements

The unit requires 6 MW of power supply to operate. Power supply will be supplied by MESCO as required by the unit. The standby generators will also be installed in order to have continuous production during MESCO shutdown period.

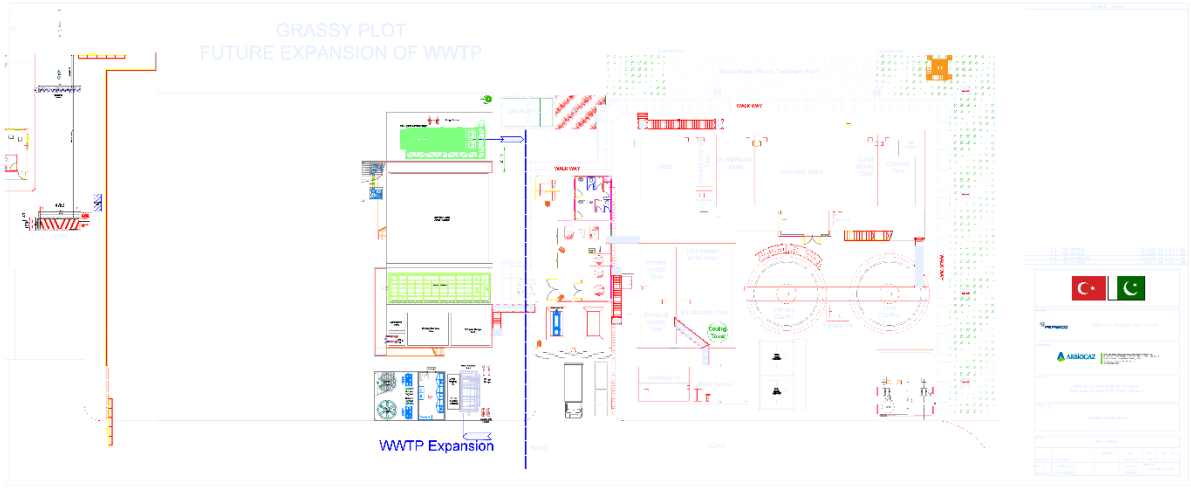
4.8.3 Telephone Arrangement

The Telephone line will be supplied by PTCL.

4.9 PUBLIC HEALTH AND SAFETY PROVISION

4.9.1 Waste water Treatment Plant

Averages wastewater from industry is about 2,271 m3/month which will be increased by 2300 m3/month. For the treatment of the waste water, the state-of-the-art waste water treatment plant (DAF + UASB+ Aeration cell) is installed at the facility for primary and secondary treatment. About 36 % of the waste water is reused, company is planning for zero discharge for which tertiary treatment unit will be installed.



A) Solid Waste Management

The solid waste mostly contains bio-degradable organic material in form waste potato its trimmings and kitchen waste. The other solid waste contains packaging material, general office waste and sludge from treatment plant. The organic waste will be used to form biogas. Different type of waste is deposed off by different means including land incineration, composting. Some of waste will be reuse and recycle.

4.9.2 Traffic Plan

As the company is situated in an industrial area away from the city so there is no such problem of traffic, there is an access road from main Shujaabad road and Sher Shah Road. The heavy vehicles which unload the raw material and load the finished product will be parked inside the company.

4.9.3 Beautification of Area

The company will be beautified by the means of landscaping and planting different kind of trees after completion of extension unit. These features help in keeping the environment clean and enhancing the aesthetic beauty of the area.

4.10 CONSTRUCTION ASPECT

4.10.1 Construction Materials

Extensive quantities of building and road construction materials will be required for construction of the proposed project. The materials mainly required are listed below:

a. Coarse and fine aggregate for concrete works

b. Sandy gravel (free draining materials) for backfilling, embankment raising, etc.

c. Cement

d. Steel

e. Bitumen

f. Kerb Stones

g. Other materials

4.10.2 Construction Camps

The construction camps have to build by the selected contractor to accommodate construction staff, machinery and batching plants. The camps will be built on side of the plot. Camp should have properly fenced and guarded. The area of the camp has been kept sufficiently large to accommodate parking areas for machinery, construction materials and workshops. For the drinking water and other domestic uses of the camp, ground water is being used.

4.10.3 Work Force and Machinery

It has been estimated that the Project will employ about 215 skilled, semi-skilled and unskilled workforce for its construction. The Project will deploy various types of machineries for construction purposes. These will include bulldozers, excavators, shovels, tunneling machine, dumpers, batching plant, tankers, trucks, vibrator, compactor, cranes, loaders, grader, compressors, generators, roller, bowser etc.

4.10.4 Total Project Cost

The total capital cost of the project is estimated as USD 68.4 Million

4.11 RESTORATION AND REHABILITATION PLANS

All possible precautions will be taken to prevent an untoward incident in terms of life and property losses. On completion of the project, solid waste will be removed from the site in order to maintain aesthetics of the area. All measures will be undertaken for ensuring occupational safety, security and clean environment during the working hours. Plantation and landscaping will also be done by the proponent after the completion of project.

4.11.1 Details of Restoration and Rehabilitation at the End of the Project Life

There will be no matter of rehabilitation as the site is already owned by the project proponent and within the boundaries of industry. At the end of the life of the project, it will be duly dismantled with special precautions to avoid/ minimize pollution and at the same time taking all safety precautions to protect human life and property around the building.

The materials capable of recycling/reuse will be either sold in the market or

to be reused for other suitable purposes.

4.12 PROJECT COMPLETION TIME

The total project completion time is estimated as 1 years.

4.13 GOVERNMENT APPROVALS

Project is seeking for environmental approval from Punjab-EPA. Other approvals will be obtained after this.

CHAPTER – 5: DESCRIPTION OF BASELINE ENVIRONMENT

SECTION - 5: DESCRIPTION OF BASELINE ENVIRONMENT

5.1 GENERAL

This chapter describes the baseline conditions, which cover the existing physical, ecological, and socio-economic environment of the Project 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 stake holders and Government Agencies.

5.2 PHYSICAL ENVIRONMENT

5.2.1 Topography

The project site is located in Multan industrial area Phase II with height 400 m above sea level. The topography of project site is flat with very little slope, unrelieved by any formations. The project site under study is completely barren with minor shrub steppes. The project site is surrounded by labor colony on West and various other industries like Coca Cola on South and Juice Factory at North side. The natural slope of the land is towards North side. The adjacent roads around the project site are approximately 1.0 meter higher. Mango orchards are present approximately 500 meters on west side of project site. Shujja Abad Canal and River Chenab is present on west side with approximate distance 2 KM and 4.5 KM respectively from the project site. Topographical view of the project site is shown in the appended photographs.

5.2.2 Geology

The project site is located in Punjab which is a vast plain of alluvial material, deposited by Indus basin and its tributaries crossing the Punjab Plain. The alluvial deposits underlying the site are deposited by the river Chenab and its tributaries.

The thickness of alluvial deposits in Multan is thought to be more than 300 m which are underlain by the basement rocks of the Indian shield. The alluvial deposits mainly consist of sands, with intercalation of silt and clay layers of varying thickness.

5.2.3 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 epicenters 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 Punjab region 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 5-1.

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 horizontal peak ground acceleration of 0.15g with 10% probability of exceedance in 50 year.

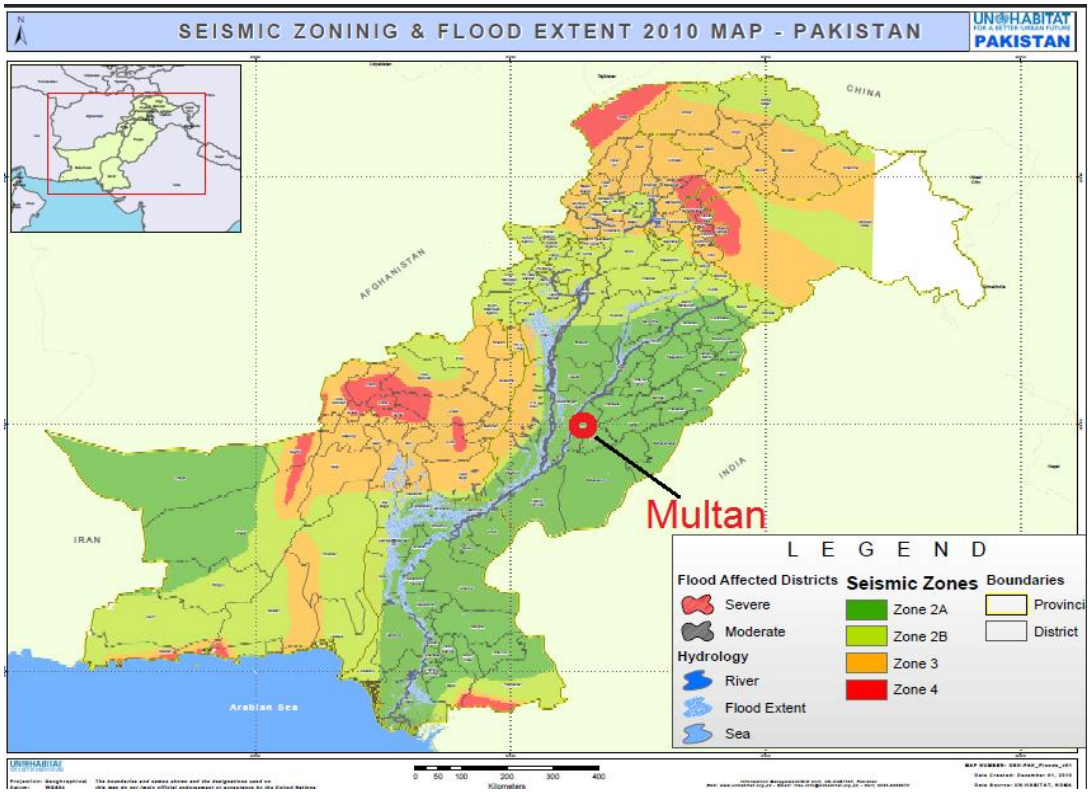


Figure 5-1, Seismic Zone of Pakistan (Geological Survey of Pakistan)

5.2.4 Hydrology

The river Chenab originates from Himachal Perdesh. After receiving the several tributaries, it enters the Punjab near Sialkot District. In the Punjab, this river flows through the Gujrat, Sargodha, Gujranawala Districts. It receives river Jhelum at Timmun in the Jhang District and the river Ravi at Sidhnai in Khanewal District. It then flows through the districts of Multan and Muzaffargarh and joins river Sutelj at Punjab in Muzaffargarh District.

5.2.5 Soil

Soil results from topographic and geotechnical survey shows that Subsurface Lithology is composed of Lean Clayupto 3.0m, sandy Silt upto 7m and Silty

sand up to maximum investigated depth of 39 m below NSL. The topmost soil layer mostly comprises of Lean Clay in very soft to soft state. The thickness of this layer is approximately 3.0 m below NSL.

5.2.6 Climate

Multan has distinct seasons marked by wide variation in temperature. The coldest month is January in which the mean maximum temperature is 21.2 °C and the mean minimum temperature is 3.8 °C. May is the hottest month with the mean maximum temperature 43 °C and the mean minimum temperature as 23.3 °C. Mean temperature of the region during the last 10 years (2005-2014) is given in Figure 5-3. The history highest maximum temperature in summer is 50 ^{0}C while lowest minimum temperature in winter is -3.6 ^{0}C

The average annual rainfall during the last 10 years period from (2005-2014) works out to be 19 mm. Nearly 70% of it received in the form of high intensity showers during the monsoon (July, August, September) and the remaining in winter. The yearly variations are considerable. The average monthly rainfall at Multan during the last 10 years (2005-2014) is also shown in Figure 5-4. The history highest rainfall is reported in September 3, 1976 as 134.2 mm

The most humid period is in month of January with maximum average relative humidity is 83 % and minimum average relative humidity 69 %. The average relative humidity of Multan region for last 10 years (2005-2014) recorded is shown in Figure 5-5.

During cold seasons of the year northern winds prevail and during hot seasons southern winds. Monthly mean velocity of the wind (Knots) taken for the period 2005- 2014 are shown in Figure 5-6. The history highest wind strom is reported in June 9, 2005 as 194.3 KM/h in west side.

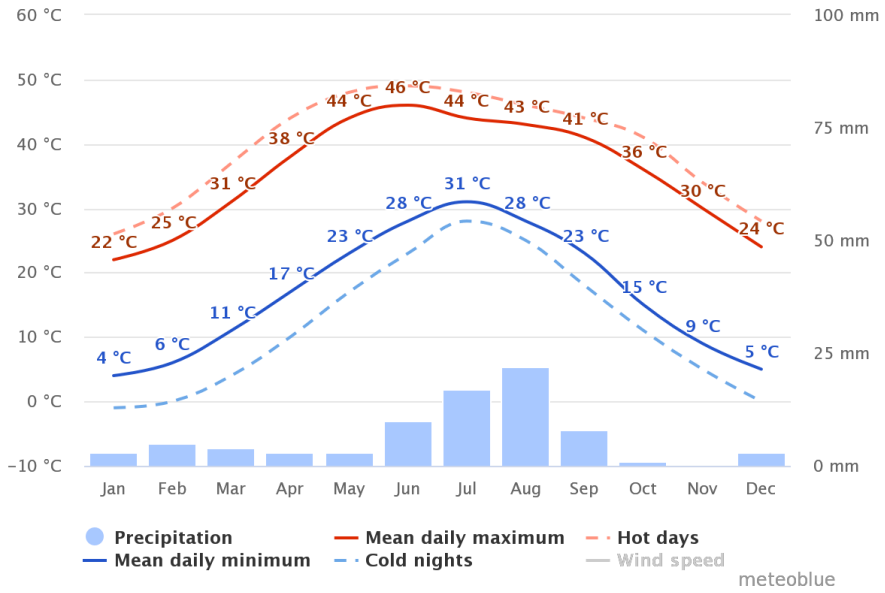


Figure 5-2, Temperature Data of Multan Region (Data Source: Meteoblue)

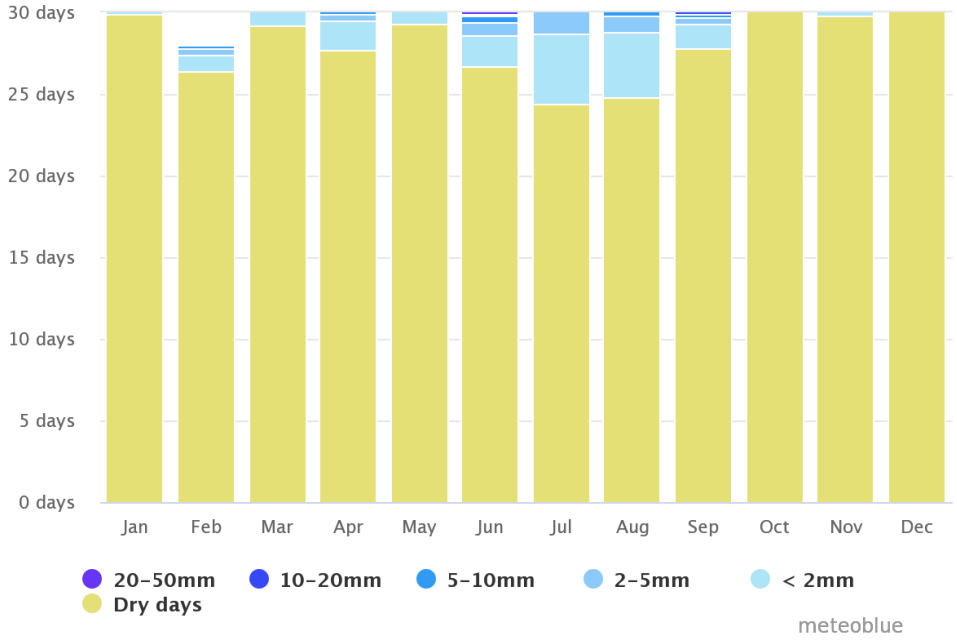


Figure 5-3, Average Precipitation of Multan Region (Data Source: Meteoblue)

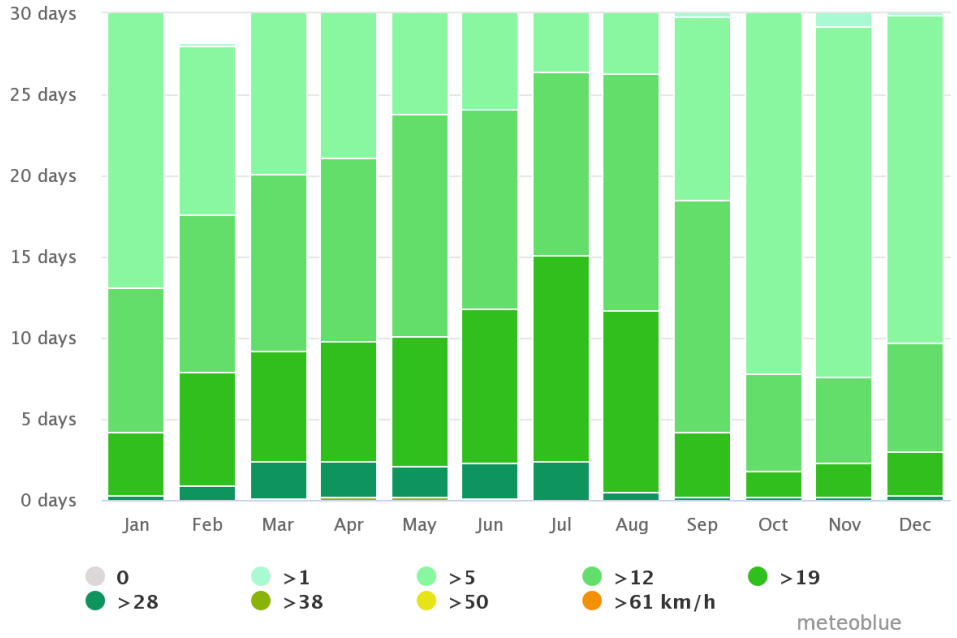


Figure 5-4, Average wind speed of Multan Region (Data Source: Meteoblue)

5.2.7 Water Resources

A) Surface Water

Surface water in form of River and Canal is present at some distance from the project site. The detail of surface water along with distance from project site is given as under

Table 5-1, Surface water bodies in Project Site

Surface Water Type	Name	Distance from Project Site
River	River Chenab	4.5 KM
Canals	Shujaabad Canal	2 KM

B) Drains and Waste water

One drain is crossing the industrial area; the approximate distance of drain is 1 KM. The drain comes from the main city and crossed the industrial area from west side. During the environmental survey the teams unable to find the name of that particular drain. Moreover, the wastewater from the industrial estate goes through closed sewer but at present the sewer is not connected from east side boundary wall and remains open in form of pond from that side. In accordance with plan of PIE the ultimate disposal of effluent of industrial estate is in river Chenab after passing through combined wastewater treatment plant and drain that carries it to river Chenab. Industry has installed their own wastewater treatment plant, wastewater sampling was done from these effluent treatment plant. The results are attached as Annex 7

C) Ground Water

Groundwater was encountered at around 100-150 ft depth below the NSL as per Geotechnical Investigation Survey. Given a margin for seasonal fluctuations, the groundwater may be considered to rise/fall beyond this depth by about 10 ft. For construction purposes this Groundwater will be used. In order to check the quality of ground water, 2 samples have been taken from different depth by 3rd party Environmental Laboratory and tested for 23 WHO parameters. Two samples were taken. The results of both samples are attached as Annex I.

As per Analysis the ground water sample are in compliance with WHO and fit for drinking purposed.

5.2.8 Air Quality

At present, major sources of air pollution are industrial and mobile sources. Other sources of ambient air pollution are the generators in industrial units for alternative power supply sources.

Ambient air quality was monitored in accordance with PAK-PEQS at 2 locations, one inside project site plot and one outside the project site in order to access the overall air quality of project area.

The ambient air monitoring was carried at identified locations for period of 24 hours in accordance with the PAK-PEQS. The monitored parameters included Carbon mono-oxide (CO), Nitrogen dioxide (NO2), Sulphur dioxide (SO2), Particulate Matter (PM10), Particulate Matter (PM2.5) and Lead (Pb).

The results of ambient air quality are attached as Annex I.

The overall qualities of ambient air at both points are in compliance with PEQS except particulate matter.

1. Noise Levels

Number of sources of noise emission has been detected in the study area. These sources are

- Vehicular traffic in Project Area
- Due to operation of Industrial Activities
- Due to operation of Generators in Industries
- Due to operation of pumping & Tube wells

Noise levels were monitored at different points inside and outside the project site plot.

The results attached as Annex I shows that the noise levels are in compliance with PEQS.

5.3 NATURAL AND BIOLOGICAL ENVIRONMENT

A detail of natural and biological environment of the Project Site is given below:

A) Flora

The land is barren so native flora on the project site is scant and land is very much plain. The only existing flora on project site consists of Sagebrush steppe. The other flora that observed around the project site consists of Arjan (Arjunaterminalia**)**, **Karir** (Capparisaphylla) and Wan (Salvadoran oleoides)

B) Orchards

A number of mango orchards are present on East side of the project site as shown in figure 1-1. The distance of the nearest orchard from the project site is 500 meters.

C) Forests

There does not exist any natural or artificial forest in the project influenced area.

D) Fauna

A short description of fauna in project site is discussed below:

E) Fisheries and Aquatic Biology

River Chenab is flowing at the distance of 4.5 KM form the project site. The river is a habitat of a diversity of fresh water fish most of which is edible. The list fish species found in river Chenab is given as under-:

Table 5-2, Fish Species in River Chenab

Fish Species	Family
Cyprinuscarpio	Cyprinidae
Cirrhinusreba	Cyprinidae
Cirrhinusmrigale	Cyprinidae
Catlacatla	Cyprinidae
Labeocalbasu	Cyprinidae
Rita rita	Bagridae
Mastacembalisaramtus	Mastacembalidae
Securicolagora	Cyprinidae
Gudusiachapra	Clupeidae
Clupisomanaziri	Siluriformes
Clupisomagarua	Siluriformes

F) Mammals

The wild and common or domesticated mammals found of the area are dogs, cats, house rats, bats, horses, donkeys, mules, buffaloes, cows, goats and sheep

G) Reptiles

The most common reptiles of the area include snakes, lizards, Varanis (Goh/large lizard) and spiders

H) Amphibians

Amphibians found in the area include common frog (Ranatigrina) and common toad (Bufobufo)

I) Birds

The birds found at in the area are Intermediate Egret (Egrettaintermedia), House Sparrow (Passer domesticus), Black Drongo (Dicrurusmacrocersusvieillot), House Crow (Corvussplendens), Red vented bulbul (Pyconotuscafer), Cattle egret (Bubulcus ibis), Hoopoe (Upopaepops), Red-Wattled Lapwing (Hoplopterusindicus), Green bee eater (Meropsorientalis), Black kite (Milvusmigransmigrans), Wild rock dove (Columba livia), White-breasted Kingfisher (Halcyon smyrnensis), Indian robin (Saxicoloidesfulicata), little brown dove (Spilopeliasenegalensis), golden backed woodpecker (Dinopiumbenghalense), Bush chat (Saxicolacaprata), yellow throated sparrow (Petroniaxanthocollis), Ring necked dove (Streptopeliacapicola), Indian roller (Coraciasbenghalensis), Crow pheasant (Centropussinensis), Crested lark (Galeridacristata), Common babbler (Turdoides caudate) and Shikra (Accipiter badius)

J) Wildlife Sanctuaries and Game Reservoirs

No wild life sanctuary or game reservoir is located in the vicinity of the project area.

K) Rare or Endangered Species

There are no rare or endangered species in the Project Site.

5.4 SOCIO ECONOMIC ENVIRONMENT

As the proposed project is situated in the industrial area of Multan, therefore any considerable dense human settlement is not present in the study area. The surrounding industries are coca cola and juice factory. At south west side beyond the boundary of industrial area small villages are present. The boundary wall is constructed to separate the settlements form industrial area. Number of settlements that present on south west and north west side has been surveyed for the purpose of identify the socio-economic conditions of the area. The name and distance of the surveyed settlements is given as under-:

Table 5-3, Name of Settlement and distance from project site

Sr. No.	Name of Settlements	Location from Project Site	Approx. Distance from Project Site KM
1	Shade wala	South West	0.6
2	Darkhanawali	South West	0.8
3	Jekhowali	West	1.6
4	Ismailabad	West	2.0 KM
5	Muzafarabad	North West	1.7 KM

5.4.1 Objectives of the Study

The main objectives of socio- economic study of the project area were:

- To furnish appropriate information about the baseline socio-economic conditions
- To identify and assess significant social impacts, of the Project activities on the surrounding area and people
- To propose suitable means for probable mitigation of the significant adverse social impacts

5.4.2 Study Approach and Methodology

Following methodology and approach was used for the present study:

A) Data Sources and Collection Methodology

A qualitative and semi quantitative research methodology was adopted to conduct this study. The study included the collection of both primary and secondary data through the following steps:

1. Focus Group Discussion/ Public Consultations

A structured moderator guideline was formed to steer the discussions. Focus groups were organized in each human settlement of the study area. Detailed group discussions were organized; these were held in the open space available in the villages. During the discussion, the relevant responses, opinions, beliefs and attitudes were observed and recorded.

2. Interview

The target respondents including local authorities, government officers and public representatives were interviewed. A semi-structured interview schedule was used as a tool for data collection. Personal observations were also included in the methodology in order to collect relevant information about locality and people of the community.

3. Secondary Data

Secondary data was also used to collect important information regarding villages, the people and the project. For this purpose, published data provided by the Project Proponents and from other relevant sources were used.

B) Data Processing

Statistical and computer applications were used to organize and tabulate data collected from various sources. During processing of the data, only relevant and valid information were included for empirical analysis to establish the realities of the community and its people.

5.4.3 An Overview of Socio-economic Conditions

This section describes the status of overall socio-economic baseline conditions prevailing in the study area. It deals with various socio-economic and cultural aspects of the community including income, employment, professions, basic facilities, education and health, social structure, culture, women's status, traditions, ethnics, sectarian status and residential needs of the local people.

Settlements under study are the typical rural lacking basic amenities. Energy shortage is common problem in the area. A considerable number of people have migrated to urban area of the district for employment reasons. Youth feel deprived of the existing underemployment conditions in the area. There is not any considerable archeological and historical aspect found in the zone of influence of the project area.

A) Languages Spoken

Sairiki is the predominant language being spoken in the Study area by 60% of

the population followed by Punjabi and Urdu. However, majority of population cannot read and write in Urdu.

B) Ethnic and Minority Groups

A number of families of different castes are residing in the Project Area having a mixed set-up of their socio-economic behavior. The inhabitants of the Project Area have a mixed origin. The major castes/ethnic groups of the Project Area are; Arain, Jutt, Rajput, Gujjar, Awan, Syed, Abbasi, Mughal, Qureshi, Khokhar, Tanoli, Sheikh, Mir, etc. Other castes like Badar, Bhatti, Butt, Dar, Durrani, Jagwal, Kalyar, Kayani, Khan, Khawja, Mahar, Rathore, Sawati, etc. were also found in relatively lesser number in the Project Area.

C) Religion

The population of the Study Area villages is predominantly Muslims i.e. 98%. The next higher percentage is of Christians 2%.

D) Literacy

Educational distribution of the respondents in the Study Area is shown in Table No. which indicates that majority 44.8% are illiterate while 16.7% have primary education. The percentage of intermediates, graduates and post graduates is very low as compared to those who have done middle and matric. Although primary and secondary education facilities exist in area such as govt. boys and girls schools. Beside this Literacy rate is low due to that local population gives low priority to education even at school level due to unawareness about education.

E) Housing Characteristics

Almost in all the villages of the Study Area, houses are owned by a single owner. However, some joint owners are also residing in the Study area. Majority of the houses in the Study Area are have ordinary construction, with moderate standard buildings made of cement and bricks.

Housing characteristics is one of the major indicators for the assessment of the living standard of the population. About 60 % of people in the study area have kacha houses while 40 % have pacca that made from cement and bricks.

Majority of the respondents have 1-2 rooms in their houses, whereas few of them were having 3, 4 or more rooms.

Type of the toilet used by the household indicates the living conditions and is significantly related to the health and hygiene of the household members. All people have flush type of latrine. The sanitation is very poor in the Study Area.

5.4.4 The Family

The Study Area has a predominant tradition of joint families. Male siblings reside in one household even after marriage. However, some nucleus families

also exist. New life styles have motivated people towards this family system, but sometimes economic compromises and sometimes cultural values restrain them from adopting this type of family system. The family ties are still good and relatively less materialistic. As a social institution, the family is still very strong.

Endogamy is the prevalent style of marriage. Most of the people are monogamous as a second marriage is expensive. Mothers have very little role in decision making about marriages of their sons/ daughters. Neither the groom nor the bride is allowed to choose his or her life partner. The decision of the parents is considered final; however, sometimes the bride and groom are consulted before the final decision.

5.4.5 Sources of Drinking Water

Groundwater is being used for drinking, washing and bathing. People use hand pumps or motor to pump out the ground water. Most of the places surveyed the ground water quality through motor and hand pump is poor and government has installed water filtration system for consumption purposes.

5.4.6 Civic Facilities Available in the Study Area Villages

Due to rural area most civic facilities are not available in the study area such as grocery shops, water supply, sanitation, public transportation etc. The electricity and natural gas is available in the study area. Small medical dispensaries are present in the study area however lack proper hospital and clinic.

A) Historical and Archaeological Sites

Religious sites include mosques, shrines and graveyards are socially sensitive areas to deal with. The survey has exposed that the people of the study area are strongly attached to their religion and culture. Shrines and graveyards are regarded as sacred heritage and receive devoted attention from the people. One shrine is present in the industrial area. However mosques are present in the villages and in industrial area well. There is no archaeological site present in the study area

B) Women Emancipation

The emancipation of women is a campaign to give women equal rights and status with men. The emancipation of women i.e. their liberation from religious, legal, economic, and sexual oppression, their access to higher education, and their escape from narrow gender roles is not easily achieved due to tribal setup in the Area. Because tribal society is dominated by men. Cultural tradition, social practices and low female literacy have left women in a vulnerable position. Women are for the most part restricted to performing household work, and are excluded from decision-making both on the

domestic front and at the community level. Women's access to education and health care is limited because such services are not available close to home. While women also take active part in agricultural activities, collect fuel wood and fetch water, in addition to attending to household work and family duties.

Women in the Area are also vulnerable through economic, social and psychological poverty. Economic poverty is due to lack of assets and low endowment of human capital. Social poverty derives from the inability of the society to accept women's equality and their economic, political and cultural rights, while psychological poverty is a product of the subjugation of women, under the dictates of customs and traditions, which deprives them of control over their own lives.

Majority of women are kept under-educated or uneducated. They are mainly dependent on male members of the family for economic reasons and cannot take decisions regarding their own lives. Indeed, women cannot use their right to vote during general elections, they have no say in the family matters and are not asked about their preference for marriage, rather women are sold to their husband in the name of Walwar (bride price: is a custom, of mixed origin, in which a bride is sold for an agreed prices by her family to her husband). Women are also used to resolve conflicts and are married to the sons and brothers of victim's as part of the tradition of Swara. Finally, women are killed in the name of honor. Yet for the paucity of rights, women play a vital part in the society fetching water and firewood from distant places, nurturing children and cooking and cleaning for the family. Nonetheless, these conditions make communication with women within the tribal regions more difficult and there are numerous aspects of women lives in the region which need to be explored.

C) Major Problems facing by Women in the Area

Information which is collected through secondary sources and group discussion with locals during this study shows that major problems faced by women in the area are lack of primary health care, the lack of education opportunities and the lack of access to clean water. Other problems faced by women included very laborious work such as working in agricultural fields, and fetching and carrying water from distant areas. These tasks not only affect their health but also take up a major portion of their time, which they could use in some other productive work.

D) Gender Equity

The Government should take steps to enhance the status of women through education and training such as provide facilities from agriculture to industry and from health care to skills development. A separate unit should be created at the Government level to launch focused awareness-raising campaigns related to gender-specific issues.

- Increase the number of vocational and technical centers for women to provide market-relevant training (computer programming, food processing, wool and leather goods manufacture, tailoring, glass making, textile printing, dairy production) as well as gender-appropriate skills suited to the cultural context (nursing, health care, midwifery).
- Establish adult literacy centers, focusing on women
- Build institutional capacity for gender mainstream

E) Perceptions of General Public

A vast majority of the people of these localities show a high level of positive perception and attitude towards the establishment of PEPSICO in industrial area. They perceive that this project will help to raise the socio-economic conditions of the area. People will get employment and status of people will be raised.

F) Key Findings of Perceived Social Impacts

A vast majority of the population of the area is well aware of the industrial area and few of industries established in the industrial area. An overwhelming majority has a perception that the development of this PEPSICO industry in the area is very beneficial for the community and the area as well. They foresee positive impacts out of it, like employment opportunities, business, social development of the area etc.

Study findings depict that people perceive overall positive social impacts by the development of the PEPSICO industry. Their attitude towards the project development is highly positive. Majority of the people is convinced for positive sign for development in the area and they correlate this progress with the pace of their social mobility.

It can be concluded from above-mentioned findings that development of PEPSICO industry in the area will be appreciated and welcomed by majority of the people of Study Area.

5.5 SITE SUITABILITY

The proposed project is in Multan industrial area where PepsiCo Multan Plant is already existed. There is no major vegetation cover to clear so land is most suitable for our proposed project. Site will be restored after completion of project. All mitigation measures will be taken and plantation will also be done.

CHAPTER – 6: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

SECTION - 6: ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This chapter identifies the potential impacts related with construction and operation phases of the Project on the physical, ecological and socio-economic domains of the environment. Accordingly, mitigation measures have been proposed to mitigate the negative impacts and to enhance the positive impacts.

6.1 APPROACH AND METHODOLOGY

For impact identification, various EIA methodologies are available including the checklists, interaction matrices, networks and overlays. Among these four methods, following two are used in EIA of extension PepsiCo Snacks plant Project.

- Project Interaction Matrix
- Checklists

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 (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:

HA = Highly Adverse

MA = Medium Adverse

LA = Low Adverse

HB = Highly Beneficial

MB = Medium Beneficial

LB = Low Beneficial

0 = None/Insignificant

The assignment of significance is based on the previous knowledge and professional judgment of EIA team experts.

The project impact matrix has been developed for "without" and "with mitigation" is attached as **Annex II.** 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 Screening Checklists

Based on the findings of desk studies, processed satellite imageries, screening checklist was prepared to screen out the potentially significant adverse environmental and social impacts during the construction and operation phase of the proposed Project. The objective of the impact screening is to assess the significance of the issues related to the atmosphere, climate, water resources, land resources, ecological environment, socio-economic environment, transport, infrastructure and communication, natural risks, hazards and external constraints of the Project for the proposed development. After the compilation of baseline information, processing of acquired satellite imagery, the screening checklist was filled to screen out the positive and adverse impact of the proposed Project during the construction and operational phases.

6.2 ADVERSE IMPACTS DURING PRE-CONSTRUCTION PHASE

6.2.1 Environmental Impacts due to Project Location and Design

A) Location

Permanent Acquisition and change in Land Use Pattern.

This land is barren within the boundaries of PepsiCo Snacks Plant. After expansion of industry many people have got jobs and raised their living standard.

B) Design

The design of the expansion unit will not affect the adjacent areas because it is a declared industrial area and there will be no negative impacts directly on the population of the nearby community.

Mitigation

As in the case of project location and design, there are no negative impacts on the environment, so no mitigation measures will be required.

6.3 IMPACTS AND MITIGATIONS MEASURES DURING THE PROJECT CONSTRUCTION

6.3.1 Physical Environment

A) Impact on Land Resources

Soil Erosion/Contamination

- Soil Construction activities such as excavation, filling, development of roads, construction camps, development of buildings and disposal of materials (both solid and liquid) will affect the existing soil conditions in the Project Site and in its nearby surroundings. Spills during refueling, discharge during the vehicle and equipment maintenance and leakage from equipment and vehicles often result in contamination of soil at construction sites.
- Construction Camps will generate about 0.5 kg/person/day domestic solid waste comprising kitchen waste, garbage, putrescible waste, rubbish, and small portion of ashes and residues. 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.

Mitigation:

Good engineering practices will help in controlling soil erosion both at construction sites and in peripheral areas, particularly in borrow and dumping areas and a long-haul track. Following measures will be adopted as per site conditions:

- Soil contamination can be curtailed by reducing the oil spill in the camp and at project construction areas by well maintaining the construction vehicles as well as bitumen/other contaminants in storage tanks/places.
- The Contractor is required to impart proper training to his workforce in the storage and handling of obnoxious materials, like furnace oil, diesel, petrol and chemicals, etc., that can potentially cause soil contamination.
- Soil contamination by asphalt and other obnoxious material will be minimized by placing all containers in caissons or dumped into temporary pits lined with impervious liners to avoid contamination of soils/groundwater from leachates.
- Proper drainage facility will be provided at the camp areas to avoid the water accumulation, which will minimize the soil contamination.

- Grease trap will be installed at the site, whenever needed, to prevent the flow of oily water.
- Construction material will be compacted.
- Ground will be leveled to avoid slopes.
- Proper solid waste management plan will be developed by the Contractor and implemented to avoid the litter and any other waste problems. Adequate number of solid waste containers will be placed within the camp area and surroundings to ease in storage and collection/disposal of solid waste.

B) Impacts on Water Resources

1. Contamination of Surface and Groundwater Resources

- Sewage and sanitary waste water generated from the construction camps may contaminate surface and groundwater, if not disposed of properly.

Mitigation Measures of Impacts on Water Resources

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 has been designed by the Design Consultant according to the relevant standards. The example of the septic tank is shown in Figure 6-1

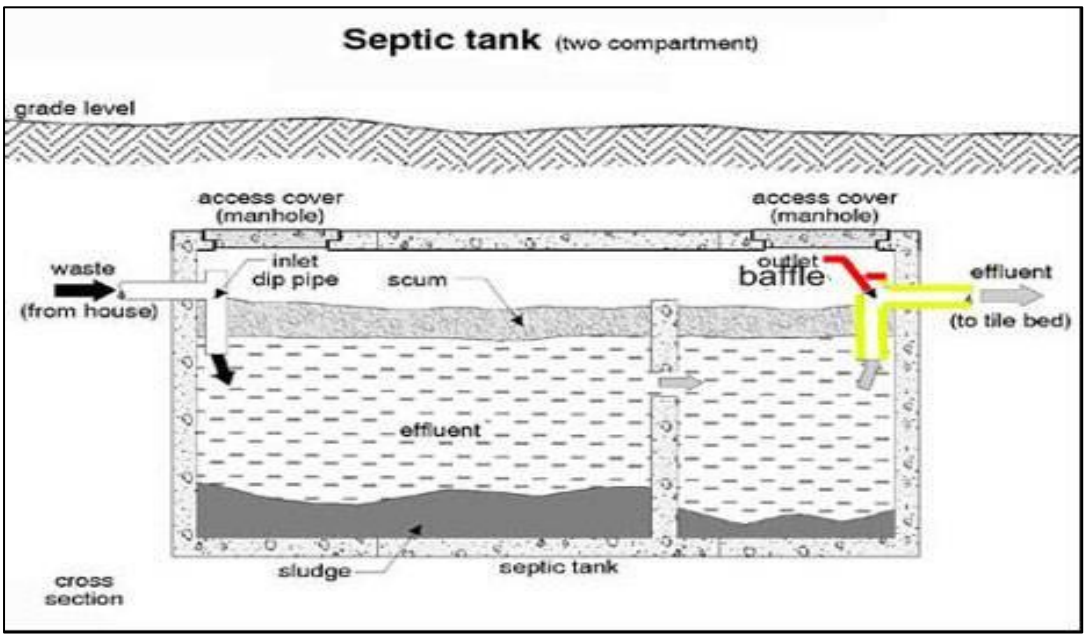


Figure 6-1, Septic tank

- Construction camps will 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) Impact on Ambient Air Quality

Due to the construction activities like excavation, clearing, leveling and compaction with the use of machinery like batching plants, excavators, dump truck, Road Rollers, Graders, Haul Trucks, cranes 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 (PM_{10}), smoke, dust, CO and NOx 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 fugitive dust emissions.

An air pollution source for this projects activities are unpaved roads. Dust plumes behind vehicles moving along unpaved roads represent a typical occurrence, since as the vehicle travels over an unpaved road, the force of the wheels on the road surface causes pulverization of the surface material. 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. The turbulent wake (behind the vehicle) continues to act on the road surface after the vehicle has passed (U.S. EPA, 1975). As an approximation, fugitive dust (dust generated from unpaved roads is termed "fugitive dust" because it is not discharged into the atmosphere in a confined-flow stream) from unpaved roads can be considered to average about 75 lb per vehicle-mile of travel (Hesketh and Cross, 1981). This dust would be a problem for the surrounding communities and institutions. Fugitive dust is not expected to be a problem for national monument as the fugitive dust

Mitigation Measures of Impacts on Ambient Air Quality

- Tuning of vehicles will be made mandatory to reduce the emissions of NOx, SOx, CO and PM_{10}.
- Emissions from the batching plants will be controlled with appropriate control equipment (such as fabric filters or cyclone separators).
- Equipment and vehicles powered with diesel will 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 may be a problem for the nearby settlements, flora and fauna which will be mitigated by sprinkling of water. Also, main access roads and exposed terrain will be sprayed by water trucks to minimize the dust.

D) 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 bulldozers, scrapers, excavators, compactors, trucks, large capacity dumpers, graders, heavy duty cranes, concrete batching plants and stone crushers. The operation and movement of such equipment will increase the noise and vibration in the Project Area. The impact will be significant when compared to the without project situation.

Mitigation Measures of Impacts on Noise & Vibration

- For the construction machinery generating noise level in excess of that prescribed in PEQS and WHO limits, Contractor will make arrangements to bring the noise level within applicable limits (including proper tuning of vehicles and mufflers/silencers).
- Movements of the trucks and other construction machinery causing high noise levels must be restricted at night time to avoid disturbance to the nearby locality. Truck drivers should be instructed not to play loud music at night and stop use of horn.

E) Disposal of Construction Debris & Garbage

During construction phase of the Project, large quantity of construction waste will produce, the disposal of which, if not managed properly could have negative impacts on the site and surrounding areas.

Clearing of shrub steppes 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.

Inadequate provision of portable restrooms like workers camps, temporary restaurants and garbage dumpsters at the construction site could lead to unsanitary and unhygienic conditions. Resulting impacts could vary from unsightly littering of the site, fly and vermin infestations to increased nutrient levels in the drains.

Mitigations

- A site waste management plan will be made the responsibility of the construction contractor to provide for the designation of 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 organic waste produced during site clearing will be mechanically mulched and composted at the site and used for landscaping.
- Providing adequate number of camps/restrooms for the workmen and waste baskets and dumpsters is essential to keep the construction site clean and pest free.
- Arrangements will be made for regular garbage collection and removal of sewage from the construction site.

6.3.2 Ecological Environment

A) Impacts on Ecological Environment:

Habitat Damage: Due to the construction in the project site, direct, indirect or temporary damages will occur from site excavation and clearance and dumping spoils in other habitats.

Disturbance to wildlife: Due to construction activities there might be disturbance to ecosystems especially to wild animals and birds. The severity of this disturbance totally depends upon duration of activity at the site, its intensity and frequency.

Mitigations

- The dredged spoil created during the construction of the project will be properly be disposed in order to avoid habitat damage
- Loud noises during construction activities must be avoided.
- Buffer belt of native species will be planted along the boundary wall of the project site. Landscaping should properly be done after finish construction. The plantation and landscaping will increase the aesthetic of the area.

6.3.3 Socio Economic Environment

A) Impacts on Local Population

The population residing in and the surroundings of the Project Area will be affected during the construction phase as follows:

- Insecurity problems may arise for the local population due to the Contractor's workers during the construction phase
- Community may face the noise and dust problems during the construction activities.
- Theft problems to the community by the Contractor's workers and vice versa.

Mitigations Measures of Impacts on Local Population/Workforce

- Contractor will be select specific timings for heavy machinery operation so as to cause least disturbance to the population considering their peak movement hours.
- Effective construction controls may be made by the Contractor to avoid inconvenience to the population due to noise, smoke and fugitive dust.
- Haul-trucks carrying concrete, aggregate and sand fill materials will be kept covered with tarpaulin to help contain the construction materials being transported to the specific site.
- The Contractor should warn the workers not to involve in any theft activities and if anyone would involve in such type of activities, he will have to pay heavy penalty and would be handed over to police. Similarly, at the time of hiring labour/workers, Contractor has to ensure that the workers should be of good repute/character.

B) Impacts on Public Health and Safety Hazards

- Construction activities, particularly excavation and movement of haul trucks and machinery may prove dangerous for the safety of the workers as well as for local residents.
- Contractor's staff while working on the high-rise columns, transoms, etc. may slip and get injured. Similarly, working at excavated areas may also cause injuries due to the failure of side slopes of excavation.
- The storage of all solid waste shall be practiced so as to prevent the attraction, harborage or breeding of insects or rodents, and to eliminate conditions harmful to public health or which create safety hazards, odors, unsightliness or public nuisance.

Mitigation Measures of Impacts on Public Health and Safety Hazards

- Contractor will ensure the provision of medicines, first aid kits, emergency vehicles, etc. at the work place.
- Compliance with the safety precautions for construction workers as per International Labour Organization (ILO) Convention No. 62 will be ensured by the Contractor.
- Training of workers in the construction safety procedures, environmental awareness, and equipping all construction workers with safety boots, helmets, gloves, ear plugs, and protective masks, and monitoring their proper and sustained usage.

6.4 IMPACTS AND MITIGATIONS MEASURES DURING THE PROJECT OPERATION

6.4.1 Ground Water Resource

In the proposed development, water quantity is required for the construction and operational phase. About 10 meter cube per day of water will be required at construction phase while 45 meter cube per hour water will be required during operational phase of the project. Water storage will also be required for emergency response in case of a fire. Since there is no water supply system existing in the project area hence the demand will be met from arrangement for water supply through the turbines being drilled 500-700 feet depth.

The quantities of required fresh water from ground will ultimate impact on level of ground water resource which may reduce with the passage of time.

Mitigation

- An effective Water Conservation Plan will be developed and employees of the industry should have trained in water conservation
- Reuse of water will be done that can be achieved by following measures: -
- Kitchen waste after grease trap and primary filtration will be reused in flushing purposes.
- The sewerage from flushing after treatment can be used in landscaping and gardening
- The process water after passing through waste water treatment plant through carbon and sand filter can be used for firefighting purposes.
- Rainwater harvesting should be done on the roof top of the building. It is a simple technique of catching rainwater and storing it in underground aquifers. Rainwater harvesting helps increase the water table, improve the quantity of groundwater and reduce tube well pumping costs. The simple rainwater harvesting is shown in diagram below-

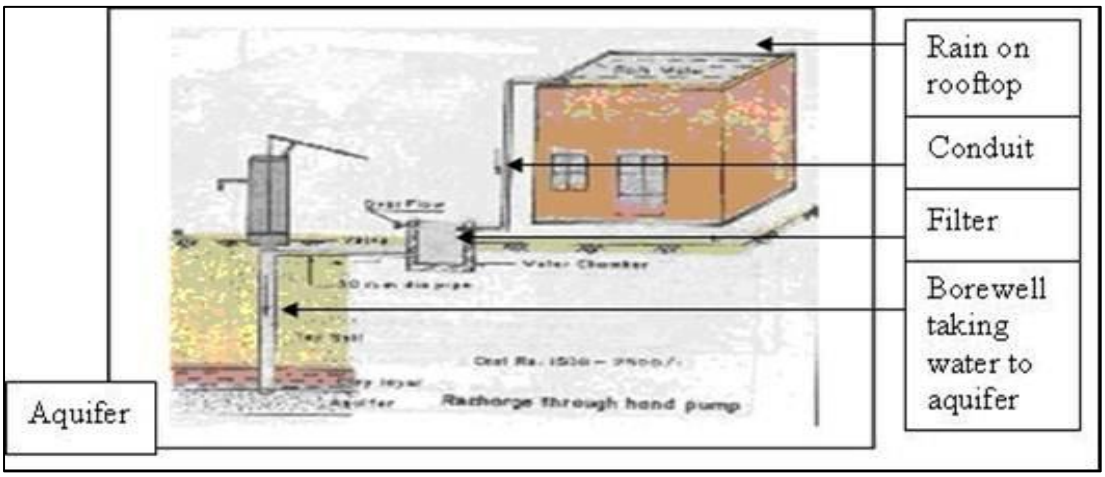


Figure 6-2, Rainwater Harvesting (source: tradeindia.com)

6.4.2 Air Emissions

Air Emission is emitted from the stacks of generators and boilers. Stack emissions of generators & boilers will produce gasses like NOx, SOx, CO2, PM and CO. These gasses will cause air pollution if not properly managed or mitigated.

Mitigation:

- Generators and boilers will be maintained properly and tuned up in respect of air to fuel ratio in order to have these pollutants within the PEQS limit.
- For biomass boiler, dust air bag or filter will be installed in order to bring PM in compliance with PEQS
- Regular monitoring on all emission sources will be done and measures will be taken if found non-compliance with PEQS

6.4.3 Noise

There will be high noise level due to the operations of process machinery, packaging machinery and from power sources like generators and boilers.

Noise health effects include the health consequences of elevated sound levels. Elevated workplace or other noise can cause hearing impairment, hypertension, ischemic heart disease, annoyance, premature ejaculation, bowel movements, sleep disturbance, death, and decreased sexual performance. Changes in the immune system and birth defects have been attributed to noise exposure.

Mitigation:

Mitigation measures mentioned below will be adopted to minimize the noise pollution. Those measures include, but are not limited to the following:

- Proper, adequate and timely maintenance of equipment through lubrication, repair and replacement of parts will go a long way to keep the noise levels within the prescribed limits PEQS
- Providing the workers with suitable hearing protection like ear cap, or earmuffs and training them in their use;
- Machines will be placed on concrete structure raised from floor or resistant pads should be placed beneath the machinery.
- Sound barriers can be placed for the enclosure of noisy machinery, enclosure of worker and outside environment.
- Good training programs will be conducted in order to convince workers of the need for protection from high noise levels because most of the workers do not use ear muffs or ear plugs by their own consent.

6.4.4 Solid Waste

The generation of the solid waste from the company is of the following three types

1. Organic waste from waste Potato and peel of potato
2. Packaging waste from packaging process
3. Municipal Solid waste generated during daily operations of kitchen and office.
4. Sludge from the waste water treatment plant.

Mitigation:

The solid waste management plan is developed given as under-:

- A contract will be made from local Solid Waste Management Authority for safe disposal of municipal solid waste
- Sludge from waste water treatment plant will be disposed through EPA approved waste disposal contractor.

6.4.5 Waste water

About 45-meter cube per hour of waste water is generated from the process, kitchen and washrooms (municipal). The waste water contains high level of pollution load (COD, BOD and TSS) and if not managed or mitigated it can cause surface and ground water deterioration

Mitigation

Waste water treatment plant will be installed with capacity 145 m3/hr. For the treatment of the waste water, the state-of-the-art waste water treatment plant (DAF + UASB+ Aeration cell) is installed at the facility for primary and secondary treatment. About 36 % of the waste water is reused, company is planning for zero discharge for which tertiary treatment unit will be installed.

The waste water treatment plant will reduce pollution level to the degree that meets the limiting values of the PEQS as applicable to the activity of this project.

6.4.6 Security Issue

There is need for vigilant security presence in and around the company round the clock on a permanent basis to guard against 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

A comprehensive Security Plan is developed and implemented in the factory 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 and to monitor all the security related issues. In addition to this the security guards regularly monitor in and around the factory to ensure proper security. Moreover, there security cameras will be installed at critical places inside and outside the factory. The security cameras are operated from the common control room.

6.5 POSITIVE IMPACTS

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

- The project is in the industrial area of Multan there will be 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. There is continuous demand of workers in operational phase of the project
- The demand for workers for construction of the industry and also its operation will have wider economic benefits in the surrounding area, as even specialist skilled labor that is brought in from outside will require service functions that will boost demand in the local economy.
- There are only few industries exist in the industrial area of Multan, the construction of this industry will help in development of industrial area.

CHAPTER – 7: ENVIRONMENTAL MANAGEMENT PLAN (EMP)

SECTION - 7: ENVIRONMENTAL MANAGEMENT PLAN (EMP)

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 2nd PC-50 & KK line Expansion at PepsiCo Multan Snacks Plant. 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.

1.1 REGULATORY REQUIREMENTS AND APPLICABLE STANDARDS

The main law and legislation concerned with the environment is Pakistan Environmental Protection Act (PEPA) 1997 now been amended as Punjab Environmental Protection Act amended 2012 for Punjab after 18th amendment. This Act is a fairly comprehensive legislation and provides for protection, conservation, rehabilitation and improvement of the environment.

The salient features of the law are:

- No proponent of a project shall commence construction or operation unless he has filed with the Government Agency designated by Federal EPA or Provincial EPAs an EIA, and has obtained NOC.
- Establishment and Formation of the Pakistan Environmental Protection Council (PEPC).
- Powers and Functions of the Federal and Provincial Environmental Protection Agencies.
- Prohibition of certain discharges or emissions.
- PEQS for wastewater, air emissions and noise.
- Empowers Federal and Provincial Government to issue notices and to enforce them for the protection of the environment.

The proposed project related environmental laws/guidelines are as follows:

- Pakistan Environmental Protection Agency Regulations, 2000 for Review of IEE and EIA

- Pakistan Environmental Impact Assessment Procedures
- Guidelines for Public Consultation
- PEQS
- Sectoral Guidelines for Environmental Reports, October 1997

1.2 MITIGATION MANAGEMENT MATRIX (MMM)

This mitigation management matrix identifies the environmental impacts of establishing PEPSICO unit in Multan during the construction and operation stages and establishes the linkages between the environmental and social impacts, mitigation management strategy, control and the persons responsible for execution. The MMM presented in Table 7-1 identifies the following:

- The impact of the activity and objective to minimize the impact
- Management strategy in order to reduce or eliminate the impact
- 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.
- Performance indicators with corrective action.
- 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

Constructional Phase

Table 7-1, Environmental Management Plan for extension of PEPSICO in Multan Industrial Estate

NOISE MANAGEMENT			
Impacts	Noise and Vibration can be generated and have negative impact on surroundings from the machinery utilized for the construction work		
Objective(s)	1. To minimize the impacts of noise on the amenity of the surrounding areas. 2. Construction activities undertaken in accordance with PEQs.		
Management Strategy	Noise to be managed primarily through administrative and equipment controls during the construction phase.		
		Responsibility	Timing
Control(s)	All equipment used during the construction phase to be regularly maintained to ensure efficient operation; Proper tuning of vehicles is done in order to control noise levels that exceeds PEQS; Movements of the trucks and other construction machinery causing high noise levels must be restricted at night time. Truck drivers are instructed not to play loud music at night and stop use of horn; Pre-start checks and maintenance schedules to ensure equipment performance is as required; Noise-dampening equipment to be used on equipment with excessive noise generating characteristics;	EHS Manager & Project Manager	Throughout the project.

NOISE MANAGEMENT			
Performance Indicator(s)	Complaints from adjacent commercial premises and/or community.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Daily inspection of works sites to occur Service logs for equipment/machinery used on site 3rd Party Environmental Monitoring once every three months	EHS Manager & Project Manager	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager. The report of the 3rd Party Environmental Monitoring will be submitted to EPA Quarterly	EHS Manager & Project Manager	Throughout the project.
Corrective Action(s)	Investigate cause of excessive noise Implement corrective measures prior to the recommencement of site works Reschedule of noise-generating activities to reduce noise annoyance.	EHS Manager & Project Manager	Throughout the project.
Compliance	Quarterly monitoring and reporting to EPA.	Project Manager	Throughout the project

AIR EMISSIONS MANAGEMENT			
Impacts	Generation of particulate- matter (PM10), smoke, dust, CO and NOx in the ambient air form the activities like excavation, clearing, levelling and compaction with the use of machinery like batching plants, excavators, dump truck, Road Rollers, Graders, Haul Trucks, cranes and other transport vehicles etc. which may deteriorate the air quality and resulting in impacts on human health, fauna and flora.		
Objective(s)	1. To minimize the impacts of air emissions on the ambient air of the surrounding areas. 2. Construction activities undertaken in accordance with PEQs.		
Management Strategy	Air emissions to be managed primarily through administrative and equipment controls during the construction phase.		
		Responsibility	Timing
Control(s)	All equipment used during the construction phase to be regularly maintained to ensure efficient operation; Proper tuning of vehicles are done in order to control air emissions that exceeds PEQS; Tuning of vehicles should be made mandatory to reduce the emissions of NOx, CO, Hydrocarbons (HC) and PM. Emissions from the batching plants are controlled with appropriate control equipment (such as fabric filters or cyclone separators). Equipment and vehicles powered with diesel are well maintained to minimize particulate emissions. Haul-trucks carrying, earth, sand, aggregate and other materials are kept covered during transportation of materials and during storage on site, with tarpaulin to contain the construction materials being transported within the body of each carrier between the sites.	EHS Manager & Project Manager	Throughout the project.

AIR EMISSIONS MANAGEMENT			
	The fugitive dust emission will be a problem for the nearby settlements, flora and fauna which is going to be mitigated by sprinkling of water. Also main access roads and exposed terrain are sprayed by water trucks to minimize the dust. Pre-start checks and maintenance schedules to ensure equipment performance is as required;		
Performance Indicator(s)	No complaints from adjacent commercial premises and/or community.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Daily inspection of works sites to occur Service logs for equipment/machinery used on site Dust Level Monitoring and ambient air Quality monitoring from 3rd party Environmental Laboratory Once every three months	EHS Manager - Consultant	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager. Reporting to EPA on Quarterly basis	EHS Manager & Project Manager	Throughout the project.
Corrective Action(s)	Investigate cause of excessive air emissions Implement corrective measures prior to the recommencement of site works Reschedule of air emission activities to reduce air pollution.	EHS Manager & Project Manager	Throughout the project.
Compliance	Quarterly monitoring and reporting to EPA.	Consultant	Throughout the project

SOIL MANAGEMENT			
Impacts	Soil erosion may take place in the camp areas as a result of improper runoff drawn from the equipment washing. Soil contamination may take place due to the generated solid waste at camp site in addition to oil spillage and use of chemicals at site. Scarified/scraped materials, which are not disposed of properly, may contaminate soil resources.		
Objective(s)	1. To minimize the impacts of soil pollution on the soil of the surrounding areas. 2. Construction activities undertaken in accordance with PEQs.		
Management Strategy	Soil pollution to be managed primarily through administrative controls during the construction phase.		
		Responsibility	Timing
Control(s)	Good engineering practices is going to adopt by the Contractors, which will help to control soil erosion both at the construction sites, particularly at camp areas and overhead structures Soil contamination can be curtailed by reducing the oil spill in the camp as well as at project construction areas, proper solid waste management and placing chemical containers in caissons. The Contractor is required to impart proper training to his workforce in the storage and handling of obnoxious materials, like furnace oil, diesel, petrol and chemicals, etc., that can potentially cause soil contamination. Grease trap shall be installed at the site, whenever needed, to prevent the flow of oily water. Proper solid waste management plan is developed by the Contractor and implemented to avoid the litter and any other waste problems	EHS Manager & Project Manager	Throughout the project.

SOIL MANAGEMENT			
Performance Indicator(s)	Visual impacts on the density of present flora or fauna.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Visual soil monitoring with flora and fauna of work sites is done. Log book of monitoring results is maintained for comparisons.	EHS Manager - Consultant	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager.	EHS Manager & Project Manager	Throughout the project.
Corrective Action(s)	Investigate cause of soil pollution Implement corrective measures prior to the recommencement of site works Reschedule of soil polluting activities to reduce soil pollution.	EHS Manager & Project Manager	Throughout the project.
Compliance	Log book of visual soil monitoring will be maintained	EHS Manager & Project Manager	Throughout the project

SEWAGE MANAGEMENT	
Impacts	Sewage and sanitary waste water generated from the construction camps may contaminate surface and groundwater, if not disposed of properly.
Objective(s)	1. To minimize the impacts of sewage on surface and groundwater of the surrounding areas. 2. Construction activities undertaken in accordance with PEQs.

SEWAGE MANAGEMENT			
Management Strategy	The sewage from the construction site will be managed by constructing septic tanks		
		Responsibility	Timing
Control(s)	Sewage from construction camp is going to be disposed of using septic tank; Construction camps are established in areas with adequate natural drainage channels in order to facilitate flow of the effluents; Layout plan of site area showing drainage system is given as under;	EHS Manager & Project Manager	Throughout the project.
Performance Indicator(s)	Visual impacts on the water quality of the surrounding areas.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Quarterly sewage water testing from 3rd part Environmental Laboratory of work sites will be done. Log book of monitoring results will be maintained for comparisons.	EHS Manager & Project Manager	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager. Quarterly Monitoring report submission to EPA	EHS Manager & Project Manager	Throughout the project.
Corrective Action(s)	Investigate cause of water pollution; Implement corrective measures prior to the recommencement of site works Reschedule of water polluting activities to water pollution.	EHS Manager & Project Manager	Throughout the project.

SEWAGE MANAGEMENT			
Compliance	Quarterly monitoring and reporting to EPA.	Consultant	Throughout the project
ECOLOGICAL MANAGEMENT			
Impacts	Due to the construction in the project site, direct, indirect or temporary damages will occur from site excavation and clearance and dumping spoils in other habitats. Load noises during construction activities near forest may disturb the wild life especially birds species		
Objective(s)	1. To minimize the impacts of construction on ecology of the surrounding areas. 2. Construction activities undertaken in accordance with EMP		
Management Strategy	Ecology of the area to be managed primarily through administrative controls during the construction phase.		
		Responsibility	Timing
Control(s)	The dredged spoil created during the construction of the project should properly be disposed in order to avoid habitat damage Avoid loud noise during construction activities. Buffer belt of native species are planted along the boundary wall of the project site.	EHS Manager & Project Manager	Throughout the project.
Performance Indicator(s)	Visual impacts on the ecology of the surrounding areas.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Biannually ecological surveys. Log book of monitoring results is maintained for comparisons.	EHS Manager - Consultant	Throughout the project.

SEWAGE MANAGEMENT			
Reporting	Any complaints or incidents to be reported to project manager.	EHS Manager & Project Manager	Throughout the project.
Corrective Action(s)	Investigate cause of ecological disturbance; Implement corrective measures prior to the recommencement of site works Reschedule of activities that pose serious threat to ecology of that area.	EHS Manager & Project Manager	Throughout the project.
Compliance	Log Book of Biannual Survey will be maintained	Consultant	Throughout the project
SOLID WASTE MANAGEMENT			
Impacts	Organic waste, Packaging waste and Municipal Solid waste will be generated if not managed properly can cause soil water contamination and pose risk to human health		
Objective(s)	1. To minimize the impacts of solid waste on soil, water and human health of the surrounding areas. 2. Construction activities undertaken in accordance with EMP.		
Management Strategy	Solid waste is to be managed primarily through administrative controls during the construction phase.		
		Responsibility	Timing
Control(s)	A contract is signed with local Solid Waste Management Authority for safe disposal of municipal solid waste Sludge from waste water treatment plant will be disposed through EPA approved waste disposal contractor.	EHS Manager & Project Manager	Throughout the project.

SEWAGE MANAGEMENT			
	Places of storage bins are marked on layout plan given as under;		
Performance Indicator(s)	No littering of the solid waste in the surrounding area.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Daily inspection of work sites is done. Log book of monitoring results is maintained for comparisons.	EHS Manager - Consultant	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager.	EHS Manager & Project Manager	Throughout the project.
Corrective Action(s)	Investigate cause of improper solid waste disposal; Implement corrective measures prior to the recommencement of site works Reschedule of activities that are causing mismanagement of solid waste.	EHS Manager & Project Manager	Throughout the project.
Compliance	Log book of daily inspection and monitoring of solid waste management will be maintained	Consultant	Throughout the project

EXHAUST MANAGEMENT			
Impacts	Air Emission is emitted from the stacks of generators, exhaust of heavy vehicles and boilers. Stack emissions of generators & boilers will produce gasses like NOx, SOx, CO2, PM and CO. These gasses will cause air pollution if not properly managed or mitigated.		
Objective(s)	1. To minimize the impacts of exhaust emissions on the ambient air of the surrounding areas. 2. Construction activities undertaken in accordance with PEQs.		
Management Strategy	Exhaust emissions to be managed primarily through administrative and equipment controls during the construction phase.		
		Responsibility	Timing
Control(s)	Generators, vehicles and boilers are maintained properly and tuned up in respect of air to fuel ratio in order to have these pollutants within the PEQS limit. For biomass boiler, dust air bag or filter are installed in order to bring PM in compliance with PEQS.	EHS Manager & Project Manager	Throughout the project.
Performance Indicator(s)	No complaints from adjacent commercial premises and/or community.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Quarterly monitoring on all emission sources is done from 3rd Party Environmental Laboratory Log book of monitoring results is maintained for comparisons.	EHS Manager - Consultant	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager. Quarterly Monitoring to EPA	EHS Manager & Project Manager	Throughout the project.

EXHAUST MANAGEMENT			
Corrective Action(s)	Investigate cause of excessive exhaust emissions; Implement corrective measures prior to the recommencement of site works Reschedule of activities that are causing excessive exhaust emissions.	EHS Manager & Project Manager	Throughout the project.
Compliance	Quarterly monitoring and reporting to EPA.	Consultant	Throughout the project
RAW MATERIAL STORAGE MANAGEMENT			
Impacts	Open storage of sand and other raw materials cause air pollution due to particulate matter.		
Objective(s)	1. To minimize the impacts of particulate emissions on the ambient air of the surrounding areas. 2. Construction activities undertaken in accordance with EMP.		
Management Strategy	Particulate emissions to be managed primarily through administrative controls during the construction phase.		
		Responsibility	Timing
Control(s)	Raw materials are stored in a closed shed. Vehicles carrying raw materials are covered with tarpaulin. A layout plan of site showing storage area is given as under;	EHS Manager & Project Manager	Throughout the project.
Performance Indicator(s)	No visual dust in the air.	EHS Manager & Project Manager	Throughout the project.

EXHAUST MANAGEMENT			
Monitoring	Regular monitoring of all storage area is done. Log book of monitoring results is maintained for comparisons.	EHS Manager - Consultant	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager.	EHS Manager & Project Manager	Throughout the project.
Corrective Action(s)	Investigate cause of particulate emissions; Implement corrective measures prior to the recommencement of site works Reschedule of activities that are causing particulate emissions.	EHS Manager & Project Manager	Throughout the project.
Compliance	Logbook and pictorial evidence of raw material storage will be maintained	Consultant	Throughout the project
TRAFFIC MANAGEMENT			
Impacts	Improper traffic management can lead to project site accidents, parking issues etc.		
Objective(s)	1. To minimize the traffic issues on the project site. 2. Construction activities undertaken in accordance with EMP.		
Management Strategy	Construction site vehicle incidents are prevented by the effective management of transport operations.		
		Responsibility	Timing
Control(s)	Keeping pedestrians and vehicles apart Minimizing vehicle movements.	EHS Manager & Project Manager	Throughout the project.

EXHAUST MANAGEMENT			
	Signs and instructions are displayed; A site layout plan showing parking facility is given as under;		
Performance Indicator(s)	Number of reported incidents.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Regular monitoring traffic conditions. Log book of monitoring results is maintained for comparisons.	EHS Manager - Consultant	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager.	EHS Manager & Project Manager	Throughout the project.
Corrective Action(s)	Investigate cause of poor traffic conditions; Implement corrective measures prior to the recommencement of site works Reschedule of activities that are resulting in poor traffic conditions.	EHS Manager & Project Manager	Throughout the project.
Compliance	Log book of monitoring results is maintained for comparisons.	Consultant	Throughout the project
SPILLAGE MANAGEMENT			
Impacts	Spillage can cause serious health hazards to the nearby persons and/or facility.		
Objective(s)	1. To minimize the impacts of particulate emissions on the ambient air of the surrounding areas. 2. Construction activities undertaken in accordance with EMP.		

EXHAUST MANAGEMENT			
Management Strategy	All hazardous substances, including chemical wastes, are to be managed in a way that prevents release, primarily through administrative controls during the construction phase.		
		Responsibility	Timing
Control(s)	Containing and controlling incidents so as to minimise the effects and to limit danger to persons, the environment and property; Evacuate the site. Spills involving hazardous materials should first be contained to prevent spread of the material to other areas. This may involve the use of temporary diking, sand bags, dry sand, earth or proprietary booms / absorbent pads; Stabilization / dilution to safe condition;	EHS Manager & Project Manager	Throughout the project.
Performance Indicator(s)	Number of incidents reported.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Regular inspection of chemical storage area is done. Log book of monitoring and inspection results is maintained for comparisons.	EHS Manager - Consultant	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager.	EHS Manager & Project Manager	Throughout the project.
Corrective Action(s)	Investigate cause of spillage; Implement corrective measures prior to the recommencement of site works	EHS Manager & Project Manager	Throughout the project.

EXHAUST MANAGEMENT			
	Reschedule of activities that causes spillage. Avoid accidental spills of oils and lubricants through good practice. Prepare and implement Emergency Response Procedures in case of any spill hazard.		
Compliance	Log book of monitoring and inspection results is maintained.	Consultant	Throughout the project
FIRE MANAGEMENT			
Impacts	Fire may exist at the work place which may pose threat to the property and/or workers health.		
Objective(s)	1. To minimize the treat of fire hazards at project areas. 2. Construction activities undertaken in accordance with EMP.		
Management Strategy	Identify all sources of fuel and ignition and establish general fire precautions during the construction phase.		
		Responsibility	Timing
Control(s)	Fire extinguishers are located at identified fire points around the site; Evacuate the site. Spills involving hazardous materials should first be contained to prevent spread of the material to other areas. This may involve the use of temporary diking, sand bags, dry sand, earth or proprietary booms / absorbent pads; Stabilization / dilution to safe condition;	EHS Manager & Project Manager	Throughout the project.

EXHAUST MANAGEMENT			
	Assembly area is provided and marked with the escape routes that give access to a safe place where people can assemble and be accounted for; A layout plan showing assemblage area is given as under;		
Performance Indicator(s)	Number of incidents reported.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Regular monitoring and risk assessment of projects site. Log book of risk assessment is maintained for record.	EHS Manager - Consultant	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager.	EHS Manager & Project Manager	Throughout the project.
Corrective Action(s)	Investigate cause of fire; Implement corrective measures prior to the recommencement of site works Reschedule of activities that causes fire hazard.	EHS Manager & Project Manager	Throughout the project.
Compliance	Log book of Risk Assessment	Consultant	Throughout the project
HEALTH AND SAFETY MANAGEMENT			
Impacts	Construction activities, particularly excavation and movement of haul trucks and machinery may prove dangerous for the safety of the workers as well as for local residents. Contractor's staff while working on the high-rise columns, transoms, etc. may slip and get injured. Similarly, working at excavated areas may also cause injuries due to the failure of side slopes of excavation.		

EXHAUST MANAGEMENT			
Objective(s)	1. To minimize the health and safety risks at project areas. 2. Construction activities undertaken in accordance with EMP.		
Management Strategy	Identify all sources of fuel and ignition and establish general fire precautions during the construction phase.		
		Responsibility	Timing
Control(s)	Contractor is ensuring the provision of medicines, first aid kits, emergency vehicles, etc. at the work place. Compliance with the safety precautions for construction workers as per International Labor Organization (ILO) Convention No. 62 will be ensured by the Contractor. Training of workers in the construction safety procedures, environmental awareness, and equipping all construction workers with safety boots, helmets, gloves, ear plugs, and protective masks, and monitoring their proper and sustained usage.	EHS Manager & Project Manager	Throughout the project.
Performance Indicator(s)	Number of incidents reported.	EHS Manager & Project Manager	Throughout the project.
Monitoring	Regular monitoring and risk assessment of projects site. Log book of risk assessment is maintained for record.	EHS Manager - Consultant	Throughout the project.
Reporting	Any complaints or incidents to be reported to project manager.	EHS Manager & Project Manager	Throughout the project.

EXHAUST MANAGEMENT			
Corrective Action(s)	Investigate cause of safety hazard; Implement corrective measures prior to the recommencement of site works Reschedule of activities that causes health and safety hazard.	EHS Manager & Project Manager	Throughout the project.
Compliance	Logbook of risk assessment.	Consultant	Throughout the project

Operational Phase

GROUNDWATER MANAGEMENT			
Impacts	The quantities of required fresh water from ground during operational stage will ultimately impact on level of ground water resource which may reduce with the passage of time.		
Objective(s)	1. To minimize the impacts of water usage on groundwater of the surrounding areas. 2. Operational activities undertaken in accordance with EMP.		
Management Strategy	The ground water will be managed by effective water conservation plan		
		Responsibility	Timing
Control(s)	An effective Water Conservation Plan will be developed and employees of the industry should have trained in water conservation Reuse of water will be done Rainwater harvesting will be done on the roof top of the building	EHS Manager	Throughout the Operations.
Performance Indicator(s)	Drop in groundwater level	EHS Manager	Throughout the Operations.
Monitoring	Aquifer Monitoring by Hydrological Study. Once after three years	EHS Manager	Throughout the Operations.
Reporting	Log book of study results after each three year is maintained for comparisons.	EHS Manager	Throughout the Operations.

GROUNDWATER MANAGEMENT			
Corrective Action(s)	Ground water recharge by rainwater harvesting gravity recharging technique	EHS Manager	Throughout the Operations.
Compliance	Log book of study results is maintained for comparisons.	EHS Manager	Throughout the Operations.
STACK EMISSIONS MANAGEMENT			
Impacts	Air Emission is emitted from the stacks of generators and boilers. Stack emissions of generators & boilers will produce gasses like NOx, SOx, CO2, PM and CO. These gasses will cause air pollution if not properly managed or mitigated.		
Objective(s)	1. To minimize the impacts of stack emissions on the ambient air of surrounding areas. 2. Operational activities undertaken in accordance with PEQs.		
Management Strategy	Exhaust emissions to be managed primarily through administrative and equipment controls during the operational phase		
		Responsibility	Timing
Control(s)	Generators and boilers should be maintained properly and tuned up in respect of air to fuel ratio in order to have these pollutants within the PEQS limit. For biomass boiler, dust air bag or filter should be installed in order to bring PM in compliance with PEQS Regular monitoring on all emission sources should be done and measures will be taken if found non-compliance with PEQS	EHS Manager	Throughout the Operations.

GROUNDWATER MANAGEMENT			
Performance Indicator(s)	Smoke from Genetors and boilers.	EHS Manager	Throughout the Operations.
Monitoring	Quarterly Monitoring of Stack Emissions by 3rd part Environmental Laboratory Log book of monitoring results will be maintained for comparisons.	EHS Manager	Throughout the Operations.
Reporting	Quarterly monitoring on all emission sources is done from 3rd Party Environmental Laboratory and submitted to EPA Punjab Log book of monitoring results is maintained for comparisons.	EHS Manager	Throughout the Operations.
Corrective Action(s)	Investigate cause of excessive exhaust emissions; Implement corrective measures if found emissions out of NEQS Reschedule of activities that are causing excessive exhaust emissions.	EHS Manager	Throughout the Operations.
Compliance	Log book of monitoring results is maintained for comparisons.	EHS Manager	Throughout the Operations.
NOISE MANAGEMENT			
Impacts	There will be high noise level which can impact human health due to the operations of process machinery, packaging machinery and from power sources like generators and boilers.		
Objective(s)	1. To minimize the impacts of noise on the workers, amenity of the surrounding areas. 2. operational activities undertaken in accordance with PEQs.		

GROUNDWATER MANAGEMENT			
Management Strategy	Noise to be managed primarily through administrative and equipment controls during the construction phase.		
		Responsibility	Timing
Control(s)	Proper, adequate and timely maintenance of equipment through lubrication, repair and replacement of parts Providing the workers with suitable hearing protection like ear cap, or earmuffs and training them in their use; Good training programs will be conducted in order to convince workers of the need for protection from high noise levels because most of the workers do not use ear muffs or ear plugs by their own consent.	EHS Manager	Throughout the Operations.
Performance Indicator(s)	Complaints from workers and adjacent commercial premises and/or community.	EHS Manager	Throughout the Operations.
Monitoring	Daily inspection of works sites. Service logs for equipment/machinery used on site 3rd Party Environmental Monitoring once every three months	EHS Manager	Throughout the Operations.
Reporting	Any complaints or incidents to be reported to project manager. The report of the 3rd Party Environmental Monitoring will be submitted to EPA Punjab on quarterly basis	EHS Manager EHS Manager	Throughout the Operations.

GROUNDWATER MANAGEMENT			
Corrective Action(s)	Investigate cause of excessive noise Implement corrective measures related to high noise level Reschedule of noise-generating activities to reduce noise annoyance.	EHS Manager	Throughout the Operations.
Compliance	Quarterly monitoring and reporting to EPA.	EHS Manager or Consultant	Throughout the Operations.
SOLID WASTE MANAGEMENT			
Impacts	Organic waste, Packaging waste and Municipal Solid waste will be generated if not managed properly can cause soil water contamination and pose risk to human health		
Objective(s)	1. To minimize the impacts of solid waste on soil, water and human health of the surrounding areas. 2. Operational activities undertaken in accordance with EMP.		
Management Strategy	Solid waste is to be managed primarily through administrative controls during the operational phase		
		Responsibility	Timing
Control(s)	A contract will be made from local Solid Waste Management Authority for safe disposal of municipal solid waste Sludge from waste water treatment plant will be disposed through EPA approved waste disposal contractor.	EHS Manager	Throughout the Operations.

GROUNDWATER MANAGEMENT			
Performance Indicator(s)	Littering of the solid waste in the surrounding area.	EHS Manager	Throughout the Operations.
Monitoring	Daily inspection of work sites. Log book of monitoring results is maintained for comparisons.	EHS Manager - Consultant	Throughout the Operations.
Reporting	Any complaints or incidents to be reported to project manager.	EHS Manager & Project Manager	Throughout the Operations.
Corrective Action(s)	Investigate cause of improper solid waste disposal; Implement corrective measures related to the littering at site Reschedule of activities that are causing mismanagement of solid waste.	EHS Manager & Project Manager	Throughout the Operations.
Compliance	Log book of daily inspection and monitoring of solid waste management will be maintained	EHS Manager	Throughout the Operations.
WASTEWATER MANAGEMENT			
Impacts	Sewage and process waste water generated from the industry may pose threat to the fresh water resource		
Objective(s)	1. To minimize the impacts of wastewater on surface and groundwater of the surrounding areas. 2. Operational activities undertaken in accordance with PEQs.		

GROUNDWATER MANAGEMENT			
Management Strategy	The wastewater from the industry will be managed by constructing wastewater treatment plant.		
		Responsibility	Timing
Control(s)	Waste water treatment plant will be installed with capacity 145 m3/hr. For the treatment of the waste water, the state-of-the-art waste water treatment plant (DAF + UASB+ Aeration cell) is installed at the facility for primary and secondary treatment. About 36 % of the waste water is reused, company is planning for zero discharge for which tertiary treatment unit will be installed. The waste water treatment plant will reduce pollution level to the degree that meets the limiting values of the PEQS as applicable to the activity of this project	EHS Manager	Throughout the Operations.
Performance Indicator(s)	Visual impacts on the water quality of the surrounding areas. Wastewater Quality Results.	EHS Manager	Throughout the Operations.
Monitoring	Quarterly wastewater testing from 3rd party Environmental Laboratory of final effluent will be done. Log book of monitoring results will be maintained for comparisons.	EHS Manager	Throughout the Operations.
Reporting	Any complaints or incidents to be reported to project manager. Quarterly Monitoring report submission to EPA	EHS Manager	Throughout the Operations.

GROUNDWATER MANAGEMENT			
Corrective Action(s)	Investigate cause of water pollution; Implement corrective measures related to the treatment of the waste water	EHS Manager	Throughout the Operations.
Compliance	Quarterly monitoring and reporting to EPA.	EHS Manager or Consultant	Throughout the Operations.
HEALTH AND SAFETY MANAGEMENT			
Impacts	Safety/ Security that cause Loss of property Loss of assets and in rare cases may lead to fatal incidents		
Objective(s)	1. To minimize the health and safety risks at project areas. 2. Operational activities undertaken in accordance with EMP.		
Management Strategy	Identify all sources of fuel and ignition and establish general fire precautions during the operational phase. Safe working procedures to be develop Emergency Response Plan to be develop		
		Responsibility	Timing
Control(s)	Provide communication networks (cell, telephone, wireless) Surveillance Cameras will be installed Periodic checking of stock Earthquake resistant building design Safe and secure electric wiring	EHS Manager	Throughout the Operations.

GROUNDWATER MANAGEMENT			
	High precautions to be taken for flammable/inflammable materials Firefighting equipment's to be installed Trainings to be given to workers and security guards Emergency contact numbers to be given to workers and security guards		
Performance Indicator(s)	Number of incidents reported.	EHS Manager	Throughout the Operations.
Monitoring	Regular monitoring and risk assessment of projects site. Log book of risk assessment is maintained for record.	EHS Manager or Consultant	Throughout the Operations.
Reporting	Any complaints or incidents to be reported to project manager.	EHS Manager	Throughout the Operations.
Corrective Action(s)	Investigate cause of safety hazard; Implement corrective measures if found high risk during risk assessment Reschedule of activities that causes health and safety hazard.	EHS Manager	Throughout the Operations.
Compliance	Logbook of risk assessment.	EHS Manager	Throughout the Operations.

7.1 IMPLEMENTATION OF EMP

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

- Supervisory Consultants (SC)
- Construction Contractor (CC)
- Punjab Environmental Protection Agency (EPA-Punjab)
- PEPSICO (PC)

The PEPSICO (PC) will mainly be responsible for the implementation and supervision of EMP in consultation with the supervisory consultants and submit regular Environmental Compliance Report during construction and operational phase to EPA-Punjab.

EPA-Punjab is responsible for monitoring of overall project progress in terms of Environmental Management Plan and other environmental parameters that sets in this document.

7.2 SCHEDULE OF IMPLEMENTATION

The completion duration of extension of PepsiCo Multan Snack Plant is about one year

7.2.1 Preconstruction Phase

This phase includes:

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

7.2.2 Construction Phase

This phase includes:

- Management team & Construction Crew
- Excavation
- Construction of expansion unit
- Mitigation process
- Amenities and Development
- Managing safety
- Monitoring & Evaluation

7.3 ROLES AND RESPONSIBILITIES

The key organizations mentioned in the following roles and responsibility during the construction and operation stages:

7.3.1 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 supervision by the PEPSICO (PC). The Supervisory Consultant will submit regular Environmental Compliance Report to PEPSICO (PC) and PAK- EPA.

7.3.2 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 PEPSICO (PC) with supervision of other Government Departments as defined in MMM.

7.4 ENVIRONMENTAL MONITORING PLAN

7.4.1 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.

7.4.2 Monitoring Strategy

A) Activity Monitoring

Activity monitoring will be carried out to ensure compliance with the requirements of the EMP.

The MMM will be used as a management and monitoring tool. Activity monitoring will be the responsibility of all organizations involved in the

operation, i.e. PEPSICO (PC), Project Consultants and the Contractors and hence it will be done at three levels:

- Activity Monitoring by PEPSICO (PC)
- Activity Monitoring by Consultant's field monitors
- Activity Monitoring by the Contractor's officers

The Contractors will report compliance with the MMM to SC and PEPSICO (PC) for verification. At least one field monitor from PEPSICO (PC)/SC will remain on-site for activity monitoring during the construction period. Any non-compliance observed by SC will be recorded on non-compliance recording forms. The compliance report then also submitted in EPA- Punjab for effective monitoring and implementation of EMP.

Effects Monitoring

Effects monitoring will be the responsibility of PEPSICO (PC). Monitoring requirements have been outline in the EMP. However, a detailed monitoring program is attached as Table -1-2. The monitoring program describes in detail the resources and methodology that will be adopted for the purpose of Effects Monitoring.

7.4.3 Monitoring Parameters and Frequency

Monitoring protocols for compliance and effect monitoring are specified in Tables 7.2 and 7.3 respectively. The monitoring should be conducted for the entire period of construction and operation of the project. It is suggested that PEQS should be used as a main reference and WHO standards should be used where PEQS are silent or not applicable.

Table 7-2, Environmental Monitoring Plan- Recommended Activity Monitoring Protocol for Physical, Ecological and Social Environment

Parameter/ Receptor	Location	Monitoring Mechanism	Monitoring and Reporting Frequency
Surface Water Quality	▪ At existing Sewage near to the construction sites. ▪ Worker's camp ▪ Disposal areas of earthfill or solid waste ▪ Fuel (Petrol. Oil and Grease) products storages ▪ Vehicle and machine	▪ Discrete grab sampling and Analysis form EPA certified laboratory.	▪ Sampling and laboratory testing should be done on Quarterly basis. ▪ Surface water parameters should be followed in accordance with PEQS (Construction Stage)

Parameter/ Receptor	Location	Monitoring Mechanism	Monitoring and Reporting Frequency
	repairing and servicing yards.		
Dust Emissions and Ambient Air Quality	▪ At Construction Site ▪ At sites where there is route of most heavy transportation	▪ Sampling and Analysis from EPA certified Laboratory ▪ Visual Monitoring	▪ Ambient Air and dust Analysis in accordance with PEQS ▪ Quarterly Monitoring ▪ Visual Daily Monitoring (Construction Stage)
Noise Levels	▪ Camp sites, ▪ Construction Sites ▪ At Routes of Heavy Transport	▪ From Noise meter by Contractor or from EPA certified Laboratory	▪ Daily Monitoring by Contractor ▪ Quarterly monitoring by EPA-Certified Laboratory (Construction Stage)
Stack Emission/ Vehicular Emission Monitoring	▪ Silencers of heavy machinery, trucks and other vehicles. ▪ Stack monitoring of Asphalt Plants.	▪ Monitoring of EPA Certified Laboratory	▪ Quarterly monitoring of Stack and random four Vehicle's in accordance with PEQS (Construction Stage)
Drinking and Ground Water Quality	▪ Workers Camps Sites ▪ Construction Sites	▪ Monitoring by EPA Certified Laboratory	▪ Quarterly Monitoring of Drinking water at Workers Camp Site ▪ Quarterly Monitoring of Ground Water Quality at construction sites (Construction Stage)
Socio-Cultural Environment			
Inconvenience to the community	▪ All around the Project Area	▪ Supervisory Consultant has Consultations with community to get feedback about inconvenience due to the construction activities to perform their daily routine chores.	• Monthly monitoring and reporting to PM during the construction period. (Construction Stage)

Table 7-3, Environmental Monitoring Plan- Recommended Effect Monitoring Protocol for Physical, Ecological and Social Environment

Parameter/ Receptor	Location	Monitoring Mechanism	Monitoring and Reporting Frequency
Surface Water Quality	▪ Sampling from the River and Sewerage points located at a greater distance from the construction sites to ensure that they show the influence on a wider range of receiving body.	▪ 3rd party EPA certified laboratory testing.	▪ Sampling and laboratory testing should be done Quarterly basis during the construction stage and the operation stage. (Construction and Operational Stage)
Ground Water Quality	▪ Sampling of ground water located at greater distance form construction sites.	-do-	-do-
Ambient Air Quality	▪ Ambient Air Quality parameters in accordance with NEQS and points located near the construction sites	-do-	▪ Quarterly ambient air quality monitoring during the construction and operational stage (Construction and operational Stage)

7.5 CHANGE MANAGEMENT PLAN (CMP)

If some changes in the operation of Project or the EMP may be required during the operation, a Change Management Plan manages such changes. The management of changes is discussed under two separate headings, i.e. additions to the EMP and changes to the operation and the EMP.

7.5.1 Additions to the EMP

The EMP has been developed based on the best possible information available at the time of the study. However, it is possible that during the conduct of the proposed operation, additional mitigation measures based

on the findings of environmental monitoring during the construction and operation may have to be included in the EMP. In such cases following actions will be taken for changes during the construction stage:

- A meeting will be held between PEPSICO (PC), the concerned Contractor and the SC representatives. During the meeting, the proposed addition to the EMP will be discussed and agreed upon by all parties.
- Based on the discussion during the meeting, a change report will be produced collectively, which will include the additional EMP clause and the reasons for the addition.
- The report will be signed by all parties and will be finalized at the site office. A copy of the report will be sent to PEPSICO (PC), Contractor and SC head offices.
- All relevant project personnel will be given information about the addition/change.
- During the operation stage, all actions would mainly be the responsibility of PEPSICO (PC).

7.6 SITE RESTORATION PLAN

The main areas to be considered for the site restoration include the construction area along the existing roads, camp site tracks etc. These areas will be restored to the original condition before construction with the maximum possible effort. The restoration work comprises the removal of temporary construction works and removal of any fence installed, leveling of areas (wherever required), etc. The following procedures will be adopted for the restoration of the site:

- All temporary construction built for the Project will be removed.
- All the toxic and hazardous chemicals/materials will be completely removed the site and properly disposed of. Efforts will be made to completely remove the spills during the construction stage.
- All fencing and gates will be removed and pits will be backfilled.
- Necessary landscaping will be done as required to restore the site as per plantation plan.
- Whole of the site will be covered with the original soil and re-vegetation will be done, wherever required.
- Finally, after the completion of the restoration process, PEPSICO and SC will inspect the site and PEPSICO (PC) will give restoration clearance to the Contractor.

7.7 COMMUNICATION AND DOCUMENTATION

7.7.1 Monthly Environmental Report

A Monthly Environmental Compliance Report will be prepared by SC and summarizing the project activities and results of the activity and effects monitoring. The Environmental Compliance Report as a minimum will include the following:

- Summary of Project Activities
- Schedule of Activity Monitoring and Effects Monitoring team
- Summary of Activity and Effects Monitoring
- Statistical record of non-compliances observed during the month
- Record of mitigation measures taken or pending
- Record of social complaints
- Record of change managements
- Record of water consumption
- Record of fuel consumption
- Report should also include Risk Assessments and Mitigations
- Records of Accidents

The Environmental Compliance Monitoring will be prepared by the SC and communicated to the PEPSICO (PC) and Contractor within three (3) days of the month's end. A hard copy of the report will be retained at the SC site office. One copy will be submitted to EPA.

A contractor also required to do environmental monitoring of construction sites as described in activity monitoring and regular report to SC.

7.7.2 Social Complaints Register

SC site representative will maintain a register of complaints received from the local communities and measures taken to mitigate these concerns. SC will report the status of complaints in his monthly report to PEPSICO (PC), for information and further action.

7.7.3 Change Management Record

All changes to the EMP or the project will be handled through the Change Management Plan. SC site representative will maintain the change record register.

7.7.4 Non-Compliance Record Register

SC will maintain a non-compliance record register to record all the non-compliances observed during the construction activities. A copy of the

register will be appended with each Environmental Compliance Report.

7.7.5 Photographic Record

SC will maintain a photographic record of all the areas to be used during the project. As a minimum, the photographic record will include the photographs of residential areas, parking areas, access tracks, camp sites, and activity monitoring of different categories during and after the construction.

7.8 MATERIAL TRANSPORTATION PLAN (MTP)

Material Transportation Plan specifies the routes for material transportation for construction camp and batching plants. These routes have been established in such a way that there is minimum hindrance or disturbance to the local communities and flow of traffic.

7.8.1 Material Transportation HSE Arrangements

- Transportation timings should preferably be at night time to minimize the traffic conflicts.
- Filled trucks should be covered with tarpaulin to avoid fugitive dust and should be visually inspected for proper loading, sealing and decontamination.
- Bulk solid debris should be removed from the trucks with shovels and implements before leaving the site. Where necessary, trucks should be pressure washed before leaving the site. Pressure washing should only be used if other methods do not work.
- Vehicles should have passed an annual inspection and carry the fitness certificate.
- A summary chart representing the load and maps showing the proposed route to the disposal facility will be accompanied by each truckload. In the event of an accident involving the transported material, it will immediately be notified to SC, PEPSICO (PC) and Traffic Police.
- The truck drivers will be strictly instructed not to play music and do not use horns at night time to minimize disturbances.

7.8.2 Material Transportation Documentation

- A field logbook will be maintained for the documentation. This logbook will additionally serve to document observations, personnel onsite, equipment arrival, and departure times, a truck exit inspection checklist and other project information.
- Field logbooks will document where, when, how, and from whom any vital project information is obtained. Logbook entries will be completed and accurate enough to permit reconstruction of field

activities. Logbooks will be bound with consecutively numbered pages. Each page will be dated and the time of entry notice. All entries will be legible, written in black ink, and signed by the individual making the entries. Language will be factual, objective, and free of personal opinions or inappropriate terminology. If an error is made, corrections will be made by crossing a line through the error and entering the correct information. Correction will be dated and initialed. No entries will be obliterated or otherwise rendered unreadable.

- Entries in the field logbook will include at a minimum the following for each field work date:
- Site name and address
- Recorder's name
- Time of site arrival/entry on site and time of site departure
- A summary of any onsite meetings
- Description of transport vehicle(s)
- Quantity of excavated soils in truckloads (approximate percentage of full load)
- Names of waste transporters and proposed disposal facilities
- Quantity of import fill material in truckloads
- Levels of safety protection

The HSE officer of the Contractor will communicate HSE requirements and tailgate safety meetings to all drivers and on-site workers. He will provide information related to contaminant descriptions, and requirements for the containment and cleanup of an accidental release along with basic safety requirements, name of personnel incharge, contact information and a map and directions to the nearest hospital.

7.9 PROPOSE EMP REPORTING AND REVIEWING PROCEDURE

All the precautionary measures are suggested in EMP to minimize the pollution creating by construction and operation of project. Reporting and reviewing procedure is following:

- EIA Report & File Submission
- SIR Letter
- Review of EIA Report
- Issuance of Query letters by EPA
- Submission of satisfactory replies of Query Letter
- Public hearing
- Expert committee meeting and presentation

- DG EPA meeting and Presentation
- NOC issuance
- Proper Follow up of case from submission to Issuance of NOC

7.10 TRAINING PROGRAM

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 as depicted in Table 8.5.

7.10.1 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.

7.10.2 Roles and Responsibilities

SC 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. SC 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 SC to all the targeted staff.

7.10.3 Training Log

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

- Topic
- Date, time and location
- Trainer
- Participants

7.10.4 Training Material

SC will develop and prepare training material regarding the environmental awareness, EMP. Training for the operation period will be planned by PEPSICO (PC) in future. Separate training material will be prepared for each targeted staff and training program provided in Table 8.6 will be followed:

Table 7-4, Training Program

Staff	Trainers	Contents	Timing

Selected Management Staff of PEPSICO, and CC	SC	▪ Environmental Sensitivity of the Project Area ▪ Vegetation and community issues and related mitigation ▪ EMP communication, documentation and monitoring requirements	Prior to the start of any Project activity
All site personnel (including locally hired staff)	SC and CC	▪ Environmental Sensitivity of the Project Area ▪ Vegetation and community issues ▪ Communication of environmental problems to appropriate officers ▪ Waste disposal	Prior to the start of Project activities
Construction supervisors and survey crew	SC and CC	▪ Environmental Sensitivity of the Project Area ▪ Vegetation and community issues and related mitigation ▪ EMP communication, documentation and monitoring requirements ▪ Good construction practices ▪ Community relations	Before the start of construction activities, monthly during construction period
Drivers	SC	▪ Road safety ▪ Road restrictions ▪ Vehicle restrictions ▪ Waste disposal ▪ Defensive driving	Before start of construction
Mechanics and Vehicle Repair Personnel	SC and CC	▪ Environmental control of vehicles and equipment ▪ Waste disposal	Prior to the start of construction
Restoration and Cleaning- up Team	SC and CC	▪ Restoration requirements	Prior to the start of restoration activity

CHAPTER – 8: PUBLIC & STAKEHOLDERS CONSULTATION

SECTION - 8: PUBLIC & STAKEHOLDERS CONSULTATION

8.1 GENERAL

The consultation process with various stakeholders of Asian team 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.

8.2 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.

8.3 RESPONSIBLE AUTHORITY

The EPA shall be the responsible authority for reviewing, site inspection and provision of environmental approval for the project.

8.4 CONSULTATIVE ASPECT

The project involves stakeholders from various segments of the society, who have direct or indirect interest in the developmental activity. The Environment

and Social team have endeavored 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' DEPARTMENT AND AGENCIES

There are two types of stakeholders related to the project i.e. primary and secondary stakeholders. Primary stakeholders are those which are directly affected by the Project activities and secondary stakeholders are those which are affected indirectly.

The project has direct impacts on any individual; therefore, so primary stakeholders are identified. Secondary stakeholders are institutional stakeholders, which includes Project Proponent, local Government representatives, and Government officials of the relevant departments, NGO, general public, local residents, shop keepers, vendors, hospital owners/staff, teachers, pedestrians, and businessmen/traders of the city.

All those stakeholders have different types of stakes according to their involvements in various aspects of the Project. The consultant tried to contact all the stakeholders and shared their views and concerns and also interacted with the community-based organizations that can support the community.

8.6 MEETINGS WITH STAKEHOLDERS

A series of consultation was carried out with stakeholders and general public in nearby areas.

The purpose of this survey was to achieve the objectives of the consultation, highlight the main issues in the implementation of the project and finally propose mitigation measures. Open and close ended questionnaire was used to collect the views concerning the assessment survey. Scoping sessions and informal group discussions were also carried out with local residents and local government representatives regarding the project. The outcome of whole consultation process was very encouraging. The following issues were discussed during Informal Meetings with local representatives:

a. Brief Description of the Project

b. Current economic condition in the area

c. Suggestions for improvement in the current industrial system and all activities related to industry

d. Perceptions about the project

e. Perceived impacts of the project

The local poor people predominantly requested for unskilled and semi-skilled jobs during implementation of the Project. On the basis of the consultations so far, it appears that the Project will have no insurmountable environmental and social impact. The community generally supported the project.

8.7 SUMMARY OF ISSUES RAISED BY AFFECTED AND WIDER COMMUNITY

A summary of the key issues raised by stakeholders and how these are being addressed by Project Proponent is provided in Table below.

Table 8-1, Summary of issues and commitments by Proponent

Issue	Aspect/ Concern raised by Stakeholders	Project Proponent Commitments
Employment Opportunities	Expectations of employment are very high. Job opportunities are less for herders as they generally have less skills and training.	Employment is the main priority of the industry. Mostly locally skill and unskilled labor will be prioritized and also there will be job in executive level. Max. persons according to the requirement will be employed by the industry.
Training Opportunities	People are keen to consult with subject industry if the Project offers training and upgrading opportunities to enhance their trade or professional skills.	Development of the Training Strategy, including commitment of allocation of budget investment for training infrastructure, delivery and design. Installation of training facilities in for worker of the company and students will also be accommodate.
Health & safety	Health and safety issues may be arising due to industrial and constructional activity.	All possible safety measures will be taken during operation and construction phase. Akbari Chemical Industry will designated teams for HSE concern emergency equipment like fire extinguishers, spill kits, water hydrant system, effective use of PPEs and first aid are already well managed.
Local economy and business	Local service providers are keen to participate in providing services to provide	Proponent has main focus that they will all the material regarding construction to buy from the local market.

Issue	Aspect/ Concern raised by Stakeholders	Project Proponent Commitments
development	raw material and expect to receive in order to adjust their businesses to meet specific needs.	This will help the local and small business and to people who are keen interested to become suppliers.
Environmental Issues	Dust and noise impacts, particularly from the construction activities and in operation of mechanically unfit machines, are of concern to nearby residents. Environmental degradation during construction.	Implementation of controls under the Environmental Management Plans, including on and off-site dust and noise monitoring. A Participatory Environmental Monitoring Program will be launched to spread awareness.
Water quantity and quality	Water quality and quantity, and impacts from the wastewater disposal are all key concerns for nearby community.	Implementation of consultation in relation to water use, recycle and development of the Participatory Environmental Monitoring Program.

CHAPTER – 9: CONCLUSIONS AND RECOMMENDATIONS

SECTION - 9: CONCLUSIONS AND RECOMMENDATIONS

Based on the study conducted for Environmental Impact Assessment (EIA) for the subject project, the following conclusions are made:

9.1 CONCLUSION

The EIA study reveals that the project is economically viable and socially acceptable and the proponent will implement the project in the environment friendly manner. He will adopt all the necessary measures to control any impact if resulting from the project. He will provide the safe drinking water, safe working environment, proper training and first aid facility to all workers and staff. The project will generate additional jobs during construction and operation phases.

9.2 RECOMMENDATIONS

In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.

- Tree plantation inside and near the project area is recommended.
- The Management of will continue to assist the local communities as a corporate social responsibility (CSR).
- Any seepage and leakage will be controlled through proper mitigation measures.
- Sound proof room should be constructed for generator to control its sound (If required).
- Use of narcotics and smoking must be prohibited during working, filling or handling of fuel.
- PPEs must be provided to workers such as gloves, masks, ear muffs /etc.
- Proper solid waste management system must be adopted.
- Safety signs, safety board's etc. must be placed on site during various developmental stages.
- Machinery will never be left in running condition.
- First Aid measures, health & safety Equipment (PPEs) will be provided to workers.
- Fire Fighting station & system will be installed.
- The management of subject project will assist the local communities as a corporate social responsibility.
- Jobs and employment will be provided to the local area.

The present EIA report is enough to meet the administrative and legal framework. After the complete study of the project, it is concluded that

project will not have significant adverse impacts on the nearby community and on environment. Overall, the project will have positive impacts on the local population and country as a whole. Therefore, it is requested for the environmental approval for the subject project.

ANNEXURES

ANNEXURE - 1: GLOSSARY

Words	Dictionary
Mitigation	The action of lessening in severity or intensity
Legislation	law enacted by a legislative body
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
Demarcated	Separate clearly, as if by boundaries
Screening	The display of a motion picture
Substitutions	An event in which one thing is substituted for another
Regulations	An authoritative rule
Stakeholders	A person or organization with an interest or concern in something

ANNEXURE – 2: LIST OF ABBREVIATIONS

Words	Abbreviation
PEPA	Punjab Environmental Protection Act
NEQS	National Environmental Quality Standards
PEQS	Punjab Environmental Quality Standards
WAPDA	Water and Power Development Authority
EMP	Environmental Management plan
WWTF	Waste Water Treatment Facility
Pak-EPA	Pakistan Environmental Protection Agency
W.H.O	World Health Organization
PET	Punjab Environmental Tribunal
SWM	Solid Waste Management
CSR	Corporate Social Responsibility
MSWs	Municipal Solid Wastes
TMA	Town Municipal Authority
KVA	Kilo Volt Ampere
PPEs	Personal protective equipment's
PM	Particulate matter

ANNEXURE - 3: REFERENCES

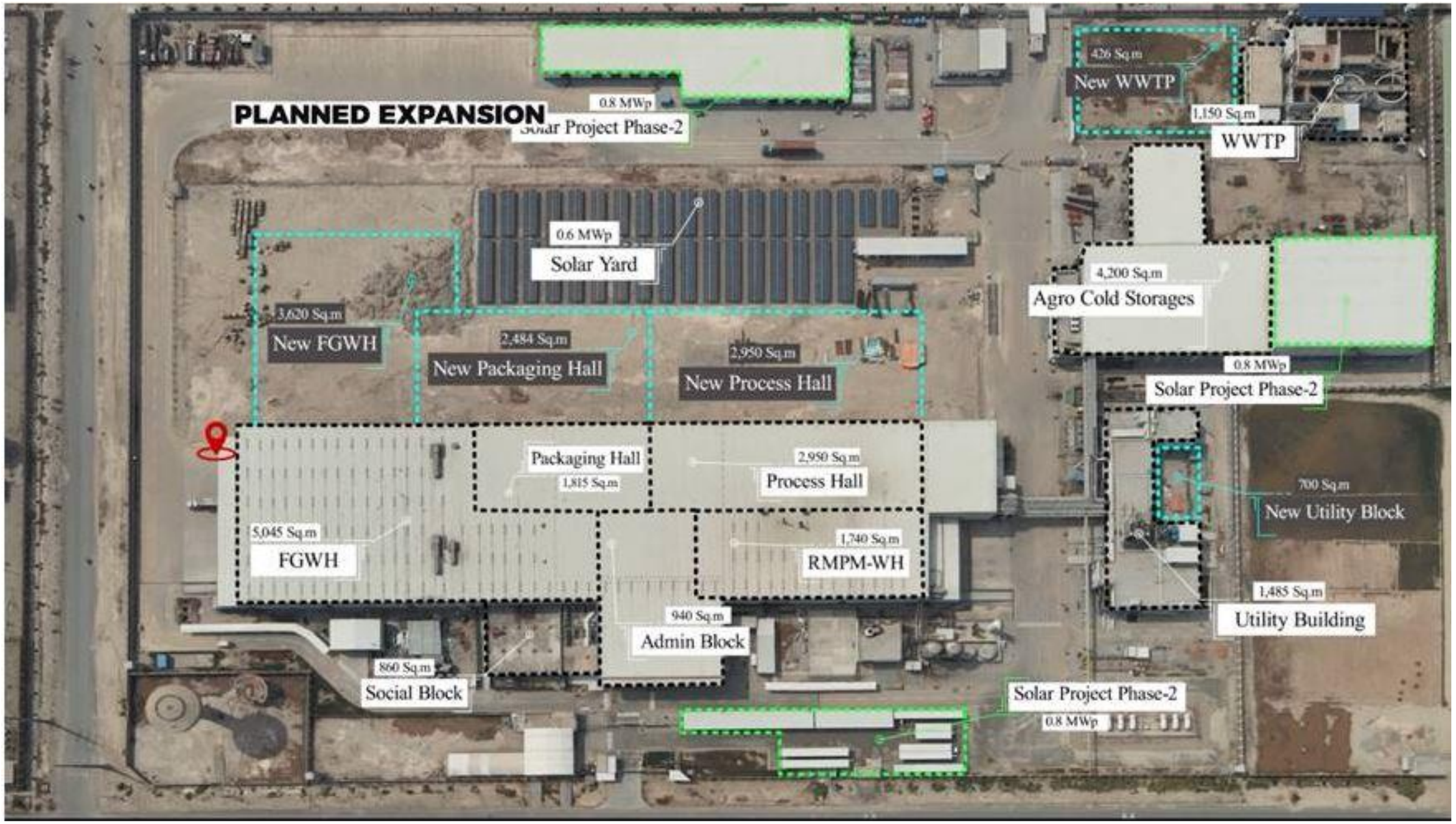
References

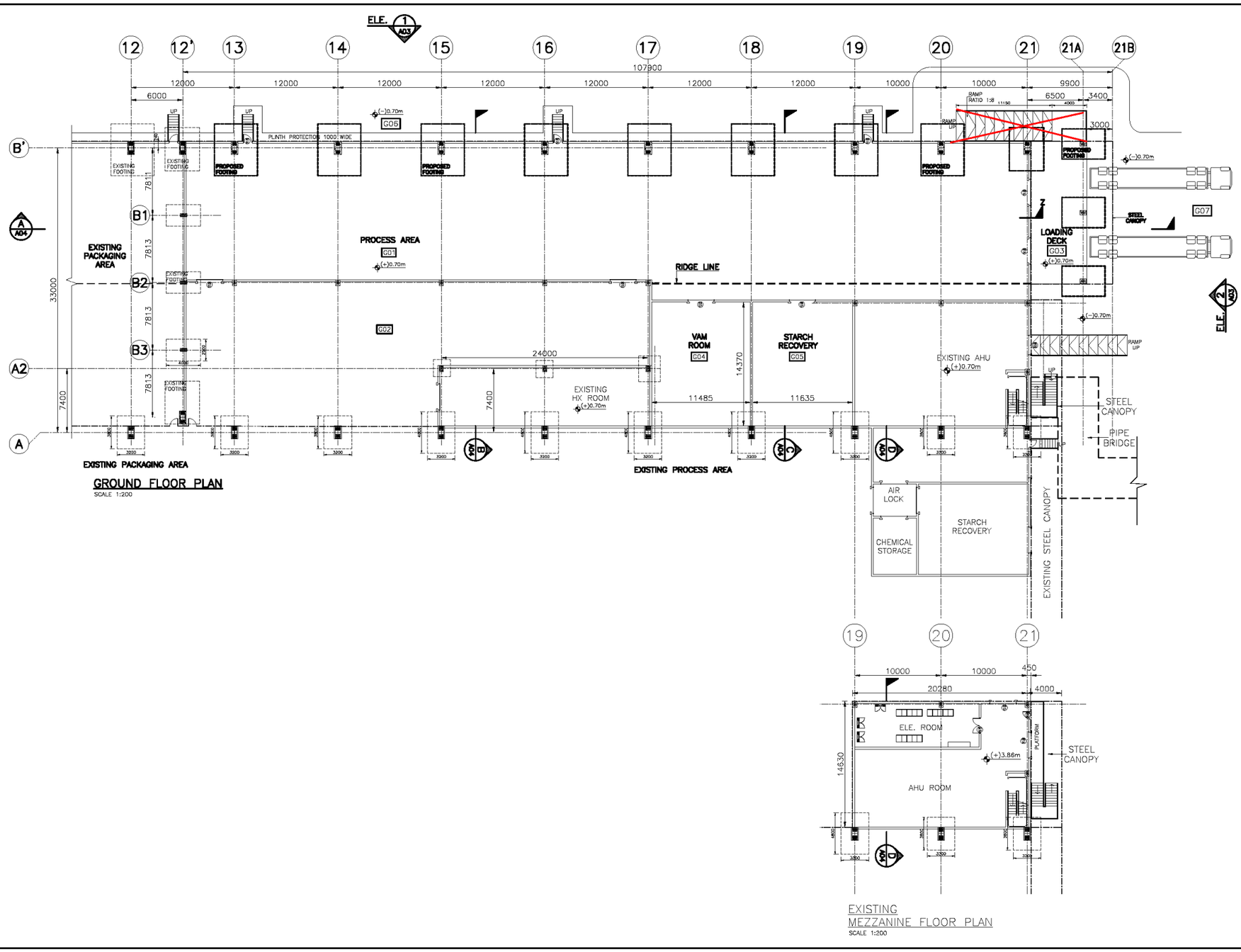
1. Rainfall and Other Data from Pakistan Metrological Department, Regional office Lahore.
2. Topographic Surveys
3. Punjab-EPA Guidelines
4. Schedule I of Punjab Environmental Protection Act 1997 (Amended 2012)
5. section 12 of Punjab Environmental Protection Act 1997 (Amended 2012)
6. Pakistan Environmental protection act 1997
7. Punjab Environmental Protection Act 1997 (Amended 2012)

ANNEXURE - 4: 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
3	Dilbar Hussain	Chief chemist	M.sc Chemistry university of the Punjab
4	Jahanzaib Malik	Deputy manager	M. Phil. Environmental Sciences University of Agriculture, Faisalabad
5	Abida Hussain	Environmental Engineer	BS Environmental Engineering University of Engineering and Technology (UET) Lahore
6	Huda Rizwan	Environmentalist	BS Environmental Sciences The University of Lahore
7	Maryam	Environmental Engineer	BS Environmental Engineering University of Engineering and Technology (UET) Lahore
8	Asma Butt	Sociologist	M.sc Sociology, University of the Punjab

ANNEXURE - 5: MAPS OF PROJECT SITE


PLANNED EXPANSION
0.8 MWp
Solar Project Phase-2
426 Sq.m
New WWTP
1,150 Sq.m
WWTP
0.6 MWp
Solar Yard
4,200 Sq.m
Agro Cold Storages
3,620 Sq.m
New FGWH
2,484 Sq.m
New Packaging Hall
2,950 Sq.m
New Process Hall
0.8 MWp
Solar Project Phase-2
Packaging Hall
1,815 Sq.m
2,950 Sq.m
Process Hall
700 Sq.m
New Utility Block
5,045 Sq.m
FGWH
1,740 Sq.m
RMPM-WH
1,485 Sq.m
Utility Building
940 Sq.m
Admin Block
860 Sq.m
Social Block
Solar Project Phase-2
0.8 MWp



DESIGN PARAMETERS

PACKAGING HALL

DESIGN LIVE LOAD ON FRAMES	60 KG/M²
DESIGN LIVE LOAD ON PURLINS	100 KG/M²
SHEETS / PURLINS	15 KG/M²
INSULATION	10 KG/M²
SPRINKLER	20 KG/M²
LIGHTING	10 KG/M²
DUCTS	10 KG/M²
PIPING	10 KG/M²
POWER DISTRIBUTION	10 KG/M²
BRACING TYPE	DIAGONAL BRACING ABOVE 8M HIGH PORTAL BRACING
DESIGN CODES	USC 97, AISC, AISI, AWS, PBC
COLLATERAL/HANGING LOADS	REFER TO MEP DRAWINGS BY END FOR THE LOCATION, SIZES, LEVELS AND LOADS
ROOF PANELS	METAL ROOF CLADDING BOLTLESS STANDING SEAM ROOF SYSTEM (OFF – WHITE COLOUR) WITH MOVEABLE ROOF CLIP, 0.58MM THICKNESS BMT, 900 HEIGHT 80MM W/ CROSS-FLUTES ON 150mm CENTERS TO REDUCE WIND NOISE AND IMPROVE\ WALK ABILITY, INSTALLATION BY FIELD FORMED 360-DEGREE PITTSBURGH DOUBLE LOCK SEAM. 100MM THICK 100KG/M3 DENSITY ROCKWOOL INSULATION
ROOF LOADS	LATEST AHJ'S AND WALKWAYS AS SHOWN ON ARCH DRG NO. 1504-M1-XX-XX-R-2102-A FOR DETAILS REFER TO MEP DRAWINGS
WALL PANELS	100MM THICK SANDWICH WALL PANEL WITH PIR INSULATION MADE PRODUCT OF KINGSPAN INSULATION AND MATERIALS ARE TO BE APPROVED BY FM FINISHES : PRE-PAINTED GALVANIZED STEEL SHEET 0.55 THICK THICKNESS (TCT), 20UM COATING OF 70% PVDF2 (1/M2) 200UM POLYESTER PAINT FINISH COATED BY GLOSS 300UM POLYESTER SURFACE PROTECTION : PEEL-OFF PE PROTECTIVE FILM (50 MICRON WITH UV PROTECTION PROPERTY) DENSITY : 40 KG/M3 PANEL JOINT : POWERFUL FASTENING BY Z-LOCK SYSTEM

STEEL CANOPY

DESIGN LIVE LOAD ON ROOF	60 KG/M²
LOAD SUSPENDED FROM CEILING	10 KG/M²
BRACINGS	PORTAL BRACINGS UP TO FULL HEIGHT
ROOF PANEL	0.5mm TK. SINGLE SKIN

GENERAL

WIND SPEED	160 Km/hr (3 SEC. GUST)
WIND EXPOSURE	C
SEISMIC ZONE	2A AS PER UBC
RAINFALL INTENSITY	200 mm/hr

SCHEDULE OF LEVELS

FINISH FLOOR LEVEL (F.F.L.)	(+)0.700m
INTERNAL ROAD LEVEL (I.R.L.)	(-)0.700m

REVISION	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
1	23-12-2021	ISSUED FOR REVIEW	SAW	AK	A2

PROJECT :
PEPSI-COLA INTERNATIONAL (PVT) LTD-PAKISTAN
EXTENSION OF INDUSTRIAL/PEB BUILDING AT GREEN FIELD SNACKS PLANT PEPSICO,MULTAN

DRAWN: SA/MA
CHECKED: AM/NA
APPROVED: AR/IAR
DATE: MAR-2020
SCALE: 1:200

TITLE :
EXTENSION OF PROCESS AREA
GROUND FLOOR PLAN

ISSUED FOR : REVIEW

PROGRESSIVE CONSULTANTS (PVT) LTD.
CONSULTING ENGINEERS PLANNERS & ARCHITECTS
23-D/1, GULBERG III, LAHORE – PAKISTAN

DWG : 567-KK-A-01
REV. 1 SIZE ARCH D

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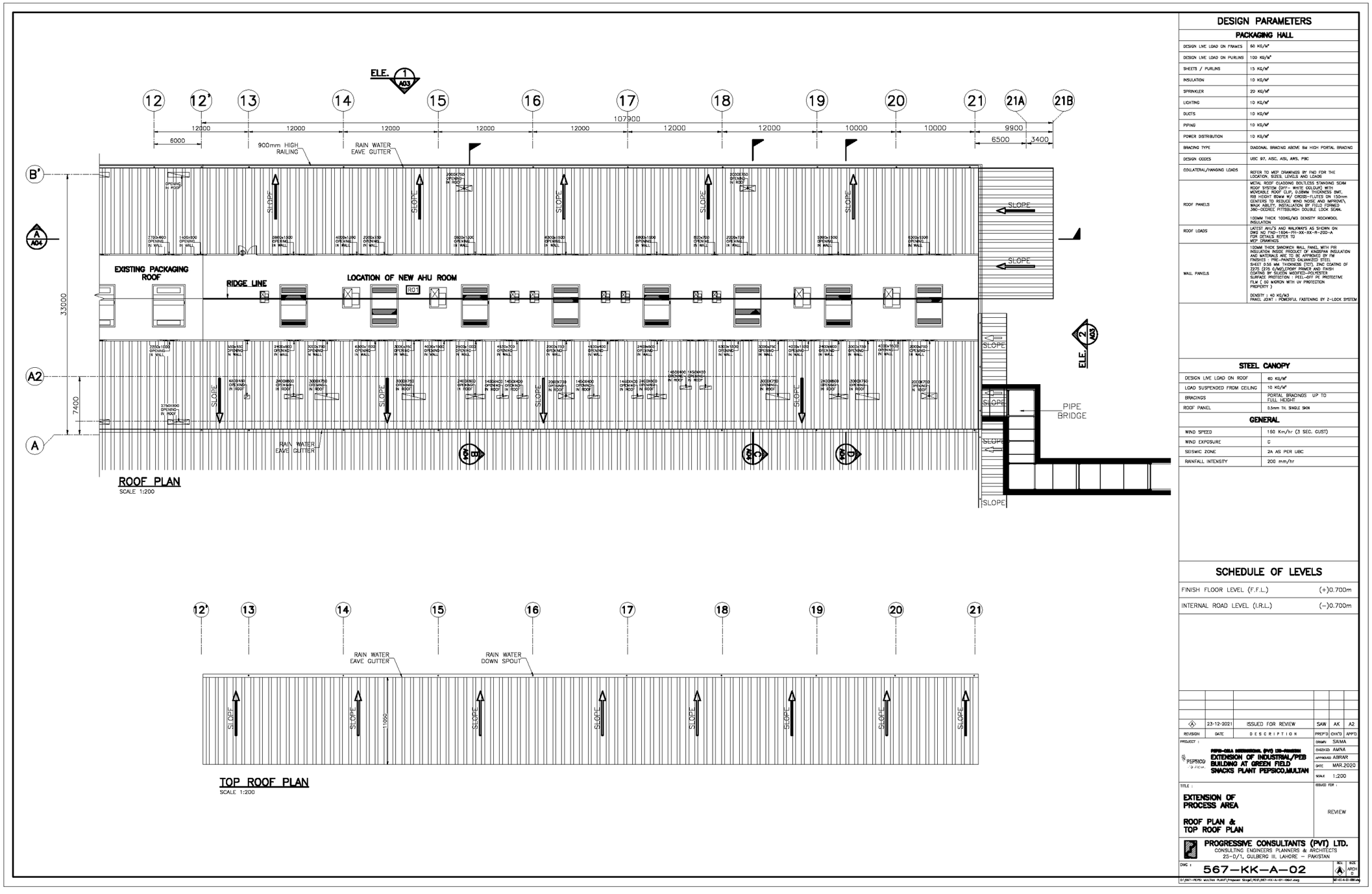


DESIGN PARAMETERS

PACKAGING HALL

DESIGN LIVE LOAD ON FRAMES	60 KG/M²
DESIGN LIVE LOAD ON PURLINS	100 KG/M²
SHEETS / PURLINS	15 KG/M²
INSULATION	10 KG/M²
SPRINKLER	20 KG/M²
LIGHTING	10 KG/M²
DUCTS	10 KG/M²
PIPING	10 KG/M²
POWER DISTRIBUTION	10 KG/M²
BRACING TYPE	DIAGONAL BRACING ABOVE 8M HIGH PORTAL BRACING
DESIGN CODES	UBC 97, AISC, AISI, AWS, PBC
COLLATERAL/HANGING LOADS	REFER TO MEP DRAWINGS BY FND FOR THE LOCATION, SIZES, LEVELS AND LOADS
ROOF PANELS	METAL ROOF CLADDING BOLTLESS STANDING SEAM ROOF SYSTEM (OFF-WHITE COLOUR) WITH MOVEABLE ROOF CLIP, 0.58MM THICKNESS (MT), 900 HEIGHT 80MM W/ CROSS-FLUTES ON 150mm CENTERS TO REDUCE WIND NOISE AND IMPROVE\ WALK ABILITY, INSTALLATION BY FIELD FORMED 360-DEGREE PITTSBURGH DOUBLE LOCK SEAM. 100MM THICK 100KG/M3 DENSITY ROCKWOOL INSULATION
ROOF LOADS	LATEST AHJ'S AND MAUNFAWS AS SHOWN ON DRG NO. A/KK-1104-111-XX-XX-R-2101-A FOR DETAILS REFER TO MEP DRAWINGS
WALL PANELS	100MM THICK SANDWICH WALL PANEL WITH PIR INSULATION INSIDE PRODUCT OF KINGSPAN INSULATION AND MATERIALS ARE TO BE APPROVED BY FM FINISHES : PRE-PAINTED GALVANIZED STEEL SHEET 0.55 THK THICK (TCT) 25UM COATING OF POLYESTER O/M(TOP SIDE) AND FINISH COATED BY GLOSSY POLYURETHANE WITH SURFACE PROTECTION : PEEL-OFF PE PROTECTIVE FILM (50 MICRON WITH UV PROTECTION PROPERTY) DENSITY : 40 KG/M3 PANEL JOINT : POWERFUL FASTENING BY Z-LOCK SYSTEM

STEEL CANOPY

DESIGN LIVE LOAD ON ROOF	60 KG/M²
LOAD SUSPENDED FROM CEILING	10 KG/M²
BRACINGS	PORTAL BRACINGS UP TO FULL HEIGHT
ROOF PANEL	0.5mm TK. SINGLE SKIN

GENERAL

WIND SPEED	150 Km/hr (3 SEC. GUST)
WIND EXPOSURE	C
SEISMIC ZONE	2A AS PER UBC
RAINFALL INTENSITY	200 mm/hr

SCHEDULE OF LEVELS

FINISH FLOOR LEVEL (F.F.L.)	(+)0.700m
INTERNAL ROAD LEVEL (I.R.L.)	(–)0.700m

REVISION	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
A	23-12-2021	ISSUED FOR REVIEW	SAW	AK	A2

PROJECT : PEPSI-GOLA BEVERAGES (PVT) LTD-MULTAN
EXTENSION OF INDUSTRIAL/PEB BUILDING AT GREEN FIELD SNACKS PLANT PEPSICO,MULTAN

DRAWN : SA/MA
CHECKED : AM/NA
APPROVED : A.IRFAN
DATE : MAR-2020
SCALE : 1:200

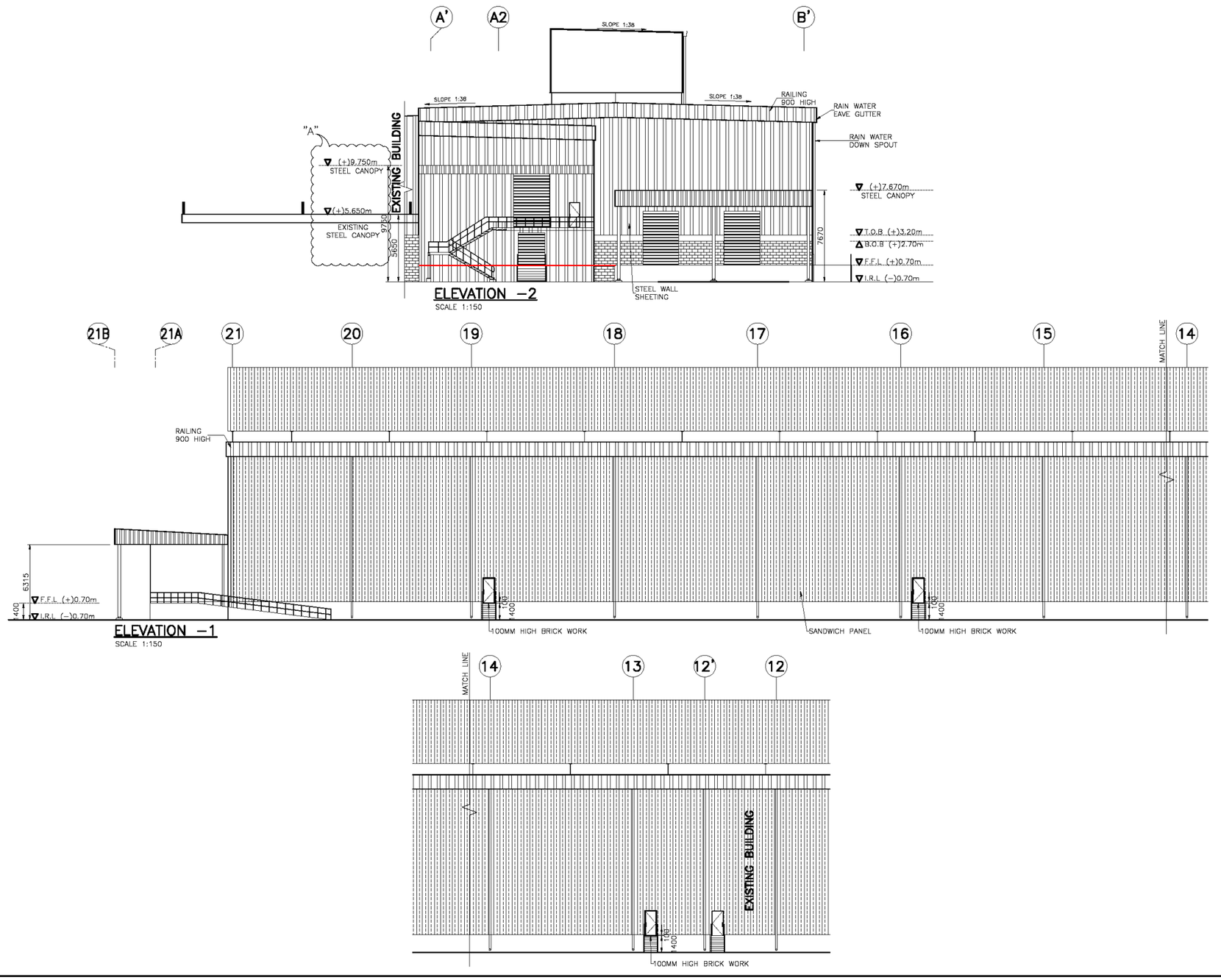
TITLE :
EXTENSION OF PROCESS AREA

ROOF PLAN & TOP ROOF PLAN

ISSUED FOR : REVIEW

PROGRESSIVE CONSULTANTS (PVT) LTD.
CONSULTING ENGINEERS PLANNERS & ARCHITECTS
25-D/1, GULBERG III, LAHORE – PAKISTAN

DWG : **567-KK-A-02**
REV. A | SIZE ARCH D



NOTE-A

PCI TO VERIFY LEVELS AT SITE

SCHEDULE OF LEVELS

FINISH FLOOR LEVEL (F.F.L.)	(+)0.700m
INTERNAL ROAD LEVEL (I.R.L.)	(−)0.700m

REVISION	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
A	23-12-2021	ISSUED FOR REVIEW	SAW	AK	A2

PROJECT :
PEPSICO INTERNATIONAL (PVT) LTD.-PAKISTAN
EXTENSION OF INDUSTRIAL/PEB BUILDING AT GREEN FIELD SNACKS PLANT PEPSICO,MULTAN

DRAWN: SAIMA
CHECKED: AMNA
APPROVED: ABRAR
DATE: MAR-2020
SCALE: 1:150

TITLE :
EXTENSION OF PROCESS AREA

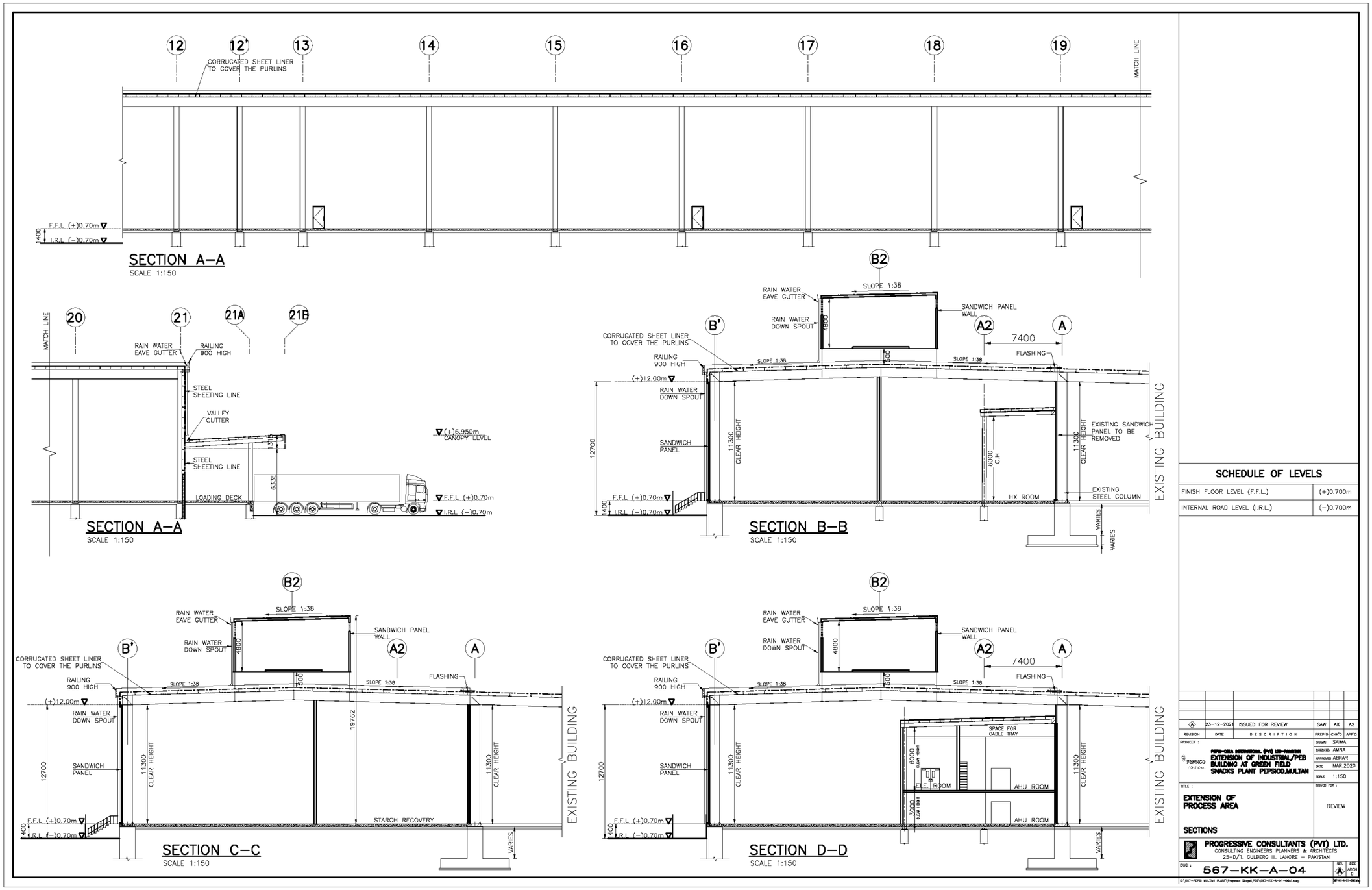
ELEVATIONS

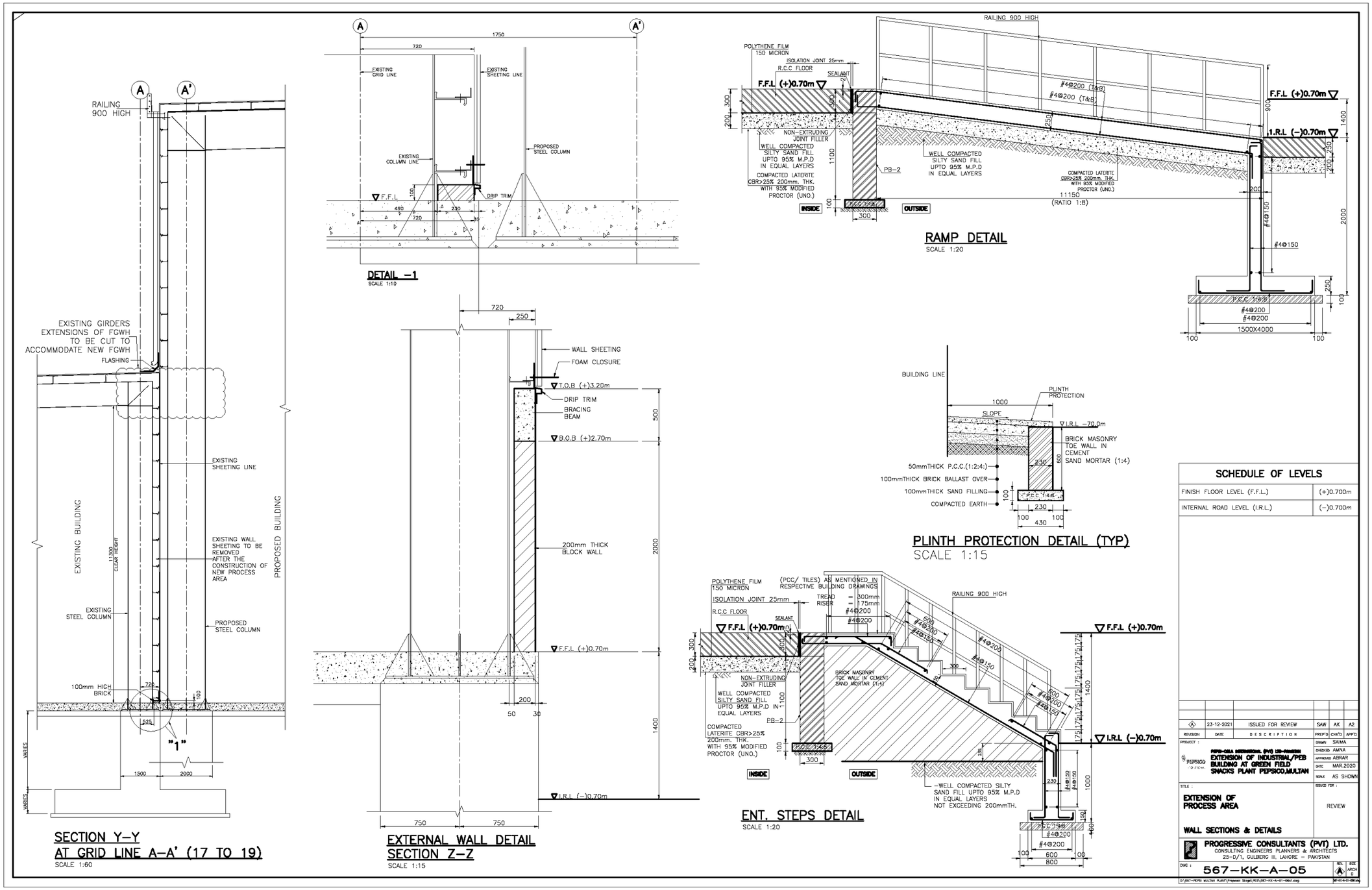
ISSUED FOR : REVIEW

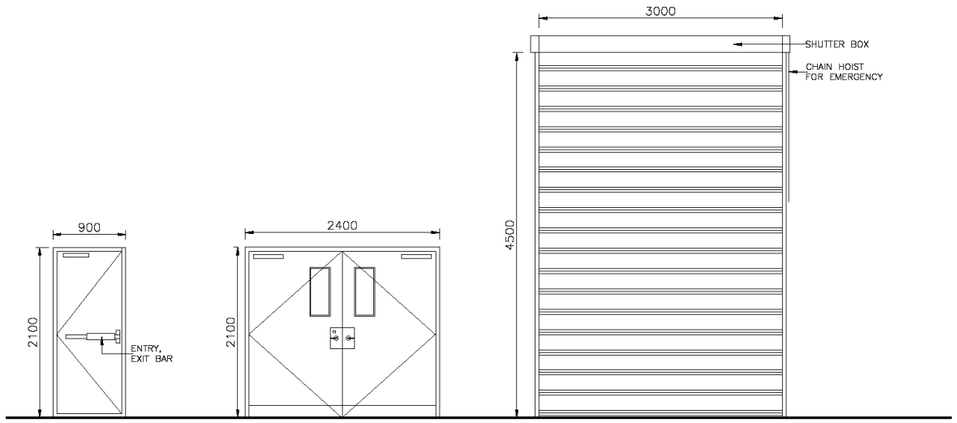
PROGRESSIVE CONSULTANTS (PVT) LTD.
CONSULTING ENGINEERS PLANNERS & ARCHITECTS
25-D/1, GULBERG III, LAHORE – PAKISTAN

DWG : 567-KK-A-03
REV. A
SCH. ARCH D

D:\567-PEPSI MULTAN PLANT\Proposed Stage\PCP\567-KK-A-01-0601.dwg


12
12'
13
14
15
16
17
18
19
MATCH LINE
CORRUGATED SHEET LINER TO COVER THE PURLINS
F.F.L. (+)0.70m
I.R.L. (−)0.70m
400
SECTION A–A
SCALE 1:150
20
21
21A
21B
RAIN WATER EAVE GUTTER
RAILING 900 HIGH
STEEL SHEETING LINE
VALLEY GUTTER
(+)6.950m CANOPY LEVEL
STEEL SHEETING LINE
LOADING DECK
6335
SECTION A–A
SCALE 1:150
B2
SLOPE 1:38
RAIN WATER EAVE GUTTER
RAIN WATER DOWN SPOUT
4800
SANDWICH PANEL WALL
B'
A2
A
7400
CORRUGATED SHEET LINER TO COVER THE PURLINS
RAILING 900 HIGH
500
SLOPE 1:38
FLASHING
(+)12.00m
RAIN WATER DOWN SPOUT
12700
SANDWICH PANEL
11300 CLEAR HEIGHT
8000 C.H
EXISTING SANDWICH PANEL TO BE REMOVED
EXISTING STEEL COLUMN
HX ROOM
EXISTING BUILDING
F.F.L. (+)0.70m
I.R.L. (−)0.70m
400
VARIES
SECTION B–B
SCALE 1:150
B2
SLOPE 1:38
RAIN WATER EAVE GUTTER
RAIN WATER DOWN SPOUT
4800
SANDWICH PANEL WALL
B'
A2
A
CORRUGATED SHEET LINER TO COVER THE PURLINS
RAILING 900 HIGH
500
SLOPE 1:38
FLASHING
(+)12.00m
RAIN WATER DOWN SPOUT
12700
SANDWICH PANEL
11300 CLEAR HEIGHT
19762
STARCH RECOVERY
EXISTING BUILDING
F.F.L. (+)0.70m
I.R.L. (−)0.70m
400
VARIES
SECTION C–C
SCALE 1:150
B2
SLOPE 1:38
RAIN WATER EAVE GUTTER
RAIN WATER DOWN SPOUT
4800
SANDWICH PANEL WALL
B'
A2
A
7400
CORRUGATED SHEET LINER TO COVER THE PURLINS
RAILING 900 HIGH
500
SLOPE 1:38
FLASHING
(+)12.00m
RAIN WATER DOWN SPOUT
12700
SANDWICH PANEL
11300 CLEAR HEIGHT
SPACE FOR CABLE TRAY
6000 CLEAR HEIGHT
E.L.E. ROOM
AHU ROOM
3000 CLEAR HEIGHT
AHU ROOM
EXISTING BUILDING
F.F.L. (+)0.70m
I.R.L. (−)0.70m
400
VARIES
SECTION D–D
SCALE 1:150
SCHEDULE OF LEVELS
FINISH FLOOR LEVEL (F.F.L.) (+)0.700m
INTERNAL ROAD LEVEL (I.R.L.) (−)0.700m
23-12-2021 ISSUED FOR REVIEW SAW AK A2
REVISION DATE DESCRIPTION PREP'D CH'K'D APP'D
PROJECT :
PEPSICO-GEMS INTERNATIONAL (PVT) LTD.-PAKISTAN
EXTENSION OF INDUSTRIAL/PEB BUILDING AT GREEN FIELD SNACKS PLANT PEPSICO,MULTAN
DRAWN SAIMA
CHECKED AMNA
APPROVED ABRAR
DATE MAR.2020
SCALE 1:150
TITLE :
EXTENSION OF PROCESS AREA
SECTIONS
ISSUED FOR :
REVIEW
PROGRESSIVE CONSULTANTS (PVT) LTD.
CONSULTING ENGINEERS PLANNERS & ARCHITECTS
25-D/1, GULBERG III, LAHORE – PAKISTAN
DWG :
567–KK–A–04
REV. 0
SIZE ARCH D


SECTION Y–Y
AT GRID LINE A–A' (17 TO 19)
SCALE 1:60
DETAIL –1
SCALE 1:10
EXTERNAL WALL DETAIL
SECTION Z–Z
SCALE 1:15
RAMP DETAIL
SCALE 1:20
PLINTH PROTECTION DETAIL (TYP)
SCALE 1:15
ENT. STEPS DETAIL
SCALE 1:20
SCHEDULE OF LEVELS
FINISH FLOOR LEVEL (F.F.L.) (+)0.700m
INTERNAL ROAD LEVEL (I.R.L.) (–)0.700m
EXTENSION OF PROCESS AREA
WALL SECTIONS & DETAILS
PROGRESSIVE CONSULTANTS (PVT) LTD.
567–KK–A–05



SD1
SINGLE LEAF STEEL DOOR, WITH ROCKWOOL INSULATION, STAINLESS STEEL HINGES & ISOLATED FRAME, DOOR STOPPER, DOOR CLOSER AND DOOR LOCK(SINGLE SWING ACTION) ENAMEL PAINT FINISH.

SD2
DOUBLE LEAF STEEL DOOR, WITH ROCKWOOL INSULATION VISION PANEL IN LAMINATED GLASS (6MM), STAINLESS STEEL HINGES & ISOLATED FRAME, DOOR STOPPER, DOOR CLOSER AND DOOR LOCK(SINGLE SWING ACTION) ENAMEL PAINT FINISH.

RSD1
ROLLER SHUTTER DOOR, 1.6MM THICK GALVANIZED STEEL SHUTTER AND STEEL FRAME WITH ENAMEL PAINT FINISH, INCLUDING LOCKSET, MOTORIZED CONTROL AND CHAIN HOIST FOR EMERGENCY

SCHEDULE OF DOORS

TYPE	SIZE	SILL	DESCRIPTION	QUANTITY
SD1	2100x2100	±00	STEEL DOOR (DOUBLE LEAF)	03
SD2	2400x2100	±00	STEEL DOOR (DOUBLE LEAF)	01
RSD 1	3000x4500	±00	ROLLER SHUTTER DOOR	08

SCHEDULE OF INTERNAL FINISHES

AREA	ROOM NOS	ROOM NAMES	FLOOR: F2- FLOOR HARDENER FINISH NON METALLIC WITH DUST SEAL COATING FINISH	F3- 6 MM THICK POLYURETHANE FLOOR FINISH	F4- 600x600 HOMOGENEOUS FLOOR TILE	F5- 5MM THK EPOXY FLOOR FINISH	F6- 600x600 HOMOGENEOUS FLOOR TILE (NON SLIP)	F9- 300x300 CONCRETE PAVING BLOCK	F11- ASPHALTIC PAVEMENT	F12- EXPOSED CONCRETE WITH ROUGH TROWEL FINISH	SKIRTING: HARDENER FLOOR SKIRTING 150 MM HIGH	COVE POLYURETHANE SKIRTING 100 MM HIGH	ALUMINUM POWDER COAT 100 MM HIGH	COVE EPOXY FLOOR SKIRTING 100 MM HIGH	DADO: 300x600 HOMOGENEOUS WALL TILE FROM FLOOR LEVEL UP TO UNDERSIDE OF CEILING ROOF	WALLS/COLUMNS: 100 MM THK SANDWICH WALL PANEL WITH PIR INSULATION INSIDE PRODUCT OF KINGSPAN INSULATION OR EQUIVALENT (IF APPROVED)	EPOXY PAINT FINISH (MASTERTOP 1705 THICK 300 MICRON) PRODUCT OF BASF (LOW VOC)	METAL WALL CLADDING LYSAGHT PANELRIB	EMULSION PAINT FINISH (LOW VOC) PRODUCT OF ICI DULUX WILLIAMS OR EQUIVALENT
GROUND FLOOR	G01	PROCESS AREA								●						●			●
	G02	PROCESS AREA		●								●				●	●	●	
	G03	LOADING DECK								●									
	G04	VAM ROOM		●								●				●	●	●	
	G05	STARCH RECOVERY		●								●				●	●	●	
	G06	WALKWAY						●											
	G07	ROAD							●	●									
ROOF	R01	AHU ROOM					●								●			●	

REVISION	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
1	23-12-2021	ISSUED FOR REVIEW	SAW	AK	A2

PROJECT :
PEPSICO-GEMS INTERNATIONAL (PVT) LTD.-PAKISTAN
EXTENSION OF INDUSTRIAL/PEB BUILDING AT GREEN FIELD SNACKS PLANT PEPSICO,MULTAN

DRAWN: SAIMA
CHECKED: AMNA
APPROVED: ABRAR
DATE: MAR.2020
SCALE: AS SHOWN

TITLE :
EXTENSION OF PROCESS AREA

DOORS ELEVATION, SCHEDULE & FINISHES SCHEDULE

ISSUED FOR :
REVIEW

PROGRESSIVE CONSULTANTS (PVT) LTD.
CONSULTING ENGINEERS PLANNERS & ARCHITECTS
25-D/1, GULBERG III, LAHORE – PAKISTAN

DWG # 567–KK–A–06

REV: 1 SIZE: ARCH D

D:\567-PEPSI MULTAN PLANT\Proposed Stage\PEB\567-KK-A-01-060.dwg 567-KK-A-01-060.dwg

ANNEXURE – 6: LAND OWNERSHIP

A246828

0085-1500186 **E-STAMP** PB-LHR-61DF15B648764539

Non-Judicial **Rs 1,200/-**

Description	: AGREEMENT OR MEMORANDUM OF AN AGREEMENT - 5(cc)
First Party	: Punjab Industrial Estates [35202-4834525-7]
Second Party	: Pepsi Cola International (Pvt) [37405-0446384-9]
Agent	: Shan Munawar [35201-7898531-7]
Stamp Duty Paid by	: Pepsi Cola International (Pvt) [37405-0446384-9]
Issue Date	: 05-Jun-2017, 10:32:55 AM
Paid Through Challan	: 2017C876D22BD6BA
Amount in Words	: One Thousand Two Hundred Rupees Only

Please Write Below This Line

AGREEMENT TO SELL

This Agreement to Sell (the "**Agreement**") is made at Lahore on this 30th day of June 2017.

BETWEEN

PUNJAB INDUSTRIAL ESTATES DEVELOPMENT AND MANAGEMENT COMPANY (PIEDMC) through Company Secretary, hereinafter referred to as the **VENDOR** (which expression shall unless excluded by or repugnant to the context be deemed to include its successors, executors, administrators, representatives and assignees) of the one part;

AND

M/s Pepsi Cola International (Pvt.) Ltd. through its **SR. Project Manager Mr. Ameer Taimur Zaid S/o Zaid Usman** holding CNIC No. **37405-0446384-9** hereinafter referred to as the **VENDEE** (which expression shall unless excluded or repugnant to the context be deemed to include his/her/its/their heirs, successors, executors, administrators, representatives and assignees) of the other part.

WHEREAS the Vendor represents that it is the lawful owner in possession of and agrees to sell and the Vendee agrees to buy **Plot No. 149-151, 156-A, 159-162 measuring 23.389 Acres** situated at Multan Industrial Estate Phase-II, Multan more particularly described in the Schedule annexed herewith (hereinafter referred to as the **PLOT**) free from all encumbrances, attachments, charges and other claims subject to the terms and conditions hereunder contained. AND WHEREAS the Vendee has already paid to the Vendor along with the Application Form dated **December 21, 2015** sum of **Rs. 20,000,000/- (Rupees Two Crore Only)** as paid by way of earnest money and the balance due amount of the purchase money amounting to **Rs. 308,846,000/- (Rupees Thirty crore, eighty eight lac and forty six thousand only)** has been paid.

E-STAMP
CONTINUATION SHEET

2. That Vendor shall maintain the Multan Industrial Estate Phase-II, Multan in the best possible way for maintaining roads, sewerage, construction plan etc. for which the Vendor may impose and/or collect charges/duties on annual/biannual/monthly basis on the Vendee pursuant to clause II(6).

3. That the Vendor shall have right subject to Seven (07) days prior notice, to pull down/demolish or seal the building during and/or after completion of construction, if the same is not in accordance with the building plan or bear any other illegality (ties).

4. Upon full payment of the amount noted above, and completion of the project in accordance with the terms herein stated and after the Vendee obtains Certificate of Completion from the Vendor, the Vendor shall enter into a Sale/Transfer Deed with respect to the sale/transfer of the Plot in favor of the Vendee.

OBLIGATIONS OF THE VENDEE:

II. The Vendee hereby undertakes that:

1. The construction on the Plot shall commence within **3** months of taking Physical Possession of the Plot and the project shall be completed within the next **18** months. This Agreement to Sell is valid only for the said period of **21** months from the date of its execution. Failure to commence construction or completion of the project within above said time lines shall result in, in addition to any other penalty for which the Vendee may be liable, the cancellation of the Plot(s) against a cancellation charge of 5 % of the amount paid by the Vendee.

2. The construction of the building shall be strictly in accordance with the following specifications -
   a) PIEDMC's Building Regulations.
   b) Pakistan Building Code
   c) Pakistan Standards Institute's specifications
   d) Punjab Provincial Building Specifications

3. The Vendee shall strictly abide by the Building Bye-Laws, and those enacted by the Vendor from time to time. In case of violation of Building Bye-Laws contained herein, the Vendor shall have right to impose penalty/charge keeping in view, the nature of violation. The Vendor shall also have a right to direct Vendee to rectify any such violation within a specified time period.

4. The Vendee shall follow Pakistan Environmental Protection Act 1997/National Environment Quality Standards for preservation and conservation of environment in the Industrial Estate and disposal of waste/effluents. If the Vendee is found, violating the said laws during or after construction of building, the Vendor shall have right to impose fine/penalty as applicable and direct the Vendee to rectify such violation within a specified period. In case Vendee fails to rectify the violation, the Vendor may order any appropriate measure including but not limited to sealing of premises to stop any such violation.

5. The Vendee shall use the Plot solely for the purpose(s) specified in the Application Form. In order to change nature of business, the Vendee shall obtain prior "No Objection Certificate" (NOC) from the Vendor, which would solely be in the discretion of the Vendor.

6. The Vendee shall pay Annual Recurring Expenses (ARE)/Monthly Recurring Expenses (MRE) to the Vendor for which the Vendor shall issue receipt to the Vendee. The AREs/MREs shall be paid by the Vendee at the rates and in the mode and manner as may be stipulated by the Vendor from time to time for maintenance of Industrial Estate.

7. The Vendee shall have right to install sign board measuring 4 fts 18 fts (in height and width) as approved by the Vendor. In case, the Vendee intends to install sign board of different [illegible]

E-STAMP
CONTINUATION SHEET

prior permission of Vendee shall be obtained in writing and Vendor may impose charges for any such sign board(s).

8. The Vendee shall regularly and promptly pay all utility bills, Government charges, cess, Federal and/or Provincial taxes or any other tax(s) imposed by the Government from time to time.

9. The Vendee shall not change its management/ownership structure or otherwise transfer its management/ownership to any other party without prior written permission of the Vendor failing which the Plot(s) shall be liable for cancellation against a cancellation charge of 5 % of the amount paid by the Vendee.

III. All clauses contained herein shall be applicable *ipso facto* to any other person(s) acting under the Vendee.

IV. In the event of dispute, difference or contentions regarding meaning or interpretation of any clause/expression contained herein, the matter shall be referred to Arbitrators, one appointed by each party who shall decide matter in accordance with provisions of the Arbitration Act, 1940 (Act X of 1940). In case of difference of opinion on the Award between the Arbitrators, reference shall be made to Sole Umpire. The Arbitrators and Umpire referred to under this clause shall be Advocate(s) Supreme Court or retired Judges of the High Court and Supreme Court. The Award given by the Arbitrators or Umpire shall be final and binding upon the Parties and persons acting under them.

V. The Parties hereby agree that any notice or communication shall be in writing and deemed to be delivered if given by hand or sent by recorded delivery or by registered post or facsimile transmission on the address(es) mentioned in the recitals or to such address(es) as any party may notify to the other in writing.

VI. In case of any dispute between parties due to which resort to the Court of Law becomes inevitable, the Courts at Lahore shall have exclusive jurisdiction to adjudicate upon.

Note: Layout of land measuring 23.389 Acres enclosed as Annex "A" and Pepsi Cola Code of conduct is enclosed as Annex "B" for Compliance of vendor and Vendee.

IN WITNESS WHEREOF, the Parties have set and subscribed their respective hands on this 28th day of ~~June~~ **----in the year 2017** at Lahore in presence of witnesses.

VENDOR

Punjab Industrial Estates Development and Management Co. (Govt. of Punjab) ★ PIE ★ Company Secretary

Pepsi Cola International (Pvt.) Ltd. ★ VENDEE LAHORE ★

WITNESS

SIGNATURE

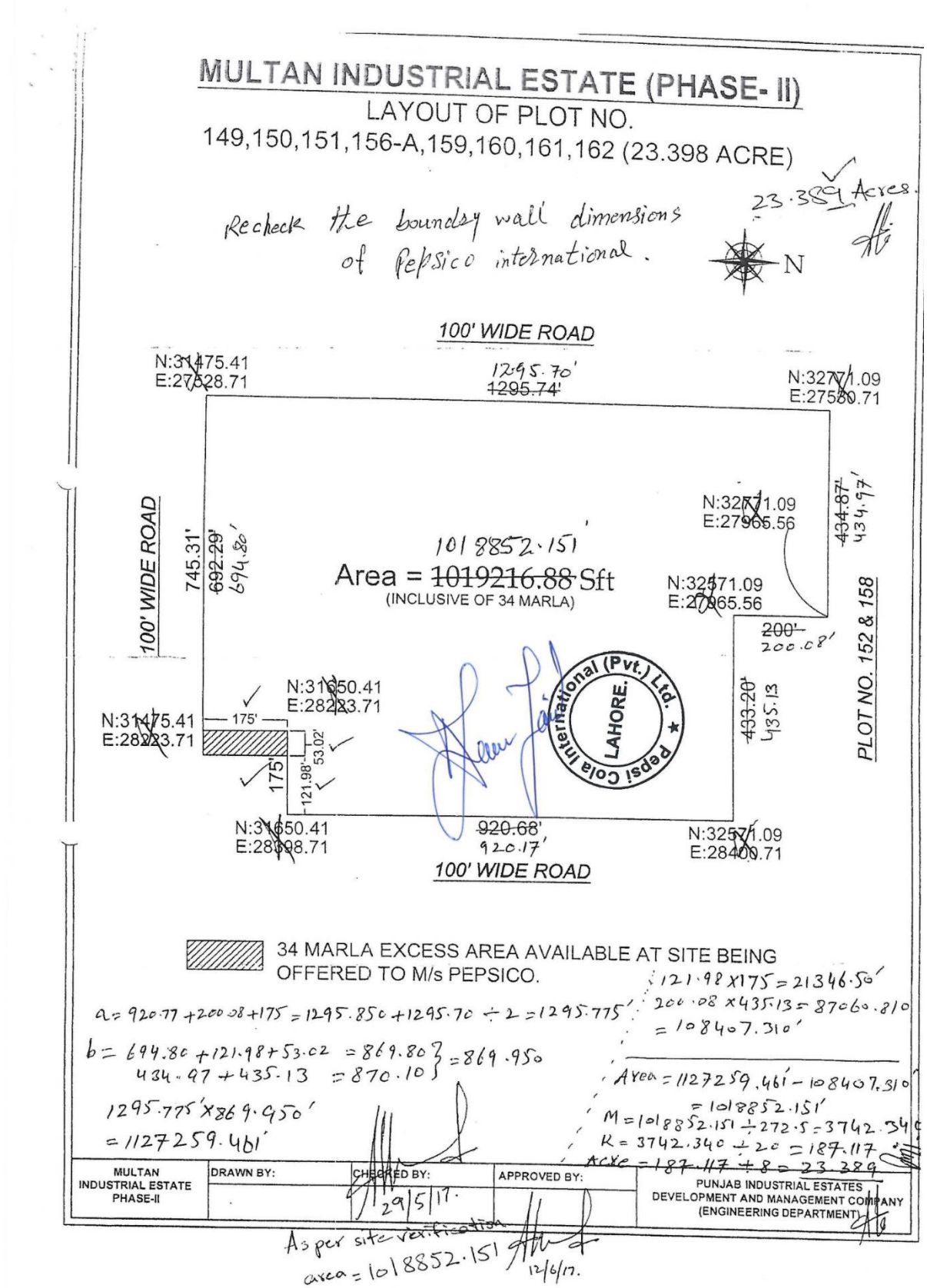
WITNESS

SIGNATURE

NAME Ghulam Awais Shah
CNIC# 36502-1393727-3

NAME ALYA RIAZ.
CNIC# 54400-0345270-0

Note:-
This Agreement to Sell is executed in presence of the undersigned.


MULTAN INDUSTRIAL ESTATE (PHASE- II)
LAYOUT OF PLOT NO.
149,150,151,156-A,159,160,161,162 (23.398 ACRE)
Recheck the boundry wall dimensions of Pepsico international.
23.389 Acres.
N
100' WIDE ROAD
N:31475.41
E:27528.71
1295.70'
1295.74'
N:32771.09
E:27580.71
100' WIDE ROAD
745.31'
692.29'
694.80'
N:32771.09
E:27965.56
434.87'
434.97'
1018852.151
Area = 1019216.88 Sft
(INCLUSIVE OF 34 MARLA)
N:32571.09
E:27965.56
200'
200.08'
433.20'
435.13
PLOT NO. 152 & 158
N:31650.41
E:28223.71
N:31475.41
E:28223.71
175'
53.02'
175'
121.98'
Pepsi Cola International (Pvt.) Ltd. LAHORE.
N:31650.41
E:28398.71
920.68'
920.17'
N:32571.09
E:28409.71
100' WIDE ROAD
34 MARLA EXCESS AREA AVAILABLE AT SITE BEING OFFERED TO M/s PEPSICO.
a = 920.77 + 200.08 + 175 = 1295.850 + 1295.70 ÷ 2 = 1295.775'
b = 694.80 + 121.98 + 53.02 = 869.80 } = 869.950
434.97 + 435.13 = 870.10 }
1295.775' x 869.950'
= 1127259.461'
121.98 x 175 = 21346.50'
200.08 x 435.13 = 87060.810
= 108407.310'
Area = 1127259.461' - 108407.310'
= 1018852.151'
M = 1018852.151 ÷ 272.5 = 3742.34
R = 3742.340 ÷ 20 = 187.117
Acre = 187.117 ÷ 8 = 23.389
MULTAN INDUSTRIAL ESTATE PHASE-II
DRAWN BY:
CHECKED BY:
29/5/17.
APPROVED BY:
PUNJAB INDUSTRIAL ESTATES DEVELOPMENT AND MANAGEMENT COMPANY (ENGINEERING DEPARTMENT)
As per site verification
area = 1018852.151
12/6/17.

PEPSICO

pepsi. Lay's Tropicana Quaker Gatorade

ANNEX B

The Code

Purpose and Scope

At PepsiCo, we believe acting ethically and responsibly is not only the right thing to do, but also the right thing to do for our business. PepsiCo has developed a Global Supplier Code of Conduct ("**Supplier Code**") to clarify our global expectations in the areas of business integrity, labor practices, associate health and safety, and environmental management. PepsiCo's Supplier Code is intended to complement PepsiCo's Global Code of Conduct and the company's other policies and standards referenced therein.

Suppliers, vendors, contractors, consultants, agents and other providers of goods and services who do business with

PepsiCo entities worldwide are expected to follow this Code.

Pepsi-Cola International (Pvt.) Ltd. LAHORE

Business Conduct Principles

PepsiCo expects its suppliers to conduct business responsibly, with integrity, honesty, and transparency, and to adhere to the following principles:

1. **Maintain awareness and comply with all applicable laws and regulations of the countries of their operation.**

2. **Compete fairly for PepsiCo's business, without paying bribes, kickbacks or giving anything of value to secure an improper advantage.**

   PepsiCo is committed to conducting business legally and ethically within the framework of a free enterprise system. Corrupt arrangements with customers, suppliers, government officials, or other third parties are strictly prohibited. "Corruption" generally refers to obtaining, or attempting to obtain, a personal benefit or business advantage through improper or illegal means.

3. **Encourage a diverse workforce and provide a workplace free from discrimination, harassment or any other form of abuse.**

   PepsiCo suppliers shall create a work environment in which employees and business partners feel valued and respected for their contributions. Harassment, including unwelcome verbal, visual, physical, or other conduct of any kind that creates an intimidating, offensive or hostile work environment will not be tolerated. Employment decisions must be based on qualifications, skills, performance, and experience.

4. **Treat employees fairly, including with respect to wages, working hours and benefits.**

   PepsiCo suppliers shall comply with all applicable legal and regulatory requirements and will generally apply sound employee relations practices. Working hours, wages, benefits

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will be consistent with laws and industry standards, including those pertaining to minimum wages, overtime, other elements of compensation, and legally mandated benefits.

5. **Prohibit all forms of forced or compulsory labor.**

   PepsiCo suppliers shall maintain and promote fundamental human rights. Employment decisions will be based on free choice and there may be no coerced or prison labor, and no use of physical punishment or threats of violence or other forms of physical, sexual, psychological or verbal abuse as a method of discipline or control.

6. **Prohibit use of child labor.**

   Suppliers shall adhere to the minimum employment age limit defined by national law or regulation, and comply with relevant International Labor Organization (ILO) standards. In no instance shall a supplier permit children to perform work that exposes them to undue physical risks that can harm physical, mental, or emotional development or improperly interfere with their schooling needs.

7. **Respect employees' right to freedom of association and collective bargaining, consistent with local laws.**

   Consistent with applicable law, PepsiCo suppliers shall respect employees' rights to join or refrain from joining associations and worker organizations.

8. **Provide safe and healthy working conditions.**

   PepsiCo suppliers shall proactively manage health and safety risks to provide an incident-free environment where occupational injuries and illnesses are prevented. Suppliers must implement management systems and controls that identify hazards and assess and control risk related to their specific industry. Also, suppliers shall provide potable drinking water and adequate restrooms; fire exits and essential fire safety equipment; emergency aid kits and access to emergency response including environmental, fire and medical.

9. **Carry out operations with care for the environment and comply with all applicable environmental laws and regulations.**

   The potential environmental impacts of daily business decision-making processes should be considered along with opportunities for conservation of natural resources, recycling, source reduction and pollution control to ensure cleaner air and water and to reduce landfill wastes.

10. **Maintain accurate financial books and business records in accordance with all applicable legal and regulatory requirements and accepted accounting practices.**

11. **Deliver products and services meeting applicable quality and food safety standards.**

    PepsiCo is committed to producing high quality and safe products across all of our brands. Suppliers involved in any aspect of developing, handling, packaging or storing our products are expected to:

    - Know and comply with the product quality standards, policies, specifications, and procedures that apply to the products produced at your location
    - Follow and adhere to good manufacturing practices and testing protocols
    - Comply with all applicable federal, state, and local food safety laws and regulations

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o Report issues immediately to PepsiCo that could negatively affect the quality or public perception of a

PepsiCo product

12. Support compliance with the Supplier Code by establishing appropriate management processes and cooperating with reasonable assessment processes requested by PepsiCo.

To conduct business with PepsiCo, suppliers must enter into contracts and execute purchase orders that mandate compliance with the Supplier Code. With prior notice, PepsiCo may conduct reasonable audits to verify Supplier's compliance with the Supplier Code.

13. Observe PepsiCo's policies regarding gifts and entertainment and conflicts of interest when dealing with

PepsiCo employees.

PepsiCo suppliers are prohibited from providing or offering gifts to PepsiCo employees that could inappropriately influence PepsiCo's business decisions or gain an unfair advantage.

14. Report suspected violations of the Code.

Supplier's employees or contractors may report suspected violations of this Code to the PepsiCo "Speak Up" hotline at 1-866-729-4888 in the United States or to dedicated phone lines in other countries throughout the world. A list of international hotline telephone numbers is attached to this Supplier Code and may be updated from time

to time as reflected at http://www.pepsico.com/Company/Speak-Up.html.

The "Speak Up" hotline is available worldwide on a 24/7 basis. Communications may also be made electronically at "Speak Up" web-line address http://www.pepsico.com/Company/Speak-Up.html . All such reports are treated as confidential, whether provided through our Speak Up telephone or web-line, and you may remain anonymous where permitted by law.

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ANNEXURE – 7: BASE LINE ENVIRONMENTAL MONITORING

ENVIRONMENTAL MONITORING REPORT

PEPSICO MULTAN SNACKS PLANT INDUSTRIAL ESTATE

- Ambient Air monitoring
- Noise Level Monitoring
- Stack Emissions Monitoring

Reference No.: AES-308-PC/2021 | Dated: 20 December, 2021

Asian Environmental Services Pvt. Ltd.
has prepared this report as per prerequisites of client.
Any other individual using the content of this document shall do so at their own liability.
The client is responsible for lawful usage of this reported data.

Document No. AES/LMS/FRM-110, Date of Issue 22 June, 2020, Revision No. 00

Head Office:
Basement, C-3, Jhelum Block,
Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa
Heights, Sector F11/1 Markaz
Islamabad - Pakistan
Phone: +92 321 4260133

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower,
Opposite Custom House,
University Road, Peshawar - Pakistan
Phone: +92 300 0303616

Client Details	
Name of Contact Person	Muhammad Ishfaq
Designation	-
Contact No.	0305-9676787
Email	Muhammad.ishfaq@pepsico.com
Address	PepsiCo Snacks Plant Industrial Estate, Multan.

AES Details	
AES Director	Mr. Aleem Butt
Contact No.	0321-4260133
Email	Aleem.butt@asiancon.com
Address	C-3, Jhelum Block, Green Forts-II, Lahore

Aleem Butt
Head Asian Environmental Services

Head Office:
Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916,

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz Islamabad - Pakistan
Phone: +92 321 4260133

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House, University Road, Peshawar - Pakistan
Phone: +92 300 0303616

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Ambient Air Monitoring Location

NEAR WASTEWATER TREATMENT PLANT

Multan



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Head Office:
Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916.

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz
Islamabad - Pakistan
Phone: +92 321 4260133

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House,
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Phone: +92 300 0303616

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Ambient Air Monitoring Report

Monitoring Details			
Reference Number	AES-308-PC/2021	**Sampling Point**	Near Waste Water Treatment Plant
Date of Monitoring	14-Dec-2021 to 15-Dec-2021	**Sampling Coordinates**	30°07'32.5" **N** 71°22'19.2" **E**

Sr. No.	Time	CO (mg/m³)	NO (µg/m³)	NO_2 (µg/m³)	NO_x (µg/m³)	SO_2 (µg/m³)
1	15:00	0.97	9.99	19.60	29.55	21.85
2	16:00	0.98	9.96	19.58	29.51	21.90
3	17:00	0.93	10.75	19.78	30.48	22.48
4	18:00	0.87	10.40	20.33	30.69	22.22
5	19:00	0.92	10.04	19.60	29.61	22.96
6	20:00	0.99	10.44	19.78	30.18	22.43
7	21:00	0.94	10.02	20.31	30.29	21.93
8	22:00	1.02	10.77	20.00	30.73	22.72
9	23:00	0.97	10.06	20.00	30.03	23.28
10	00:00	0.90	10.61	20.12	30.69	22.96
11	01:00	0.92	10.69	19.79	30.45	21.31
12	02:00	0.99	10.65	19.95	30.56	20.99
13	03:00	0.93	10.63	20.33	30.92	20.94
14	04:00	0.90	10.61	20.20	30.77	20.68
15	05:00	0.87	10.67	20.12	30.75	20.41
16	06:00	0.92	10.52	20.16	30.64	20.28
17	07:00	0.87	10.63	19.79	30.39	20.20
18	08:00	0.85	10.38	19.62	29.97	20.30
19	09:00	0.90	10.33	20.20	30.48	20.09
20	10:00	0.92	10.52	19.78	30.25	19.85
21	11:00	0.94	10.16	19.97	30.08	20.97
22	12:00	0.97	10.21	20.56	30.73	21.31
23	13:00	0.99	10.21	20.23	30.41	21.90
24	14:00	1.01	10.35	20.33	30.64	22.48
Average Concentration		**0.94**	**10.40**	**20.01**	**30.37**	**21.52**

Monitored By | **Reviewed By (TM)** | **Approved By (QM)**

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Head Office:
Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916,

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz
Islamabad - Pakistan
Phone: +92 321 4260133

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House,
University Road, Peshawar - Pakistan
Phone: +92 300 0303616

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Ambient Air Monitoring Report

Monitoring Details			
Reference Number	AES-308-PC/2021	**Sampling Point**	Near Waste Water Treatment Plant
Date of Monitoring	14-Dec-2021 to 15-Dec-2021	**Sampling Coordinates**	30°07'32.5" N 71°22'19.2" E

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS	Remarks
Nitrogen Dioxide (NO_2) *	µg/m³	24Hours	1.00	20.01	80.0	Optimal
Nitrogen Oxide (NO)*	µg/m³	24Hours	1.00	10.40	40.0	Optimal
NO_x*	µg/m³	24Hours	1.00	30.37	120.0	Optimal
Sulphur Dioxide (SO_2) *	µg/m³	24Hours	1.00	21.52	120.0	Optimal
Carbon Monoxide (CO)*	mg/m³	24Hours	0.01	0.94	05.0	Optimal
Particulate Matter (PM_{10}) *	µg/m³	24Hours	1.00	143.2	150	Optimal
Particulate Matter ($PM_{2.5}$) *	µg/m³	24Hours	1.00	**68.6**	35	High
Total Particulate Matter (TSP)	µg/m³	24Hours	1.00	249.6	500	Optimal

*Parameters are approved from Punjab Environment Protection Agency.

Abbreviations:
LDL= Lower Detection Limit **PEQS**= Punjab Environmental Quality Standards **µg/m³** = Micro 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

Monitored By **Reviewed By (TM)** **Approved By (QM)**

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Head Office:
Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916,

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz
Islamabad - Pakistan
Phone: +92 321 4260133

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House,
University Road, Peshawar - Pakistan
Phone: +92 300 0303616

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Ambient Air Monitoring Report

Monitoring Details			
Reference Number	AES-308-PC/2021	**Sampling Point**	Near Waste Water Treatment Plant
Date of Monitoring	14-Dec-2021 to 15-Dec-2021	**Sampling Coordinates**	30°07'32.5" **N** 71°22'19.2" **E**

Sr. No.	Time	Ambient Temperature °C	Wind Direction	Wind Velocity m/s	Humidity %	Pressure (mm of Hg)
1	15:00	22	S	2.2	31	761.0
2	16:00	21	S	2.4	31	760.9
3	17:00	19	S	2.6	34	760.8
4	18:00	18	S	2.8	39	760.8
5	19:00	16	S	2.9	44	760.9
6	20:00	15	SW	2.8	47	760.9
7	21:00	14	SW	2.7	52	761.2
8	22:00	13	SW	2.9	56	761.4
9	23:00	12	SW	3.1	60	761.7
10	00:00	11	W	3.2	62	761.8
11	01:00	11	W	3.3	63	762.0
12	02:00	10	NE	3.2	64	762.1
13	03:00	10	NE	3.1	65	762.6
14	04:00	10	NE	2.9	65	762.9
15	05:00	10	NE	2.5	67	763.0
16	06:00	10	NE	2.3	69	763.0
17	07:00	10	NE	2.0	65	762.9
18	08:00	11	E	1.6	58	762.5
19	09:00	12	E	1.4	50	762.2
20	10:00	14	NE	1.6	45	761.8
21	11:00	15	NE	1.8	39	761.4
22	12:00	17	N	2.0	36	760.7
23	13:00	20	N	2.2	34	760.5
24	14:00	21	N	2.3	32	760.2

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Noise Monitoring Report

Monitoring Details			
Reference Number	AES-308-PC/2021	**Sampling Point**	Near Waste Water Treatment Plant
Date of Monitoring	14-Dec-2021 to 15-Dec-2021	**Sampling Coordinates**	30°07'32.5" **N** 71°22'19.2" **E**

Sr. No.	Time	Noise dB(A)*		PEQS
1	15:00	62		
2	16:00	64		
3	17:00	61		
4	18:00	60	Day Time	75
5	19:00	61		
6	20:00	57		
7	21:00	56		
8	22:00	59		
9	23:00	55		
10	00:00	52		
11	01:00	54		
12	02:00	50	Night Time	65
13	03:00	54		
14	04:00	56		
15	05:00	59		
16	06:00	60		
17	07:00	62		
18	08:00	60		
19	09:00	62		
20	10:00	63	Day Time	75
21	11:00	60		
22	12:00	64		
23	13:00	67		
24	14:00	65		

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Head Office: Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan Phones: +92 42 35450914-15, Fax: +92 42 35450916,
Islamabad Office: Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz Islamabad - Pakistan Phone: +92 321 4260133
Peshawar Office: Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House, University Road, Peshawar - Pakistan Phone: +92 300 0303616

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Ambient Air Monitoring Location

NEAR FIRE FIGHTING SHED

Multan



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Head Office:
Basement, C-3, Jhelum Block,
Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916,

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa
Heights, Sector F11/1 Markaz
Islamabad - Pakistan
Phone: +92 321 4260133

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower,
Opposite Custom House,
University Road, Peshawar - Pakistan
Phone: +92 300 0303616

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Ambient Air Monitoring Report

Monitoring Details			
Reference Number	AES-308-PC/2021	**Sampling Point**	Near Fire Fighting Shed
Date of Monitoring	15-Dec-2021 to 16-Dec-2021	**Sampling Coordinates**	30°07'21.8" **N** 71°22'25.7" **E**

Sr. No.	Time	CO (mg/m³)	NO (µg/m³)	NO_2 (µg/m³)	NO_x (µg/m³)	SO_2 (µg/m³)
1	16:00	0.94	11.40	20.20	31.55	22.91
2	17:00	0.92	10.44	20.33	30.73	22.51
3	18:00	0.97	11.25	19.93	31.13	22.67
4	19:00	0.95	11.02	19.60	30.58	23.31
5	20:00	0.99	10.50	20.22	30.67	23.20
6	21:00	0.91	10.56	20.20	30.71	22.19
7	22:00	0.92	10.77	20.33	31.06	23.07
8	23:00	0.93	10.44	20.43	30.83	23.39
9	00:00	0.90	10.67	20.25	30.88	22.03
10	01:00	0.87	10.84	19.60	30.41	22.91
11	02:00	0.84	10.50	20.00	30.46	22.51
12	03:00	0.94	9.98	19.83	29.78	23.50
13	04:00	0.88	10.17	20.23	30.37	22.91
14	05:00	0.87	9.96	20.67	30.60	23.31
15	06:00	0.86	9.95	20.71	30.62	22.67
16	07:00	0.95	9.79	20.35	30.10	21.85
17	08:00	1.00	9.93	20.25	30.14	22.19
18	09:00	0.97	10.21	19.55	29.72	22.43
19	10:00	0.94	9.87	19.53	29.36	21.69
20	11:00	0.93	10.82	19.72	30.50	22.99
21	12:00	0.99	10.69	19.41	30.06	22.22
22	13:00	1.00	11.26	20.39	31.61	22.51
23	14:00	0.94	10.84	20.00	30.81	22.64
24	15:00	0.98	10.92	20.37	31.25	22.51
	Average Concentration	**0.93**	**10.53**	**20.09**	**30.58**	**22.67**

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Head Office:
Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916,

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz Islamabad - Pakistan
Phone: +92 321 4260133

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House, University Road, Peshawar - Pakistan
Phone: +92 300 0303616

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Ambient Air Monitoring Report

Monitoring Details			
Reference Number	AES-308-PC/2021	**Sampling Point**	Near Fire Fighting Shed
Date of Monitoring	15-Dec-2021 to 16-Dec-2021	**Sampling Coordinates**	30°07'21.8" **N** 71°22'25.7" **E**

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS	Remarks
Nitrogen Dioxide (NO_2) *	µg/m³	24Hours	1.00	20.09	80.0	Optimal
Nitrogen Oxide (NO)*	µg/m³	24Hours	1.00	10.53	40.0	Optimal
NO_x*	µg/m³	24Hours	1.00	30.58	120.0	Optimal
Sulphur Dioxide (SO_2) *	µg/m³	24Hours	1.00	22.67	120.0	Optimal
Carbon Monoxide (CO)*	mg/m³	24Hours	0.01	0.93	05.0	Optimal
Particulate Matter (PM_{10}) *	µg/m³	24Hours	1.00	141.7	150	Optimal
Particulate Matter ($PM_{2.5}$) *	µg/m³	24Hours	1.00	**70.5**	35	High
Total Particulate Matter (TSP)	µg/m³	24Hours	1.00	247.3	500	Optimal

*Parameters are approved from Punjab Environment Protection Agency.

Abbreviations:
LDL= Lower Detection Limit **PEQS=** Punjab Environmental Quality Standards **µg/m³=** Micro 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

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Head Office:
Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916,

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz Islamabad - Pakistan
Phone: +92 321 4260133

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House, University Road, Peshawar - Pakistan
Phone: +92 300 0303616

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Monitoring Details			
Reference Number	AES-308-PC/2021	**Sampling Point**	Near Fire Fighting Shed
Date of Monitoring	15-Dec-2021 to 16-Dec-2021	**Sampling Coordinates**	30°07'21.8" **N** 71°22'25.7" **E**

Sr. No.	Time	Ambient Temperature °C	Wind Direction	Wind Velocity m/s	Humidity %	Pressure (mm of Hg)
1	16:00	18	E	2.6	37	758.7
2	17:00	17	E	2.7	39	758.8
3	18:00	16	E	2.8	42	758.8
4	19:00	14	E	3.0	45	758.7
5	20:00	12	SE	3.0	48	758.6
6	21:00	11	SE	3.1	50	758.8
7	22:00	10	SE	3.2	50	759.2
8	23:00	10	SE	3.0	51	759.4
9	00:00	09	SE	2.7	52	759.9
10	01:00	08	SE	2.5	53	760.3
11	02:00	07	SE	2.2	54	760.5
12	03:00	07	SE	1.9	55	760.8
13	04:00	07	SE	1.4	55	760.9
14	05:00	06	SE	1.2	56	760.9
15	06:00	06	E	1.1	57	761.0
16	07:00	05	E	0.9	60	761.1
17	08:00	06	NE	1.2	56	761.2
18	09:00	09	NE	1.4	43	760.8
19	10:00	12	NE	1.6	34	760.6
20	11:00	15	NE	2.2	27	760.3
21	12:00	17	NE	2.4	23	760.2
22	13:00	19	NE	2.5	20	760.0
23	14:00	20	NE	2.9	18	759.9
24	15:00	20	NE	2.6	18	759.6

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Islamabad Office:
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Phone: +92 321 4260133

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House, University Road, Peshawar - Pakistan
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Noise Monitoring Report

Monitoring Details			
Reference Number	AES-308-PC/2021	**Sampling Point**	Near Fire Fighting Shed
Date of Monitoring	15-Dec-2021 to 16-Dec-2021	**Sampling Coordinates**	30°07'21.8" **N** 71°22'25.7" **E**

Sr. No.	Time	Noise dB(A)*		PEQS
1	16:00	59		
2	17:00	58		
3	18:00	60		
4	19:00	58	Day Time	75
5	20:00	56		
6	21:00	57		
7	22:00	54		
8	23:00	52		
9	00:00	50		
10	01:00	49		
11	02:00	46	Night Time	65
12	03:00	48		
13	04:00	42		
14	05:00	49		
15	06:00	52		
16	07:00	56		
17	08:00	61		
18	09:00	59		
19	10:00	58		
20	11:00	62	Day Time	75
21	12:00	64		
22	13:00	67		
23	14:00	64		
24	15:00	65		

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Islamabad Office: Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz Islamabad - Pakistan Phone: +92 321 4260133
Peshawar Office: Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House, University Road, Peshawar - Pakistan Phone: +92 300 0303616

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ANALYSIS REPORT

PEPSICO MULTAN SNACKS PLANT INDUSTRIAL ESTATE

- Wastewater Analysis

Reference No.: AES-232A-PC/2021 | Dated: 29 December, 2021

Asian Environmental Services Pvt. Ltd.
has prepared this report as per prerequisites of client.
Any other individual using the content of this document shall do so at their own liability.
The client is responsible for lawful usage of this reported data.

Head Office:
Basement, C-3, Jhelum Block,
Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916,
Email: info@asianenvirolab.com

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa
Heights, Sector F11/1 Markaz
Islamabad - Pakistan
Phone: +92 321 4260133
Email: info@asianenvirolab.com

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower,
Opposite Custom House,
University Road, Peshawar - Pakistan
Phone: +92 300 0303616
Email: info@asianenvirolab.com

ISO 9001:2015 ISO 14001:2015 ISO 45001:2018

Client Details	
Name of Contact Person	Muhammad Ishfaq
Designation	-
Contact No.	0305-9676787
Email	Muhammad.ishfaq@pepsico.com
Address	PepsiCo Snacks Plant Industrial Estate, Multan.

AES Details	
AES Director	Mr. Aleem Butt
Contact No.	0321-4260133
Email	Aleem.butt@asiancon.com
Address	C-3, Jhelum Block, Green Forts-II, Lahore

Aleem Butt
Head Asian Environmental Services

Head Office:
Basement, C-3, Jhelum Block,
Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
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Islamabad Office:
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Heights, Sector F11/1 Markaz
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Peshawar Office:
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Opposite Custom House,
University Road, Peshawar - Pakistan
Phone: +92 300 0303616
Email: info@asianenvirolab.com

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-232A-PC/2021	**Reporting Date**	28-12-2021
Nature of Sample	Wastewater	**Sampling Method Reference**	-
Grab/Composite	Composite	**Sample Collected by/Sent By**	Client
Sampling Date	14-12-2021	**Sample Receiving Date**	17-12-2021
Analysis Completion Date	28-12-2021	**Lab Temp & Humidity**	25.2°C & 53%
Ambient Temperature & Humidity at the Time of Sampling			22°C & 42%
Sample ID	AES-WW-360A/2021	**Sampling Location**	Pumping Pit
Client Detail	PepsiCo Snacks Plant Industrial Estate, Multan, Punjab.		

Wastewater Analysis Results

Parameter	Analysis Method	Unit	Result
Field Analysis			
Temperature or Temperature Increase	SMWW 2550 B	°C	27
pH**	SMWW 4500 H^+ B	-	6.0
Lab Analysis			
pH**	SMWW 4500 H^+ B	-	5.8
Biochemical Oxygen Demand (BOD_5) *	SMWW 5210-B	mg/L	6653
Chemical Oxygen Demand (COD)*	SMWW 5220 D	mg/L	12550
Total Suspended Solids (TSS)*	SMWW 2540 D	mg/L	2634
Total Phosphorus	SMWW 4500-P C	mg/L	1884
Total Nitrogen (TKN)	SMWW 4500-N C	mg/L	7.3

*Parameters are approved from Punjab Environment Protection Agency.
**Parameters are accredited from Pakistan National Accreditation Council.

Abbreviations:

USEPA = United States Environment Protection Agency **SMWW** = Standard Methods for the examination of Water and Wastewater

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Analyzed By 28-12-2021 **Reviewed By (TM)** 28/12/2021 **Approved By (QM)**

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Head Office:
Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916,
Email: info@asianenvirolab.com

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz
Islamabad - Pakistan
Phone: +92 321 4260133
Email: info@asianenvirolab.com

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House,
University Road, Peshawar - Pakistan
Phone: +92 300 0303616
Email: info@asianenvirolab.com

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-232A-PC/2021	**Reporting Date**	28-12-2021
Nature of Sample	Wastewater	**Sampling Method Reference**	-
Grab/Composite	Grab	**Sample Collected by/Sent By**	Client
Sampling Date	14-12-2021	**Sample Receiving Date**	17-12-2021
Analysis Completion Date	28-12-2021	**Lab Temp & Humidity**	25.2°C & 53%
Ambient Temperature & Humidity at the Time of Sampling			22°C & 42%
Sample ID	AES-WW-360/2021	**Sampling Location**	Pumping Pit
Client Detail	PepsiCo Snacks Plant Industrial Estate, Multan, Punjab.		

Wastewater Analysis Results

Parameter	Analysis Method	Unit	Result
Field Analysis			
Temperature or Temperature Increase*	SMWW 2550 B	°C	27
pH**	SMWW 4500 H+ B	-	6.0
Lab Analysis			
pH**	SMWW 4500 H+ B	-	5.5
Grease and Oil*	USEPA 1664 B	mg/L	121
Microbiological Analysis			
Total Coliforms	SMWW 9221 C	CFU	1120

*Parameters are approved from Punjab Environment Protection Agency.
**Parameters are accredited from Pakistan National Accreditation Council.

Abbreviations:

SMWW = Standard Methods for the examination of Water and Wastewater **USEPA** = United States Environment Protection Agency

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Head Office:
Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916,
Email: info@asianenvirolab.com

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz Islamabad - Pakistan
Phone: +92 321 4260133
Email: info@asianenvirolab.com

Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House, University Road, Peshawar - Pakistan
Phone: +92 300 0303616
Email: info@asianenvirolab.com

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-232A-PC/2021	**Reporting Date**	28-12-2021
Nature of Sample	Wastewater	**Sampling Method Reference**	-
Grab/Composite	Composite	**Sample Collected by/Sent By**	Client
Sampling Date	14-12-2021	**Sample Receiving Date**	17-12-2021
Analysis Completion Date	28-12-2021	**Lab Temp & Humidity**	25.2°C & 53%
Ambient Temperature & Humidity at the Time of Sampling			22°C & 42%
Sample ID	AES-WW-361A/2021	**Sampling Location**	Outlet Mixing Tank
Client Detail	PepsiCo Snacks Plant Industrial Estate, Multan, Punjab.		

Wastewater Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Field Analysis					
Temperature or Temperature Increase	SMWW 2550 B	30°C	27	N.A.	Optimal
pH**	SMWW 4500 H^+ B	6 - 9	7.0	± 0.70	Optimal
Lab Analysis					
pH**	SMWW 4500 H^+ B	6 - 9	7.89	± 0.70	Optimal
Biochemical Oxygen Demand (BOD_5) *	SMWW 5210-B	80 mg/L	54	N.A.	Optimal
Chemical Oxygen Demand (COD)*	SMWW 5220 D	150 mg/L	111	± 3.06	Optimal
Total Suspended Solids (TSS)*	SMWW 2540 D	200 mg/L	88	± 0.72	Optimal
Total Phosphorus	SMWW 4500-P C	NGVS mg/L	1.43	N.A.	Optimal
Total Nitrogen (TKN)	SMWW 4500-N C	NGVS mg/L	1.91	N.A.	Optimal

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**Parameters are accredited from Pakistan National Accreditation Council.

Abbreviations:

PEQS = Punjab Environment Quality Standards
USEPA = United States Environment Protection Agency
SMWW = Standard Methods for the examination of Water and Wastewater
N.A. = Not Available
MU = Measurement Uncertainty

Remarks:

Optimal = Compliance with Permissible Range
Marginal = Close to Extreme Edge
High = Exceeds from Permissible Range
Low = Less Than Permissible Range

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Head Office:
Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
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Islamabad Office:
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Phone: +92 321 4260133
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Peshawar Office:
Office No. 1, Forth Floor, Syeds Tower, Opposite Custom House, University Road, Peshawar - Pakistan
Phone: +92 300 0303616
Email: info@asianenvirolab.com

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-232A-PC/2021	**Reporting Date**	28-12-2021
Nature of Sample	Wastewater	**Sampling Method Reference**	-
Grab/Composite	Composite	**Sample Collected by/Sent By**	Client
Sampling Date	14-12-2021	**Sample Receiving Date**	17-12-2021
Analysis Completion Date	28-12-2021	**Lab Temp & Humidity**	25.2°C & 53%
Ambient Temperature & Humidity at the Time of Sampling			22°C & 42%
Sample ID	AES-WW-361A/2021	**Sampling Location**	Outlet Mixing Tank
Client Detail	PepsiCo Snacks Plant Industrial Estate, Multan, Punjab.		

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Analyzed By	Reviewed By (TM)	Approved By (QM)
mashir 28-12-2021	28/12/2021	

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Head Office:
Basement, C-3, Jhelum Block, Green Forts-II, Lahore - Pakistan
Phones: +92 42 35450914-15,
Fax: +92 42 35450916,
Email: info@asianenvirolab.com

Islamabad Office:
Office No. 204, 2nd Floor, Al-Safa Heights, Sector F11/1 Markaz Islamabad - Pakistan
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Sample Detail

Reference No.	AES-232A-PC/2021	**Reporting Date**	28-12-2021
Nature of Sample	Wastewater	**Sampling Method Reference**	-
Grab/Composite	Grab	**Sample Collected by/Sent By**	Client
Sampling Date	14-12-2021	**Sample Receiving Date**	17-12-2021
Analysis Completion Date	28-12-2021	**Lab Temp & Humidity**	25.2°C & 53%
Ambient Temperature & Humidity at the Time of Sampling			22°C & 42%
Sample ID	AES-WW-361/2021	**Sampling Location**	Outlet Mixing Tank
Client Detail	PepsiCo Snacks Plant Industrial Estate, Multan, Punjab.		

Wastewater Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Field Analysis					
Temperature or Temperature Increase	SMWW 2550 B	30°C	27	N.A.	Optimal
pH**	SMWW 4500 H^+ B	6 - 9	7.0	± 0.70	Optimal
Lab Analysis					
pH**	SMWW 4500 H^+ B	6 - 9	7.56	± 0.70	Optimal
Grease and Oil*	USEPA 1664 B	10 mg/L	1.5	N.A.	Optimal
Microbiological Analysis					
Total Coliforms	SMWW 9221 C	NGVS CFU	1221	N.A.	Optimal

*Parameters are approved from Punjab Environment Protection Agency.
**Parameters are accredited from Pakistan National Accreditation Council.

Abbreviations:

PEQS = Punjab Environment Quality Standards
USEPA = United States Environment Protection Agency
SMWW = Standard Methods for the examination of Water and Wastewater
N.A. = Not Available
MU = Measurement Uncertainty

Remarks:

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High = Exceeds from Permissible Range
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Phones: +92 42 35450914-15,
Fax: +92 42 35450916,
Email: info@asianenvirolab.com

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Phone: +92 300 0303616
Email: info@asianenvirolab.com

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Bureau Veritas Pakistan
Somia Ehsan Plaza,
Plot No. 37, 2-C1 First Floor,
College Road, Township,
Lahore,
Punjab,
Pakistan
T: +92 42 35122101 - 6

TEST REPORT

PepsiCo International
Plot # 149, Multan Industrial Estate Phase II,
Multan, Pakistan

Report No.: 847457

Job/Sample No :	PK-LHR-22-0045-001	**Sub Con ID :**	03258-22
Description :	Raw Water	**Sampling Method :**	APHA
Sample Temperature :	20 °C	**Location :**	PepsiCo International-Multan
Production Date :	NA	**Sampled By :**	Bureau Veritas
Expiry Date :	NA	**Sample Preservation :**	Keep at Room Temperature
Weight/Volume :	1L	**Sampling Date :**	10 Feb 2022
Container Type :	1L Sterilised Plastic Bottle		

Date Reported:24/02/2022

Test	Method	Units	Results	Guideline / Specification limit
				PEQS
Odor~ *	Sensory	-	Acceptable	Not Objectionable
Taste~ *	Sensory	-	Acceptable	Not Objectionable
Colour	APHA 23rd Ed. 2120 B	ASTA colour units	<5	<15
Turbidity ~	APHA 23rd Ed:2130 B	NTU	<5	<5
pH~	APHA 23rd Ed. 4500H+B		7.62	8.5
Total dissolved solids~	APHA 23rd Ed. 2540C	mg/L	394	<1000
Fluoride~	APHA 22nd 2012, 4500F-D	mg/L	0.14	<1.5
Nitrate~	APHA 22nd 2012, 4500-NO3-B	mg/L	0.5	<50
Nitrite~	APHA 23rd Ed 4500 NO2 B	mg/L	0.02	<3
Cyanide~	APHA 22nd 2012, 4500 CN-E	mg/L	0.031	<0.05
Total Hardness~	APHA 23rd Ed. 2340C	mg/L	123	<500
Chloride~	APHA 23rd Ed. 4500 Cl-B	mg/L	13	<250
Total Suspended Solids~	APHA 23rd Edition 2540D	mg/L	82	N.S
Aluminium~	APHA 23rd Ed. 3120 B	mg/L	0.064	<0.2
Arsenic~	APHA 23rd Ed. 3120 B	mg/L	0.038	<0.05
Barium~	APHA 23rd Ed. 3120 B	mg/L	0.32	<0.7
Boron~	APHA 23rd Ed.2017 3120 B	mg/L	0.052	<0.3
Cadmium~	APHA 23rd Ed. 3120 B	mg/L	0.0062	<0.01
Chromium~	APHA 23rd Ed. 3120 B	mg/L	0.027	<0.05
Copper~	APHA 23rd Ed.3120 B	mg/L	0.074	<2.0
Lead~	APHA 23rd Ed. 3120 B	mg/L	0.013	<0.05
Manganese~	APHA 23rd Ed. 3120 B	mg/L	0.24	<0.5
Mercury~	APHA 3111/3120 B	mg/L	0.00010	<0.001
Nickel~	APHA 23rd Ed. 3120 B	mg/L	0.0091	<0.02
Zinc~	APHA 23rd Ed. 3120 B	mg/L	3.14	<5.0
Selenium~	APHA 23rd Ed.2017 3120 B	mg/L	0.0064	<0.01
Antimony~	APHA 23rd Ed 3120 B	mg/L	0.00087	<0.005
Residual Chlorine~ *	APHA 4500-Cl G	mg/L	0.75	N.S
Phenolic Compounds~ *	APHA 5330 D	mg/L	0.0031	N.S

*'~' key denotes Test Subcontracted, * Indicates that this is not an accredited Test*

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Somia Ehsan Plaza,
Plot No. 37, 2-C1 First Floor,
College Road, Township,
Lahore,
Punjab,
Pakistan
T: +92 42 35122101 - 6

Analysis Conducted by: Emp. ID#: 66037

Reviewed & Approved By

Mehreen Pervaiz

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Plot No. 37, 2-C1 First Floor,
College Road, Township,
Lahore,
Punjab,
Pakistan
T: +92 42 35122101 - 6

TEST REPORT

PepsiCo International
Plot # 149, Multan Industrial Estate Phase II,
Multan, Pakistan

Report No.: 847458

Job/Sample No :	PK-LHR-22-0045-002	**Sub Con ID :**	03257-22
Description :	Filter Water	**Sampling Method :**	APHA
Sample Temperature :	20 °C	**Location :**	PepsiCo International-Multan
Production Date :	NA	**Sampled By :**	Bureau Veritas
Expiry Date :	NA	**Sample Preservation :**	Keep at Room Temperature
Weight/Volume :	1L	**Sampling Date :**	10 Feb 2022
Container Type :	1L Sterilised Plastic Bottle		

Date Reported:24/02/2022

Test	Method	Units	Results	Guideline / Specification limit
				PEQS
Odor~ *	Sensory	-	Acceptable	Not Objectionable
Taste~ *	Sensory	-	Acceptable	Not Objectionable
Colour~	APHA 23rd Ed. 2120 B	ASTA colour units	<5	<15
Turbidity~	APHA 23rd Ed:2130 B	NTU	<5	<5
pH~	APHA 23rd Ed. 4500H+B	mg/L	7.39	8.5
Total dissolved solids~	APHA 23rd Ed. 2540C	mg/L	396	<1000
Fluoride~	APHA 22nd 2012, 4500F-D	mg/L	0.15	<1.5
Nitrate~	APHA 22nd 2012, 4500-NO3-B	mg/L	0.6	<50
Nitrite~	APHA 23rd Ed 4500 NO2 B	mg/L	0.009	<3
Cyanide~	APHA 22nd 2012, 4500 CN-E	mg/L	0.034	<0.05
Total Hardness~	APHA 23rd Ed. 2340C	mg/L	105	<500
Chloride~	APHA 23rd Ed. 4500 Cl-B	mg/L	19	<250
Total Suspended Solids~	APHA 23rd Edition 2540D	mg/L	57	N.S
Aluminium~	APHA 23rd Ed. 3120 B	mg/L	0.0052	<0.2
Arsenic~	APHA 23rd Ed. 3120 B	mg/L	0.02	<0.05
Barium~	APHA 23rd Ed. 3120 B	mg/L	0.29	<0.7
Boron~	APHA 23rd Ed.2017 3120 B	mg/L	0.10	<0.3
Cadmium~	APHA 23rd Ed. 3120 B	mg/L	0.0057	<0.01
Chromium as Cr	APHA 23rd Ed. 3120 B	mg/L	0.003	<0.05
Copper~	APHA 23rd Ed.3120 B	mg/L	0.68	<2.0
Lead~	APHA 23rd Ed. 3120 B	mg/L	0.027	<0.05
Manganese~	APHA 23rd Ed. 3120 B	mg/L	0.23	<0.5
Mercury~	APHA 3111/3120 B	mg/L	0.00064	<0.001
Nickel~	APHA 23rd Ed. 3120 B	mg/L	0.0026	<0.02
Zinc~	APHA 23rd Ed. 3120 B	mg/L	1.89	<5.0
Selenium~	APHA 23rd.Ed.2017 3120 B	mg/L	0.0057	<0.01
Antimony~	APHA 23rd Ed 3120 B	mg/L	<0.01	<0.005
Residual Chlorine~ *	APHA 4500-Cl G	mg/L	0.17	N.S
Phenolic Compounds~ *	APHA 5330 D	mg/L	0.0021	N.S

*'~' key denotes Test Subcontracted, * Indicates that this is not an accredited Test*

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Bureau Veritas Pakistan
Somia Ehsan Plaza,
Plot No. 37, 2-C1 First Floor,
College Road, Township,
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Punjab,
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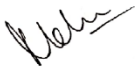
T: +92 42 35122101 - 6

Analysis Conducted by: Emp. ID#: 66037

Reviewed & Approved By



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ANNEXURE – 8: SCREENING CHECK LIST

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	0	0	0
	Rivers	0	0	0	0	0
	Streams	0	0	0	0	0
	Springs	0	0	0	0	0
	Wetland	0	0	0	0	0
	Flow	0	0	0	0	0
	Quality	0	0	0	0	0
	Usage	0	0	0	0	0
	Sediments	0	0	0	0	0
	Chemicals	0	0	0	0	0
	Pollution	0	0	0	0	0
	Erosion	0	0	0	0	0
b	Ground Water					
	Sources	0	-	-	0	0
	Depth	0	-	0	-	0
	Quantity	0	--	-	-	0
	Potential Extraction	0	-	-	-	-
	Usage	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
	Domestic Supply	0	0	0	0	0
	Industrial Water Supply	0	0	0	0	0
	Irrigation	0	0	0	0	0
	Hydropower Generation	0	0	0	0	0
	Quality	0	-	0	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	0	0
	Aquatic Fauna	0	0	0	0	0
	Fisheries	0	0	0	0	0
c	Wildlife	0	0	0	0	0
d	Forestry	0	0	0	0	0
e	Beneficial Plants and Animals	0	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	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

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
k	Fodder	0	0	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
o	Health	0	-	--	0	-
p	Waterborne Disease	0	0	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	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	0
g	Telecommunication	0	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

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
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
h	Pollution	0	--	--	-	-
i	Social Instability	0	0	0	0	+
j	Economic Instability	0	+	+	0	++
k	Political Instability	0	0	0	0	0

ANNEXURE – 9: EHS POLICY

PepsiCo Environmental, Health and Safety Policy

Environmental stewardship and health and safety protections for our people are guided by our core values and help us deliver Winning with Purpose, our guide for achieving accelerated, sustainable growth. The Health and Safety of our employees and protection of the environment are of the upmost concern to PepsiCo, and we aspire to an incident-free workplace. We implement this Environmental, Health & Safety (EHS) policy through the PepsiCo Global Environmental, Health and Safety Management System (GEHSMS).

Guided by our values and consistent with our Global Code of Conduct and our Human Rights Workplace Policy, PepsiCo has established and is committed to these Environmental, Health and Safety Principles:

1. Ownership Culture: We build a proactive culture by driving ownership of environment, health and safety at the individual, managerial and organizational levels. We engage, consult with, and train our people and actively encourage participation in building our proactive culture.

2. Business Integration: We include environmental, health and safety considerations in both our short and long-term business decisions.

3. Resource Allocation: We provide appropriate resources to implement our environmental, health and safety management system, which identifies, assesses and manages risks. We share environmental, health and safety best practices across the company.

4. Regulatory Compliance: We apply appropriate environmental, health and safety management practices in order to comply with company standards and applicable legal requirements. We conduct regular audits to assess conformance with our standard and compliance with our legal obligations.

5. Performance Measurement: We establish meaningful metrics and monitor our performance against our environmental, health and safety performance goals, using these metrics to guide our continual improvement.

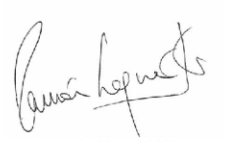
6. Continual Improvement: We monitor emerging issues and keep abreast of regulatory changes, technological innovations and stakeholder interests in order to implement effective and sustainable solutions to reduce waste and resource and energy consumption, protect natural resources, and create a healthy and safe work environment.

7. Stakeholder Engagement: We engage with contractors, licensed bottlers, suppliers, customers and local communities to reduce the environmental, health and safety impacts of our daily operations, technology and products. Working with governments, academia, nongovernmental organizations, business associations and other interested stakeholders, we strive to develop effective and sustainable solutions to environmental, health and safety challenges we face in our business activities.

8. Annual Review: We annually review and report on the progress of the company's performance in implementing this policy and update it as needed.

It is the responsibility of our senior leaders to ensure this policy is understood and effectively communicated and implemented throughout PepsiCo worldwide. All employees are responsible for understanding the impacts of this policy on their day-to-day work practices and are expected to practice and support the principles stated above.

Signed: Ramon Laguarta



Next review: 01 March 2023
Page 1 of 1

01 March 2021
Authorized by: C. GILLIGAN

Printed copies of this document are for informational purposes only; current, controlled copy is located on the PepsiCo, Inc Intranet site.

ANNEXURE – 10: SOCIO-ECONOMIC SURVEY PROFORMA

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

SOCIO-ECONOMIC BASE LINE SURVEY

1. Name of Interviewer: _____ 2. Date: _____

3. Village Name: _____

DEMOGRAPHIC PROFILE

4. Union Council/Tehsil: _____

5. Name of Respondent: _____

6. Respondent's Father Name: _____

7. Gender of Respondent: _____ a. Male _____b. Female 8. Age of Respondent: a. 15-25 b. 26-35 c. 36-45 d. 46 & Above

9. 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 _____

ECONOMIC PROFILE

b. Female _____

c. Total _____

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 _____

29. Total Living Rooms (No.): _____

b. Marla _____

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?

a. _____

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)

Activities	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 (council 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?

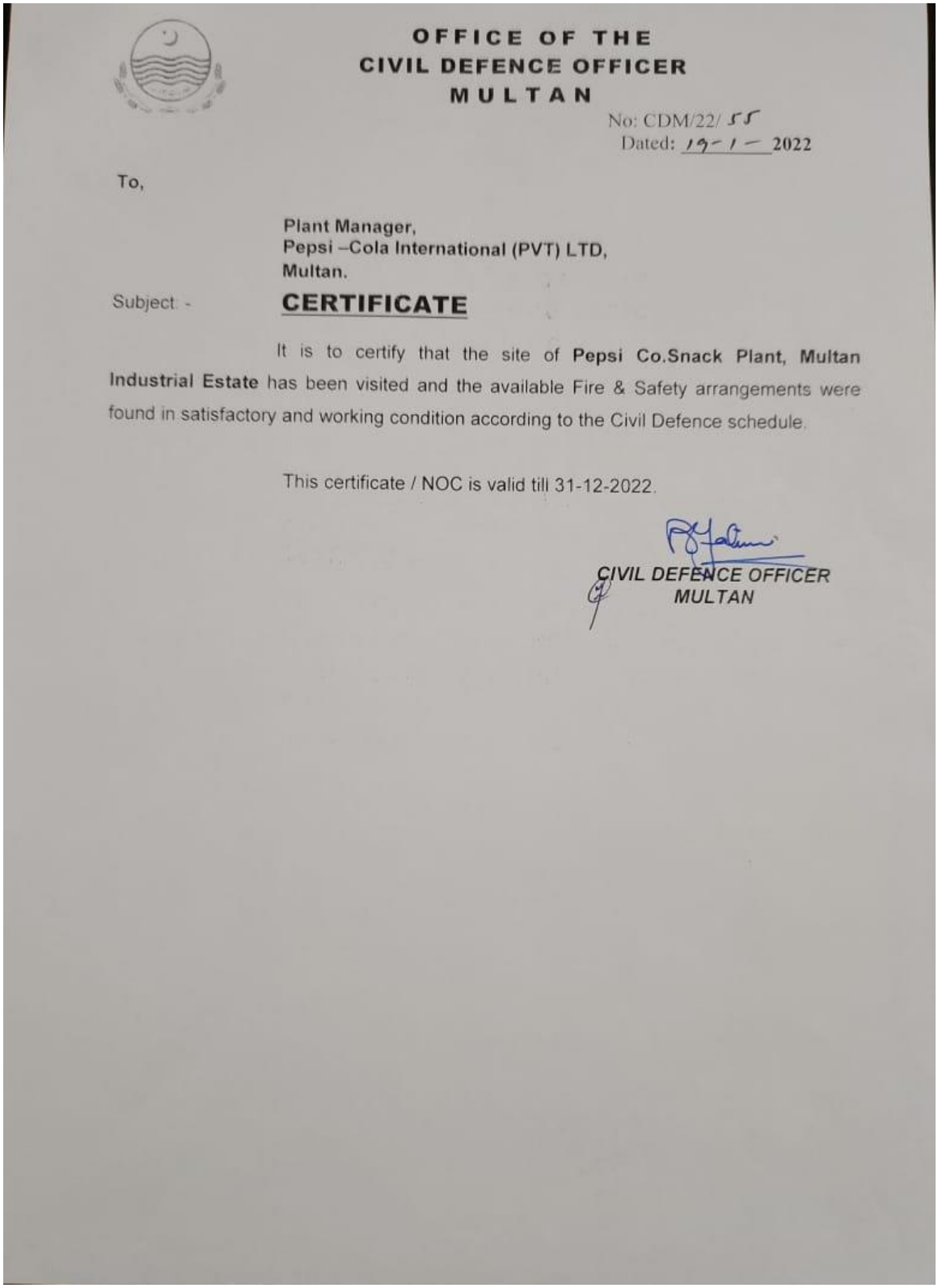
Protective Measures	Response
Project should complete well in time	
If any private land is acquired then proper compensation should bepaid	
Harmful effects on local residents during construction should be minimize	
Implementation of HSE plan for a safe working environment	
Local residents should be given 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 – 11: OTHER APPROVALS



OFFICE OF THE
CIVIL DEFENCE OFFICER
MULTAN

No: CDM/22/ 55
Dated: 19-1-2022

To,

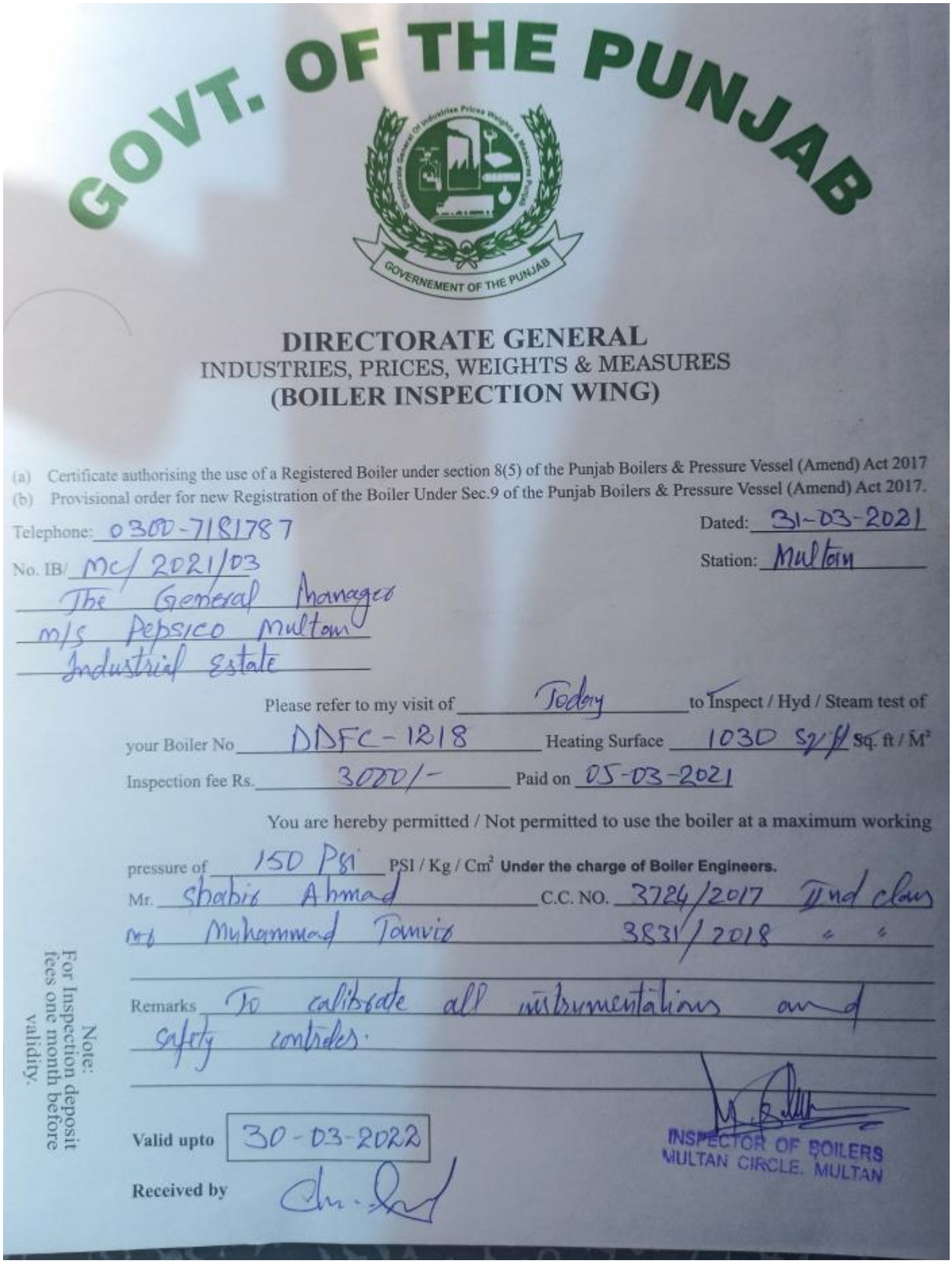
Plant Manager,
Pepsi –Cola International (PVT) LTD,
Multan.

Subject: - **CERTIFICATE**

It is to certify that the site of **Pepsi Co.Snack Plant, Multan Industrial Estate** has been visited and the available Fire & Safety arrangements were found in satisfactory and working condition according to the Civil Defence schedule.

This certificate / NOC is valid till 31-12-2022.

CIVIL DEFENCE OFFICER
MULTAN



GOVT. OF THE PUNJAB

GOVERNEMENT OF THE PUNJAB

DIRECTORATE GENERAL
INDUSTRIES, PRICES, WEIGHTS & MEASURES
(BOILER INSPECTION WING)

(a) Certificate authorising the use of a Registered Boiler under section 8(5) of the Punjab Boilers & Pressure Vessel (Amend) Act 2017
(b) Provisional order for new Registration of the Boiler Under Sec.9 of the Punjab Boilers & Pressure Vessel (Amend) Act 2017.

Telephone: 0300-7181787 Dated: 31-03-2021

No. IB/ MC/ 2021/03 Station: Multan

The General Manager
M/s Pepsico Multan
Industrial Estate

Please refer to my visit of Today to Inspect / Hyd / Steam test of your Boiler No DDFC-1218 Heating Surface 1030 Sq. ft / M²

Inspection fee Rs. 3000/- Paid on 05-03-2021

You are hereby permitted / Not permitted to use the boiler at a maximum working pressure of 150 Psi PSI / Kg / Cm² **Under the charge of Boiler Engineers.**

Mr. Shabir Ahmad C.C. NO. 3724/2017 IInd class
M/s Muhammad Tanvir 3831/2018 " "

Remarks To calibrate all instrumentations and safety controles.

Note: For Inspection deposit fees one month before validity.

Valid upto 30-03-2022

Received by

INSPECTOR OF BOILERS
MULTAN CIRCLE, MULTAN

GOVERNMENT OF PAKISTAN
MINISTRY OF ENERGY (PETROLEUM DIVISION)
DEPATMENT OF EXPLOSIVES
REGIONAL OFFICE MULTAN
****

No. MUD/5187/P-MC 1465

60-A, Zakria Town, St, # 5
Bosan Road, Multan
Dated. 12 .02.2021

To

M/S Pepsi Cola International (Pvt) Ltd,
37-C-1, Gulberg-III
LAHORE.

SUB: **ISSUANCE OF DUPLICATE COPY OF LICENS NO. MUD/5187/P IN FORM "L" OF PETROLEUM RULES 1937 SITUATED AT PLOT NO. 149-151, 156-A, 159-162, IN MULTAN INDUSTRIAL ESTATE PHASE-II, DISTRICT MULTAN.**

Dear Sir,

With reference to your letter No. Nil, dated 30.11.2020, enclosed please find herewith duplicate copy of above mentioned licens alongwith approved plan attached thereto.

Further the Licence No. MUD/5187/P in Form "L" of Petroleum Rules 1937, is returned herewith duly renewed up to 31.12.2021

Please acknowledge its receipt.

Encl: - License .....(01)
Plan ..... (01)

(MIRZA NAVEED AHMED)
DEPUTY DIRECTOR
FOR DIRECTOR GENERAL
REGIONAL OFFICE MULTAN.
PH # NO. 061-9330478

Copy to the Director General of Explosives for information.

(MIRZA NAVEED AHMED)
DEPUTY DIRECTOR
REGIONAL OFFICE MULTAN.

The Licence should be re-submitted for renewal together with approved plan attached thereto or duplicate in the prescribed form "D" on original challan for the requisite Fee deposited under the head of Account" C035-Miscellaneous Receipts C035-Economic Service Receipts Other C03506-10-Industrial & Mineral Resources. C03506 Industrial Safety Explosives Deptt So as to reach this department not later then on or before 2nd December of every year. Failing which, double fee will be charged for its renewal"

DUPLICATE

FORM 'L'

(Article 5 of Schedule I)

License to import dangerous petroleum and to store petroleum in installations.

No. MUD/5187/P. **Fee Rupees. 30,000/-**

License is hereby granted to **M/s Pepsi Cola International (Pvt) Ltd,** Valid only for the importation and storage of **57,000 Liters High Speed Diesel (HSD)** in the place described below and shown on the plan attached hereto subject to the provision of the Petroleum Act, 1934, and the rules made there under and to the further conditions prescribed on the back of this license.

This license shall remain in force till the 31st day of December 2021.

*Dangerous Petroleum	----------	---------
Dangerous Petroleum otherwise then in bulk.	----------	---------
Heavy Petroleum in bulk (HSD/HP)	**28,500**	Liters.
Heavy Petroleum in bulk (HSD/HP)	**28,500**	Liters.
Excluded Petroleum otherwise then in bulk	----------	---------
Total	**57,000**	**Liters.**

The 12 **.02.2021.**

For Director General
Department of Explosives In Pakistan
For Director General of Explosives, in Pakistan

Plan No. MUD/1005/P, dated. 08.03.2018.

Description of the place referred to above.

The installation is situated **at Plot No. 149-151, 156-A, 159-162, in Multan Industrial Estate Phase-II, District Multan**, and consist of Two underground storage tanks for the storage of 28,500 Liters High Speed Diesel (HSD) each and other civil structure as per description of the approved plan attached with the licence

Date of Renewal	Date of Expiry	Signature of licensing Authority

This license is liable to be cancelled if the licensed premises, when inspected are not found conforming to the description and condition attached hereto and contravention of any of the rules and conditions, under which this license is granted, is also punishable with fine which may extend to five hundred rupees for a first offence and which may extend to two thousand rupees for any subsequent offences.

Office of the
Electric Inspector
Multan Region, Multan.
ENERGY DEPTT: GOVT. OF PUNJAB
(23-F Shah Rukan-e-Alam Colony, Multan)
Phone # 061-9330379. Fax # 061-6771499.

To,

M/S pepsico Multan Green Field Project,
Phase-II, Plot No.149-159,
Industrial Estate, Multan.

No.EIM/INS/ 2766 / **Dated:** 06 / 08 /**2021.**

SUBJECT:- INSPECTION OF THE ELECTRICAL INSTALLATIONS-COMPLIANCE OF THE ELECTRICITY RULES, 1937.

In pursuance of Government of the Punjab Irrigation & Power Department Notification No.SO (P)(I&P)/4-2/2002 dated 17.09.2002.

It is hereby acknowledged that the Inspection report & Test Certificate of your premises was issued by M/S ISAAA TECHNICAL SERVICES (PVT) LTD. holding "A" Category Government Electrical Contractor License in your favour vide Endst. No.ITS/INS/623 dated 17.07.2021 & received in this office on 05.08.2021. The same is forwarded to you for your record.

(Engr. M. Khurram Zahoor)
ELECTRIC INSPECTOR
MULTAN REGION, MULTAN.

CC to:-

M/S ISAAA Technical Services (Pvt) Ltd. 506-Shadman-1, Opp. Fatima Memorial Hospital, Lahore for information.